

# Sacramento Municipal Utility District Country Acres Solar Project

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Draft Environmental Impact Report • September 2022

State Clearinghouse No. 2021110307

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# **Sacramento Municipal Utility District**

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**September 2022**

#### **Lead Agency:**

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## ACRONYMS AND OTHER ABBREVIATIONS

°C	Celsius
°F	Fahrenheit
2018 SIP Updates	2018 Updates to the California State Implementation Plan
AB	Assembly Bill
AB 32	California Global Warming Solutions Act of 2006
AC	alternative current
ADT	average daily traffic
AEP	annual exceedance probability
AFY	acre-feet per year
AG	Agriculture
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
ANSI	American National Standards Institute
APE	Area of Potential Effect
APNs	Assessor's Parcel Numbers
APP	Avian Protection Plan
AQAP	Air Quality Attainment Plan
AST	aboveground storage tank
ATVs	all-terrain vehicles
B.P.	Before Present
BACT	best available control technology for toxics
basin plans	water quality control plans
BESS	battery energy storage system
BGEPA	Bald and Golden Eagle Protection Act
bgs	below the ground surface
BIOS	Biogeographic Information and Observation System
BMP	Best Management Practices
Board	Sacramento Municipal Utility District Board of Directors
Btus	British thermal units
BUOW	burrowing owl
CA MUTCD	California Department of Transportation Manual on Uniform Traffic Control Devices
ca.	circa
CAA	federal Clean Air Act
CAAA	federal Clean Air Act Amendments
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Division of Occupational Safety and Health
CalEEMod	California Emissions Estimator Model
CalEnviroScreen	California Communities Environmental Health Screening Tool
CalEPA	California Environmental Protection Agency



CalGEM	California Department of Conservation, Geologic Energy Management Division
CALGreen	California Green Building Standards
CALGreen Code	2019 California Green Building Standards Code
CalRecycle	California Integrated Waste Management Board
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CARP	County Aquatic Resources Program
CASGEM	California Statewide Groundwater Elevation Monitoring
CASQA	California Stormwater Quality Association
CBC	California Building Standards
CBSC	California Building Standards Code
CCAA	California Clean Air Act
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CEQA Guidelines	California Environmental Quality Act Guidelines
CESA	California Endangered Species Act
CFCs	Chlorofluorocarbons
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH <sub>4</sub>	Methane
CHABA	Committee of Hearing, Bio Acoustics, and Bio Mechanics
CHRIS	California Historic Resources Information System
CHWMP	County's Hazardous Waste Management Plan
CIP	Capital Improvement Program
CIWMA	California Integrated Waste Management Act
CJUSD	Center Joint Unified School District
CLOMR	Conditional Letter of Map Revision
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	CO <sub>2</sub> equivalence

Construction General Permit	National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated With Construction and Land Disturbance Activities [Order 2009-009-DWQ as amended by Order 2012-0006-DWQ]
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRPRs	California Rare Plant Ranks
CSA	County Service Area
CUP	Conditional Use Permit
CWA	Clean Water Act
DACs	disadvantaged communities
dB	decibels
dBA/DD	per doubling of distance
dbh	diameter at breast height
DC	direct current
DMC	de minimis condition
DOD	Department of Defense Site
DPM	diesel particulate matter
DPR	Department of Pesticide Regulation
DTSC	Department of Toxic Substances Control
DWQ	Division of Water Quality
EIR	environmental impact report
EJ	environmental justice
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986
ESA	Endangered Species Act
ESA	Environmental Site Assessment
FAA	Federal Aviation Administration
Farmland	Prime Farmland, Unique Farmland, or Farmland of Statewide Importance
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHSZ	Fire Hazard Severity Zones
FHWA	Federal Highway Administration
FHWA RD 77-108	FHWA Highway Traffic Noise Prediction Model
FIRMs	Flood Insurance Rate Maps
five GSAs	West Placer, Sacramento, South Sutter, Sutter County, and Recreation District 1001
FMMP	Farmland Mapping and Monitoring Program
FR	Federal Register
FTA	Federal Transit Administration
GEI	GEI Consultants
GGRF	Greenhouse Gas Reduction Fund

GGS	giant garter snake
GHG	greenhouse gas
GIS	Geographic information systems
GLO	General Land Office
GSAs	groundwater sustainability agencies
GSP	groundwater sustainability plans
Guidelines	Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings
HAPs	hazardous air pollutants
HCFCs	Hydrochlorofluorocarbons
HCP	Habitat Conservation Plan
HFCs	hydrofluorocarbons
HVAC	heating, ventilation, and air conditioning
Hz	hertz
IBA	Important Bird Area
IFC	International Fire Code
ILRP	Irrigated Lands Regulatory Program
in/sec	inches per second
Industrial General Permit	Statewide General Permit for Storm Water Discharges Associated with Industrial Activities, Order 2014-0057-DWQ
IPaC	Information, Planning, and Conservation System
IPCC	Intergovernmental Panel on Climate Change
IRP	Integrated Resource Plan
ITE	Institute of Transportation Engineers
KMZ	GIS keyhole markup language file extension
kV	kiloVolt
LAMP	Local Agency Management Program
lb/day	pounds per day
LDL	Larson Davis Laboratories
L <sub>dn</sub>	Day-Night Average Sound Level
LEAs	local enforcement agencies
L <sub>eq</sub>	Equivalent Sound Level
LHMP	Local Hazard Mitigation Plan
LID	Low Impact Development
LOMR	Letter of Map Revision
LOS	levels of service
LRA	Local Responsibility Areas
LTA	local transportation assessment
MACT	maximum available control technology for toxics
MBTA	Migratory Bird Treaty Act
MCV	Manual of California Vegetation

MLD	most likely descendants
mph	miles per hour
MRF	Materials Recovery Facility
MRZ	Mineral Resource Zone
MS4	Municipal Regional Stormwater Discharge
MSA	metropolitan statistic area
msl	mean sea level
MT	metric tons
MTCO <sub>2</sub> e	metric tons of carbon dioxide equivalents
MTP	Metropolitan Transportation Plan
MW	megawatt
N <sub>2</sub> O	nitrous oxide
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NCIC	North Central Information Center
NEMDC	Natomas East Main Drainage Canal
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NLAA	Not Likely to Adversely Affect
NO	nitric oxide
NO <sub>2</sub>	nitrogen dioxide
NOA	naturally occurring asbestos
NOP	Notice of Preparation
NO <sub>x</sub>	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPS	nonpoint source
NRCS	U.S. National Resources Conservation Service
NRHP	National Register of Historic Places
Nuisance	PCAPCD Rule 205
OES	Office of Emergency Services
OHP	Office of Historic Preservation
OHWM	Ordinary High Water Mark
OM&M	operation, maintenance, and monitoring
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration
OWTS	Onsite Wastewater Treatment Systems
Ozone Attainment and Progress Plan	<i>2017 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan</i>
PCAPCD	Placer County Air Pollution Control District

PCAPCD CEQA Handbook	CEQA Air Quality Handbook: Assessing and Mitigating Air Quality Impacts Under CEQA
PCCP	Placer County Conservation Program
PCFCWCD	Placer County Flood Control and Water Conservation District
PCFD	Placer County Fire Department
PCTPA	Placer County Transportation Planning Agency
PCWA	Placer County Water Agency
perc	percolate
PFCs	perfluorocarbons
PFG	Potential Future Growth Area
PG&E	Pacific Gas and Electric Company
Pioneer	Pioneer Community Energy
PM	particulate matter
PM <sub>10</sub>	respirable particulate matter
PM <sub>2.5</sub>	fine particulate matter
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
PPV	peak particle velocity
PRC	Public Resources Code
project	Country Acres Solar Project
PUC	Public Utility Commission
PV	photovoltaic
PVC	Polyvinyl chloride
Qr2	middle unit
Qr3	upper unit
RAA	Reserve Acquisition Area
RCNM	Federal Highway Construction Noise Model
RECs	recognized environmental conditions
RMS	root mean square
RPS	Renewables Portfolio Standard
RTP	Regional Transportation Plan
Rule 501	Placer County Air Pollution Control District General Permit Requirements
Rule 502	New Source Review
Rule 507	Federal Operating Permit
RUSP	Regional University Specific Plan
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
Scoping Plan	Climate Change Scoping Plan
SCS	sustainable communities strategies
SENL	Single-Event

SF <sub>6</sub>	Sulfur hexafluoride
SFL	Sacred Lands File
SFNA	Sacramento Federal Nonattainment Area
SGMA	Sustainable Groundwater Management Act
SHPO	State Historic Preservation Office
SHS	State Highway System
SIP	state implementation plan
Small MS4s	Small Municipal Separate Storm Sewer Systems
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Reclamation Act of 1975
SMUD	Sacramento Municipal Utility District
SO <sub>2</sub>	sulfur dioxide
SOI	Sphere of Influence
SO <sub>x</sub>	oxides of sulfur
SPL-RUSP	Specific Plan-Regional University Specific Plan
SR	State Route
SRA	State Responsibility Areas
SSBMI	Shingle Springs Band of Miwok Indians
State SIP Strategy	2016 State Strategy for the State Implementation Plan
SVAB	Sacramento Valley Air Basin
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
SWQP	Storm Water Quality Plan
SWRCB	State Water Resources Control Board
TCM	transportation control measures
TCRs	tribal cultural resources
THPO	Tribal Historic Preservation Officer
THRIS	Tribal Historic Information System
TMDL	total maximum daily loads
TRBL	Tricolored Blackbird
TS	transportation study
U.S. EPA's AP-42	U.S. Environmental Protection Agency Compilation of Air Pollutant Emissions Factors
U.S.C.	United States Code
UAIC	United Auburn Indian Community
UCMP	U.C. Berkeley Museum of Paleontology
UDF-NE	project parcels
UDF-NW	project parcels
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service

USGS	U.S. Geological Survey
UWMP	Urban Water Management Plan
VdB	vibration decibels
VHFHSZs	Very High Fire Hazard Severity Zones
VMT	vehicle miles traveled
VOC	volatile organic compounds
Wallace Kuhl	Wallace Kuhl & Associates
WAPA	Western Area Power Administration
WDRs	Waste Discharge Requirements
WEAP	Worker Environmental Awareness Program
Wilton	Wilton Rancheria
WMP	Wildfire Mitigation Plan
WPWMA	Western Placer Waste Management Authority
WRSL	Western Regional Sanitary Landfill
WSA	water supply assessment
WUS	Waters of the U.S.
µin/sec	microinch per second

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## EXECUTIVE SUMMARY

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### Introduction

This summary is provided in accordance with the California Environmental Quality Act (CEQA) Guidelines Section 15123. As stated in the State CEQA Guidelines Section 15123(a), “an environmental impact report (EIR) shall contain a brief summary of the proposed actions and its consequences. The language of the summary should be as clear and simple as reasonably practical.” As required by the Guidelines, this section includes: (1) a summary description of the project; (2) a synopsis of environmental impacts and recommended mitigation measures; (3) identification of the alternatives evaluated and of the environmentally superior alternative; and (4) a discussion of the areas of controversy associated with the project.

### Summary Description of the Project

Sacramento Municipal Utility District (SMUD) is proposing the Country Acres Solar Project, which would include installation, operation, and maintenance of a photovoltaic (PV) solar power facility in southwestern Placer County.

### Project Objectives

SMUD’s objectives for the project include the following:

- Contribute to a diversified energy portfolio that will aid in the continued improvement of air quality in the Sacramento Valley Air Basin by decreasing reliance on fossil fuel combustion for the generation of electricity and reduce SMUD’s exposure to price volatility associated with electricity and natural gas.
- Provide a renewable power resource to support the SMUD Board of Directors’ 2030 Zero Carbon Plan, a plan approved in 2021, which establishes a flexible pathway for SMUD to eliminate carbon emissions from its power supply by 2030 by developing and procuring dependable renewable resources.
- Develop a project that will deliver a reliable, long-term supply of economically feasible solar and battery storage for up to 344 megawatts (MW) of electrical capacity at a point of interconnection with the grid managed by SMUD.
- Site the project to avoid wetlands and other sensitive habitats as feasible within the available property.
- Integrate compatible agricultural activities such as grazing and/or pollinator habitat into solar operations.
- Optimize the delivery of solar-produced and stored energy and minimize the geographic extent of impacts by locating the facility near existing electrical infrastructure with available capacity.

- Design a flexible PV solar energy and battery storage facility that is capable of utilizing the best available, efficient, cost-effective, and proven PV solar and storage technology.
- Construct the facility in a location that is readily accessible from existing roads and that would not require the construction of major new roadway improvements.

## **Project Location**

The project would be located on approximately 1,170 acres of land in southwestern Placer County, west of the City of Roseville, north of Baseline Road and east of South Brewer Road (see Exhibit 2-1 and 2-2 in Section 2. Project Description). Primary access to the project site would be provided by entry roads from Baseline Road to the south, South Brewer Road to the west, and Phillip Road to the north. The project area encompasses several parcels consisting of grasslands, agricultural rice fields, and almond orchards. Agricultural uses and grassland surround the project site with some residential development to the east of the project site in the City of Roseville.

## **Project Characteristics**

Up to 945 acres of land would be leased by SMUD and up to approximately 230 acres of land will be purchased by SMUD for the project. The project includes installation of PV solar panels, battery storage facilities, and interconnection facilities, including a high voltage substation, switch station, and interconnection to the existing SMUD transmission system.

Project construction would take approximately 18 to 24 months, and is proposed to begin in spring of 2023 and conclude in 2024 or 2025. At the end of the project's useful life (anticipated to be 30 to 35 years), the site would be decommissioned; however, SMUD may retain the substation, switching station, and battery storage facilities.

For additional project details, see Chapter 2, "Project Description."

## **Potential Approvals and Permits Required**

Elements of the project could be subject to permitting and/or approval authority of other agencies. As the lead agency pursuant to CEQA, SMUD is responsible for considering the adequacy of the EIR and determining if the project should be approved. Other potential permits required from other agencies could include:

### *Federal*

- **U.S. Army Corps of Engineers (USACE):** Compliance with Section 404 of the Clean Water Act for discharge of fill to Waters of the U.S.
- **U.S. Fish and Wildlife Service:** Section 7 of the Endangered Species Act (ESA) Consultation. Letter of Concurrence for a Not Likely to Adversely Affect (NLAA) determination.

- **State Historic Preservation Office (SHPO):** Compliance with Section 106 of the National Historic Preservation Act (required in support of CWA Section 404 permit, if needed)
- **Federal Emergency Management Agency (FEMA):** Conditional Letter of Map Revision (CLOMR/LOMR) for floodplain boundary.

#### *State*

- **State Water Resources Control Board:** Clean Water Act Section 402, construction general permit.
- **Central Valley Regional Water Quality Control Board:** Clean Water Act Section 401, water quality certification; and/or waste discharge permit for waters of the state, if applicable.
- **California Department of Fish and Wildlife:** Compliance with California Endangered Species Act (CESA), potential permits under Section 2081 of the Fish and Game Code if take of listed species is likely to occur; and Section 1602 streambed alteration agreement for construction activities that occur within the bed, bank or channel of waterways.
- **California Department of Transportation:** Encroachment permit and/or transportation management plan for any oversized equipment, such as transformers.

#### *Local*

- **Placer County:** Conditional Use Permit (CUP), improvement/grading plans, Regional University Specific Plan (RUSP) Amendment, General Plan Amendment to Health and Safety Element Policy 8b.1.4, RUSP Design Agreement Amendment, groundwater well permit, septic system permit, driveway encroachment permits, and other potential building and grading permits, as determined by the County.
  - SMUD is requesting Placer County's consideration of specific plan amendments to the Regional University Specific Plan (RUSP) and the RUSP Development Agreement.
  - SMUD has also been working with Placer County on a General Plan Amendment to the Health and Safety Element Policy 8.b.1.4 (see Chapter 2 "Project Description" for more information).
- **Placer County Air Pollution Control District (PCAPD):** Authority to Construct/Permit to Operate pursuant to PCAPD Regulation 5 (Rule 501), and Air Quality Management Plan Consistency determination.

## **Summary of Alternatives**

Alternatives evaluated in this Draft EIR include:

- **No Project Alternative**, which assumes no new solar development occurs on the project site;
- **Wetlands Impact Reduction Alternative**, which assumes that a reduced size solar facility is developed on the project site to reduce fill of wetlands and other waters of the United States; and
- **Important Farmland Reduction Alternative**, which assumes that a reduced size solar facility is developed on the project site to reduce impacts to Important Farmland.

The following summary provides brief descriptions of the alternatives. For a more thorough discussion of project alternatives, see Chapter 6, “Alternatives.”

#### *No Project Alternative*

Under this alternative, the project would not be constructed on the project site, and as a result, none of the associated impacts would occur and none of the permits or approvals that would be required by SMUD and various permitting agencies for the project would be needed. It is unknown for how long the project site would remain in its existing condition, as most of the area is planned for future growth, and it is uncertain exactly what impacts would occur. This alternative would not meet any of the objectives identified in Section 6.2.1, “Attainment of Project Objectives.”

#### *Wetland Reduction Alternative*

The Wetland Reduction Alternative, would include construction and operation of a reduced size solar facility on the project site that would reduce fill of wetlands and non-wetland waters in the northeast corner of the project site and would not convert the surrounding grassland matrix. This alternative would not use the parcel in the northwest portion of the project area that is characterized by annual grassland and wetlands. This would eliminate up to approximately 16 MW of generation capacity (based on solar panels located on this land in the 10% design), but would also result in further reduction of impacts on cattail marsh and annual grassland (up to 0.04 acres of cattail marsh and up to 57.2 acres of annual grassland). Thus, this project would eliminate the majority of wetland impacts, and would also eliminate the potential impacts on special-status species that use these grasslands as foraging habitat. This alternative would attain most of the project objectives. However, the project objectives related to supporting California’s renewable energy and greenhouse gas emission reduction laws and goals and SMUD Board of Directors’ 2030 Zero Carbon Plan, would be achieved at a lesser degree under this alternative due the reduced amount of solar energy that would be generated compared to the project.

#### *Important Farmland Impact Reduction Alternative*

The Important Farmland Impact Reduction Alternative would include construction and operation of a reduced sized solar facility on the project site that would reduce conversion of agricultural land that is classified as Important Farmland. Under this alternative, the project would be scaled back in size to reduce conversion of land currently in rice or almond production but would have to remain of a minimum size to allow the production of

a minimum of 250 MW of solar energy to remain feasible. Based on preliminary engineering, a 45-acre reduction of use in agricultural land appears possible. Complete avoidance of agricultural land classified as Important Farmland is not feasible. This alternative would meet most of the project objectives. However, a reduced size PV solar facility would produce a smaller amount of energy at a higher price. This would result in reduced ability to comply with California's renewable energy and greenhouse gas emission reduction laws and goals and SMUD Board of Directors' 2030 Zero Carbon Plan.

### *Environmentally Superior Alternative*

CEQA calls for the identification of an environmentally superior alternative in an EIR, and further states that, "if the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives" (Section 15126.6).

The No Project Alternative is the environmentally superior alternative, as all of the significant impacts of the project would be avoided. However, the No Project Alternative would not meet any of the project objectives because a PV solar facility would not be constructed on the project site.

The Wetland Impact Reduction Alternative would reduce the amount of wetlands anticipated to be filled on the project site, and would also preserve the grassland on the project site, but would nonetheless result in the conversion of land to solar fields. However, the habitat to be converted under this alternative is mainly agricultural and provides fewer habitat benefits compared to the natural/wetland habitat. Because this alternative would involve construction of a reduced size PV solar facility, all construction activities and resulting impacts associated with air quality, GHG emissions, and transportation and traffic be similar to, or slightly less than, the project. The GHG emissions that would be reduced from lesser construction would not be sufficient to offset the avoided GHG emissions associated with less solar capacity (assuming this capacity is otherwise provided by a non-renewable resource). Further, because this alternative would be constructed on the project site, impacts associated with aesthetics; cultural resources and Tribal cultural resources; geology and soils; hazards and hazardous materials; and hydrology and water quality would be similar to, or slightly less than, the project. This alternative would meet most of the project objectives. However, a reduced size PV solar facility would produce a smaller amount of energy (approximately 5 percent less solar power than the project) at a higher price, because construction and operations cost would remain approximately the same, while power generation would be lower, thus resulting in a less "efficient" project. This would result in reduced ability to comply with California's renewable energy and greenhouse gas emission reduction laws and goals and SMUD Board of Directors' 2030 Zero Carbon Plan.

The Important Farmland Impact Reduction Alternative would reduce the amount of Important Farmland that would be impacted by approximately 45 acres; however, a significant and unavoidable conversion of Important Farmland would still occur. Because this alternative would involve construction of a reduced size PV solar facility, all construction activities and resulting impacts associated with air quality, GHG emissions, and transportation and traffic would be similar to, or slightly less than, the project. The GHG emissions that would be reduced from lesser construction would not be sufficient to

offset the avoided GHG emissions associated with less solar capacity (assuming this capacity is otherwise provided by a non-renewable resource). Further, because this alternative would be constructed on the project site, impacts associated with aesthetics; cultural resources and Tribal cultural resources; geology and soils; hazards and hazardous materials; and hydrology and water quality would be similar to, or slightly less than, the project. This alternative would meet most of the project objectives. However, a reduced size PV solar facility would produce a smaller amount of energy at a higher price. This would result in reduced ability to comply with California's renewable energy and greenhouse gas emission reduction laws and goals and SMUD Board of Directors' 2030 Zero Carbon Plan.

For these reasons, the proposed project is the environmentally superior alternative because all significant impacts would be mitigated to less-than-significant levels (with the exception of air quality impacts during construction and significant and unavoidable impacts to Important Farmland), and all project objectives would be met while also reducing overall regional GHG emissions. See Section 6.5 "Environmentally Superior Alternative" for more information.

### **Areas of Controversy**

There are no known areas of controversy at this time as SMUD has been working closely with Placer County and the Placer Conservation Authority regarding issues related to land use; utilities; public services, and conservation, including implementation of the Placer County Conservation Program.

### **Environmental Impacts and Recommended Mitigation Measures**

Below is a table showing the environmental impacts and recommended mitigation measures for the project.

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
<b>3.1 Aesthetics</b>			
<b>Impact 3.1-1.</b> In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	LTS	No mitigation is required.	LTS
Viewpoint 1C: View East from South Brewer Road	LTS	No mitigation is required.	LTS
Viewpoint 2C: View North from Base Line Road	LTS	No mitigation is required.	LTS
Viewpoint 3B: View West from Southwestern Boundary of Westpark	LTS	No mitigation is required.	LTS
Viewpoint 4A: View South from Phillip Road	LTS	No mitigation is required.	LTS
Viewpoint 3C: View West/Southwest from Westpark	LTS	No mitigation is required.	LTS
<b>Impact 3.1-2.</b> Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	LTS	No mitigation is required.	LTS
<b>3.2 Agriculture and Forestry Resources</b>			
<b>Impact 3.2-1.</b> 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?	S	<b>Mitigation Measure 3.2.1. Preserve Important Farmland</b>  SMUD shall implement one of the following methods to minimize the loss Farmland of Statewide Importance and Unique Farmland at a 1:1 ratio (i.e., 1 acre on which easements are acquired to 1 acre of Farmland of Statewide Importance and Unique Farmland removed from agricultural use):	SU

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<ul style="list-style-type: none"> <li>Acquire agricultural conservation easement(s) that provide in-kind or similar resource value protection in the region, with a strong preference for locating the agricultural conservation easement(s) in Placer County. This can be achieved by the acquisition of conservation easements, farmland deed restriction, or other appropriate farmland conservation mechanism to ensure the preservation of the land in perpetuity.</li> <li>Pay in-lieu fees to an established, agreed-upon (by County and SMUD) mitigation program with a presence in Placer County (e.g., Placer Land Trust) to fully fund the acquisition and maintenance of agricultural land or easements.</li> <li>Alternatively, this may occur through the payment of fees into the PCCP's in-lieu fee program under a Memorandum of Understanding (MOU) with the PCA prior to issuance of improvement plans. (In-lieu fee payments would also address impacts on special-status species through loss for foraging habitat for burrowing owl and Swainson's hawk, and impacts on sensitive natural communities and wetlands and other waters of the US and state/ County, as detailed in Mitigation Measures 3.4-8., 3.4-10 and 3.4-16 in Section 3.4 "Biological Resources" of this EIR).</li> </ul> <p>Payments of in-lieu fees or acquisition of agricultural conservation easements may be spread out in alignment with construction phasing but must occur no later than the start of each new phase. The impact acreage requiring offset shall be based on the most</p>	



**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		current FMMP at the time of the County's issuance of the Conditional Use Permit.	
<b>Impact 3.2-2.</b> 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?	LTS	No mitigation is required	LTS
<b>3.3 Air Quality</b>			
<b>Impact 3.3-1.</b> Conflict with or obstruct implementation of the applicable air quality plan?	PS	Mitigation Measure 3.3-1. Implement Mitigation Measures 3.3-2a, 3.3-2b, and 3.3-2c.	SU
<b>Impact 3.3-2.</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?	Construction – PS Operations - LTS	<b>Mitigation Measure 3.3-2a. Implement Fugitive Dust Control Measures</b>  In order to minimize fugitive dust generation from earthwork and on-site travel on unpaved roadways, the applicant shall submit a Dust Control Plan to the Placer County Air Pollution Control District (PCAPCD). The Dust Control Plan shall be submitted to the PCAPCD a minimum of 21 days before construction activity is scheduled to commence. The Dust Control Plan can be submitted online via the fill-in form: <a href="http://www.placerair.org/dustcontrolrequirements/dustcontrolform">http://www.placerair.org/dustcontrolrequirements/dustcontrolform</a> .  In addition, the applicant shall include as a condition of the construction bidding, incorporation of dust control measures that shall include, at a minimum, the below requirements of Rule PCAPCD Rule 228, Section 400, and any additional measures identified as part of the Dust Control Plan. All dust control measures shall be shown on grading and improvement plans, to be	Construction – SU Operations - LTS

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>initiated at the start and maintained throughout the duration of construction.</p> <ul style="list-style-type: none"> <li>• Dry mechanical sweeping is prohibited. Watering of a construction site shall be carried out to mitigate visible emissions. (Based on PCAPCD Rule 228, Section 301.)</li> <li>• The contractor shall apply water or use methods to control dust impacts offsite. Construction vehicles leaving the site shall be cleaned to prevent dust, silt, mud, and dirt from being released or tracked off-site. (Based on PCAPCD Rule 228, Section 304.)</li> <li>• During construction activity, traffic speeds on all unpaved surfaces shall be limited to 15 miles per hour or less unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment traveling more than 15 miles per hour from emitting dust or visible emissions from crossing the project boundary line. (Based on PCAPCD Rule 228, Section 401.2.)</li> <li>• Storage piles and disturbed areas not subject to vehicular traffic must be stabilized by being kept wet, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile. (Based on PCAPCD Rule 228, Section 401.3.)</li> <li>• The contractor shall suspend all grading operations when fugitive dust exceeds the APCD Rule 228 (Fugitive Dust) limitations. Visible emissions of fugitive dust shall not exceed 40% opacity, nor go beyond the property boundary at any time. Lime or other drying agents utilized to dry out wet grading</li> </ul>	

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>areas shall not exceed APCD Rule 228 limitations. (Based on PCAPCD Rule 228, Sections 302 &amp; 401.4.)</p> <ul style="list-style-type: none"> <li>• The prime contractor shall be responsible for keeping adjacent public thoroughfares clean by keeping dust, silt, mud, dirt, and debris from being released or tracked offsite. Wet broom or other methods can be deployed as control and as approved by the individual jurisdiction. (Based on PCAPCD Rule 228, Section 401.5.)</li> <li>• The contractor shall suspend all grading operations when wind speeds (including instantaneous gusts) are high enough to result in dust emissions crossing the boundary line, despite the application of dust mitigation measures. (Based on PCAPCD Rule 228, Section 401.6.)</li> <li>• The contractor shall prohibit trucks from transporting excavated material off-site unless the trucks are maintained such that no spillage can occur from holes or other openings in cargo compartments, and loads are either covered with tarps or wetted and loaded such that the material does not touch the front, back, or sides of the cargo compartment at any point less than six inches from the top and that no point of the load extends above the top of the cargo compartment. (Based on PCAPCD Rule 228, Section 401.7)</li> <li>• To minimize wind-driven dust during construction, the prime contractor shall apply methods such as surface stabilization, the establishment of a vegetative cover, paving (or use of another method</li> </ul>	

Table ES-1. Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		to control dust as approved by Placer County). (Based on APCD Rule 228 / section 402)	
		<p><b>Mitigation Measure 3.3-2b. Reduce Exhaust-related Emissions During Construction</b></p> <p>Prior to the approval of grading or improvement plans, whichever would occur first, the construction contractor shall submit a Construction Emissions Control Plan to the Placer County Air Pollution Control District and SMUD, and provide written evidence to SMUD that the plan has been submitted to and approved by PCAPCD. The applicant shall not initiate any on-site construction activity until PCAPCD has approved the Construction Emissions Control Plan.</p> <p>The Construction Emissions Control Plan shall include the following:</p> <ul style="list-style-type: none"> <li>• The contractor shall submit to the PCAPCD a comprehensive equipment inventory (e.g., make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower or greater) that will be used in an aggregate of 40 or more hours. If any new equipment is added after submission of the inventory, the contractor shall notify the PCAPCD before the new equipment being utilized. At least three business days before the use of subject heavy-duty off-road equipment, the project representative shall provide the PCAPCD with the anticipated construction timeline including start date, name, and phone number of the property owner, project manager, and on-site foreman.</li> <li>• With submittal of the equipment inventory, the contractor shall provide a written calculation to the</li> </ul>	SU

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>PCAPCD for approval demonstrating that the heavy-duty (&gt; 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project-wide fleet-average of 20 percent Nitrogen Oxides (NO<sub>x</sub>) reduction and 45 percent particulate reduction compared with the statewide fleet averages. Acceptable options for reducing emissions may include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and other options as they become available. The emissions reductions shall be calculated using the Sacramento Metropolitan Air Quality Management District's Construction Mitigation Calculator to identify the equipment fleet and measures that achieve the required reductions; this tool is currently available on the Sacramento Metropolitan Air Quality Management District's website at the following link: <a href="http://www.airquality.org/businesses/ceqa-land-use-planning/mitigation">http://www.airquality.org/businesses/ceqa-land-use-planning/mitigation</a> (click on the current "Construction Mitigation Tool" spreadsheet under Step 1)</p> <ul style="list-style-type: none"> <li>• If any new equipment is added after the submission and approval of the inventory, the construction contractor shall update the inventory and provide to the PCAPCD and SMUD prior to the use of such equipment, demonstrating that the 20-percent NO<sub>x</sub> reduction performance standard is still met.</li> <li>• The approved equipment inventory and a note regarding update requirements, as detailed above,</li> </ul>	

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>shall be include as an attached form to the Grading and Improvement Plans.</p> <ul style="list-style-type: none"> <li>• Include the following standard notes on Grading and Improvement Plans: <ul style="list-style-type: none"> <li>Construction equipment exhaust emissions shall not exceed the APCD Rule 202 Visible Emissions limitations. Operators of vehicles and equipment found to exceed opacity limits are to be immediately notified by the APCD to cease operations, and the equipment must be repaired within 72 hours.</li> <li>The contractor shall not discharge into the atmosphere volatile organic compounds caused by the use or manufacture of Cutback or Emulsified asphalts for paving, road construction or road maintenance unless such manufacture or use complies with the provisions of Rule 217 Cutback and Emulsified Asphalt Paving Materials.</li> <li>During construction, open burning of removed vegetation is only allowed under APCD Rule 304 Land Development Smoke Management. (Based on APCD Rule 304)</li> <li>Any device or process that discharges 2 pounds per day or more of air contaminants into the atmosphere, as defined by Health and Safety Code Section 39013, may require an APCD permit. Developers/contractors should contact the APCD before construction and obtain any necessary permits before the</li> </ul> </li> </ul>	

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>issuance of a Building Permit. (APCD Rule 501)</p> <p>The contractor shall utilize existing power sources (e.g., power poles) or clean fuel (e.g., gasoline, biodiesel, natural gas) generators rather than temporary diesel power generators.</p> <p>The contractor shall minimize idling time to a maximum of 5 minutes for all diesel-powered equipment. (Placer County Code Chapter 10, Article 10.14).</p> <p>Idling of construction-related equipment and construction-related vehicles shall be limited to 2 minutes within 1,000 feet of any sensitive receptor (i.e., house, hospital, or school), allowing for the same exceptions identified in Placer County Code Chapter 12, Article 10.14.</p>	
		<p><b>Mitigation Measure 3.3-2c. Off-site Mitigation</b></p> <p>If, based upon the incorporation of all on-site measures described above in Mitigation Measures 3.3.1 and 3.3.2, NO<sub>x</sub> or PM emissions still do not meet the daily PCAPCD thresholds, the project shall participate in the PCAPCD's Offsite Mitigation Program by paying to PCAPCD a mitigation fee for construction activities, to be determined at the time of construction based on the submitted equipment inventory and emissions calculations for the purposes of mitigating NO<sub>x</sub> and PM<sub>10</sub> emissions, such that emissions are reduced to a less-than-significant level. The fee calculation to mitigate daily emissions shall be based on the PCAPCD-determined cost to reduce emissions and the project's contribution of pollutants to be less than the PCAPCD threshold of 82 pounds per day for NO<sub>x</sub>. The</p>	SU

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**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		fee shall be submitted for approval by PCAPCD as the total required to achieve emissions reductions that would reduce total emissions to a less-than-significant level after all other mitigation measures are implemented. The fee shall be calculated, approved by PCAPCD and paid prior to the issuance of grading or improvement plans.	
<b>Impact 3.3-3.</b> Expose sensitive receptors to substantial pollutant concentrations?	LTS	No mitigation is required.	LTS
<b>Impact 3.3-4.</b> Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	LTS	No mitigation is required.	LTS
<b>3.4 Biological Resources</b>			
<b>Impact 3.4-1.</b> 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?	S	No mitigation is required.	NI
Western Spadefoot	PS	<b>Mitigation Measure 3.4-1. Worker Environmental Awareness Program (WEAP) and Biological Monitor Inspection</b>  SMUD will prepare a Worker Environmental Awareness Program that will educate staff regarding the presence or potential presence of all special-status species, sensitive natural communities, and protected wetlands with potential to occur, or that are known to occur, within the project area. The program shall describe their identification, habitat requirements, and penalties for species impacts, as well as immediate steps to take	LTS



**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>should special-status species be observed by staff on site.</p> <p>This WEAP shall include biological resource avoidance and minimization measures/mitigation measures from the project's CEQA Mitigation Monitoring and Reporting Program, and any resource permits or agreements, as applicable. The WEAP will educate workers regarding sensitive species and their habitats, the need to avoid impacts, state and federal protection, and the legal implications of violating environmental laws and regulations. The WEAP can be provided in the form of a handout and/or video presentation. All staff working onsite shall attend the WEAP training prior to commencing onsite work. Staff that attend the training shall fill out a sign-in sheet indicating that they completed the training.</p> <p>Prior to construction, a qualified biological monitor shall inspect all areas within the project site with the potential to support sensitive biological resources to ensure the proper implementation of all avoidance and minimization and mitigation measures, agency permit requirements, and environmentally sensitive area exclusion flagging and/or fencing have been properly implemented, and to deliver WEAP training as needed.</p> <p>The biological monitor shall remain available on an on-call basis for the duration of project construction to conduct inspections and follow up surveys, as needed, and to ensure compliance with permit conditions. The qualified biological monitor shall have the experience, education and training necessary to conduct special-status species surveys and monitoring as described in the mitigation measures below.</p>	

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**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		During operation and maintenance, an annual Environmental Awareness Training shall be provided to onsite personnel, covering any sensitive biological resources that could be present onsite.	
	PS	<p><b>Mitigation Measure 3.4-2. Establish Non-Disturbance Buffers around Vernal Pools and Seasonal Wetlands to protect Western Spadefoot during Construction and Operation</b></p> <p>Based on the assumptions that all vernal pools and seasonal wetlands in the project areas could provide suitable habitat for western spadefoot, SMUD, in coordination with a qualified biologist, will establish a 250-foot no-disturbance buffer from the high-water mark of the vernal pool or seasonal wetland habitat prior to commencement of ground-disturbing activities. The perimeter of the no-disturbance buffer will be delineated with a wildlife-friendly fence that allows the movement of wildlife, including western spadefoot (and also wide-ranging wildlife, such as coyotes), through the area. The fence will be maintained for the duration of project construction and operation. Signage will be installed on the fence indicating the buffer is an environmentally sensitive area.. The boundaries of vernal pools, seasonal wetlands and associated 250-foot buffers will also be clearly delineated on project plans and specifications boundaries. No construction or ground-disturbing activities shall occur within the 250-foot buffer.</p> <p>The fencing shall be kept in place for the duration of project construction and operations and shall be kept in good condition to prevent any construction, operation</p>	LTS

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		and maintenance activities from disturbing the sensitive habitat areas.	
Western Pond Turtle	PS	<b>Mitigation Measure 3.4-3. Conduct Pre-Construction Surveys for Western Pond Turtle</b> <ul style="list-style-type: none"> <li>Project ground-disturbing activities will be conducted outside of western pond turtle's active breeding and dispersal season (i.e., after May 1 and before September 15), to the extent feasible. If project activities must be implemented during the breeding and dispersal season, they will not start until 30 minutes after sunrise and must be completed 30 minutes prior to sunset.</li> <li>A qualified biologist shall conduct a pre-construction survey for western pond turtle within 48 hours prior to the start of construction activities within 300 feet of suitable habitat (e.g., any adjacent waterway, marsh, or emergent wetland). Concurrently with the pre-construction survey, searches for nesting sites shall be conducted and any identified sites shall be delineated with high-visibility flagging or fencing and avoided during construction activities. If avoidance is not possible, the nest and/or turtle shall be removed by a qualified biologist and relocated to an appropriate location in consultation with CDFW.</li> </ul>	LTS

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p><b>Mitigation Measure 3.4-4. Avoid Impacts on Western Pond Turtle during Construction</b></p> <p>If turtles and/or nests are encountered during the pre-construction survey, a qualified biologist shall be present during grubbing and clearing activities in suitable habitat (aquatic) to monitor for western pond turtle. If a turtle is observed in the active construction zone, construction shall cease within a 100-foot buffer. Construction may resume when the biologist has, in consultation with CDFW, either hand-captured and relocated the turtle to nearby suitable habitat outside the construction zone, or, after thorough inspection, determined that the turtle has moved away from the construction zone.</p> <p>On-site personnel will observe a 20-mile-per-hour speed limit at all times.</p> <p>Information about avoidance and minimization measures for western pond turtles shall be included in the WEAP described above in Mitigation Measure 3.4-1.</p>	LTS
Giant Garter Snake	S	<p><b>Mitigation Measure 3.4-5. Conduct Pre-Construction Surveys for Giant Garter Snake and Implement Avoidance and Minimization Measures</b></p> <ul style="list-style-type: none"> <li>Project ground-disturbing activities in aquatic habitat and adjacent upland habitat within 200 feet of aquatic habitat will be conducted during the giant garter snake's active season (i.e., after May 1 and before October 1), to the extent feasible. During this period, the potential for direct mortality is reduced, because snakes are expected to actively move and avoid danger. If project activities in aquatic habitat</li> </ul>	LTS

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>and adjacent upland habitat within 200 feet of aquatic habitat must be implemented outside of the snake's active season, the following mitigation measures must be implemented:</p> <p>Within 24-hours prior to commencement of construction activities within 200 feet of potential giant garter snake habitat, the site shall be inspected by a qualified biologist who is approved by the CDFW and USFWS. If construction activities stop for a period of 2 weeks or more, another preconstruction clearance survey will be conducted within 24 hours before resuming construction activity. If snakes, or evidence of snakes, are encountered during preconstruction surveys, a biological monitor shall be present during construction activities in aquatic habitat and adjacent upland habitat within 200 feet of aquatic habitat.</p> <p>The monitoring biologist shall be present during construction within 200 feet of potential aquatic habitat for giant garter snake (i.e., drainages that contain water) for the duration of the project. If a snake is encountered during construction activities, the monitoring biologist shall have the authority to stop construction activities until appropriate corrective measures have been completed or it is determined that the snake will not be harmed. The monitor will remain in the area for the remainder of the workday to ensure the snake is not harmed or, if it leaves the site, does not return. The qualified biologist will work with the PCA,</p>	

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**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>USFWS, and CDFW to redirect the snake away from the disturbance area within 3 days of reporting the snake's presence at the construction site to USFWS and CDFW.</p> <ul style="list-style-type: none"> <li>• The project biologist shall report any observations of giant garter snake to CDFW and USFWS within 24 hours of detection.</li> <li>• Information about avoidance and minimization measures for giant garter snake shall be included in the WEAP described above in Mitigation Measure 3.4-1.</li> </ul>	
Black Rail	S	<p><b>Mitigation Measure 3.4-6. Survey for California Black Rails and Implement Avoidance Measures</b></p> <ul style="list-style-type: none"> <li>• Preconstruction Call-Playback Surveys for California Black Rail. A qualified biologist will conduct a preconstruction survey in potentially suitable habitat for this species in the project footprint and a 500-foot buffer to the project footprint. Surveys will be initiated sometime between March 15 and May 31, preferably before May 15. A minimum of four surveys will be conducted. The survey dates will be spaced at least 10 days apart and will cover the time period from the date of the first survey through the end of June to early July. This will allow the surveys to encompass the time period when the highest frequency of calls is likely to occur. Projects must conduct surveys during this time period, regardless of when the project is scheduled to begin, and shall be conducted the year in which ground disturbance activities commence. Surveys will follow a standardized tape call-playback/response protocol</li> </ul>	LTS

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**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>similar to that of Evens et al. 1991 and Richmond et al. 2008 or other CDFW-approved method. The surveys will document the presence or absence of black rail. CDFW will be notified within 2 business days of any identified black rail detections.</p> <ul style="list-style-type: none"> <li>• If California black rails are detected during preconstruction surveys, the following additional measures will be implemented in association with occupied California black rail habitats:</li> <li>• SMUD will establish and maintain a non-disturbance buffer of up to 500 feet around all identified occupied wetland habitat, depending on site-specific conditions and at the discretion of a qualified biologist in consultation with CDFW. Where feasible, all construction-related activities will be excluded from the buffer for the duration of project implementation.</li> <li>• Where maintaining the non-disturbance buffer for the duration of the project is not feasible, at minimum, all construction-related activities will be excluded from the buffer for the duration of the breeding season (March through September, or for lesser duration as approved by CDFW).</li> <li>• If project activities are necessary within the established non-disturbance buffer or within occupied habitat, including potential alterations to hydrological conditions that support black rail habitat, SMUD will consult with CDFW to identify a strategy that will avoid take of the year-round resident California black rail. This may or may not include work windows outside the breeding season, installation of wildlife exclusion fencing, and/or</li> </ul>	

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**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>methods for passive exclusion of individuals out of the temporary and permanent impact area such as through the hand removal of vegetation before other project-related ground disturbances, as determined in consultation with CDFW. A qualified biologist will be present for any construction activities occurring within the non-disturbance buffer; the intensity and frequency of the monitoring will be established in consultation with CDFW.</p> <ul style="list-style-type: none"> <li>Information about avoidance and minimization measures for California black rails shall be included in the WEAP described above in Mitigation Measure 3.4-1.</li> </ul>	
Western Burrowing Owl	PS	<p><b>Mitigation Measure 3.4-7 Avoid and Minimize Impacts on Burrowing Owl</b></p> <ul style="list-style-type: none"> <li>SMUD will have preconstruction burrowing owl surveys conducted in all areas that may provide suitable nesting habitat according to CDFW (CDFG 2012) guidelines. A qualified wildlife biologist shall conduct take avoidance surveys, including documentation of burrows and burrowing owls, in all suitable burrowing owl habitat within 250 feet of proposed construction. Two surveys will be conducted within 15 days prior to ground disturbance to establish the presence or absence of burrowing owls. The surveys will be conducted at least 7 days apart (if burrowing owls are detected on the first survey, a second survey is not needed) for both breeding and non-breeding season surveys. All burrowing owls observed will be counted and mapped.</li> </ul>	LTS



**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<ul style="list-style-type: none"> <li>• During the breeding season (February 1 to August 31), surveys will document whether burrowing owls are nesting in or within 250 feet of the project area.</li> <li>• During the non-breeding season (September 1 to January 31), surveys will document whether burrowing owls are using habitat in or directly adjacent to any area to be disturbed. Survey results will be valid only for the season (breeding or non-breeding) during which the survey was conducted.</li> <li>• The qualified biologist will survey the proposed footprint of disturbance and a 250-foot radius from the perimeter of the proposed footprint to determine the presence or absence of burrowing owls. The site will be surveyed by walking line transects, spaced 20 to 60 feet apart, adjusting for vegetation height and density. At the start of each transect and, at least, every 300 feet, the surveyor, with use of binoculars, shall scan the entire visible project area for burrowing owls. During walking surveys, the surveyor will record all potential burrows used by burrowing owls, as determined by the presence of one or more burrowing owls, pellets, prey remains, whitewash, or decoration. Some burrowing owls may be detected by their calls; therefore, observers will also listen for burrowing owls while conducting the survey.</li> <li>• Adjacent parcels under different land ownership will be surveyed only if access is granted. If portions of the survey area are on adjacent sites for which access has not been granted, the qualified biologist will get as close to the non-accessible area as</li> </ul>	

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>possible and use binoculars to look for burrowing owls.</p> <ul style="list-style-type: none"> <li>The presence of burrowing owl or their sign anywhere on the site or within the 250-foot accessible radius around the site will be recorded and mapped. Surveys will map all burrows and occurrence of sign of burrowing owl on the project site. Surveys must begin 1 hour before sunrise and continue until 2 hours after sunrise (3 hours total) or begin 2 hours before sunset and continue until 1 hour after sunset. Additional time may be required for large project sites.</li> </ul> <p>If a burrowing owl or evidence of presence at or near a burrow entrance is found to occur within 250 feet of the project site, the following measures will be implemented:</p> <ul style="list-style-type: none"> <li><b>Burrowing Owl 2.</b> If burrowing owls are found during the breeding season (approximately February 1 to August 31), the project applicant will:</li> <li>Avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups foraging on or near the site following fledging).</li> <li>Establish a 250-foot non-disturbance buffer zone around nests. The buffer zone will be flagged or otherwise clearly marked. Should construction activities cause the nesting bird to vocalize, make defensive flights at intruders, or otherwise display agitated behavior, then the exclusionary buffer will be increased such that activities are far enough</li> </ul>	

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**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>from the nest so that the bird(s) no longer display this agitated behavior. The exclusionary buffer will remain in place until the chicks have fledged or as otherwise determined by a qualified biologist.</p> <ul style="list-style-type: none"> <li>• Construction may only occur within the 250-foot buffer zone during the breeding season only if a qualified raptor biologist monitors the nest and determines that the activities do not disturb nesting behavior, or the birds have not begun egg-laying and incubation, or that the juveniles from the occupied burrows have fledged and moved off site. Measures such as visual screens may be used to further reduce the buffer with Wildlife Agency approval and provided a biological monitor confirms that such measures do not cause agitated behavior.</li> <li>• <b>Burrowing Owl 3.</b> If burrowing owls are found during the non-breeding season (approximately September 1 to January 31), the project applicant will establish a 160-foot buffer zone around active burrows. The buffer zone will be flagged or otherwise clearly marked. Measures such as visual screens may be used to further reduce the buffer with CDFW approval and provided a biological monitor confirms that such measures do not cause agitated behavior.</li> <li>• <b>Burrowing Owl 4.</b> During the non-breeding season only, if a project cannot avoid occupied burrows after all alternative avoidance and minimization measures are exhausted, as confirmed by CDFW, a qualified biologist may passively exclude birds from those burrows. A burrowing owl exclusion plan must be developed by a qualified biologist consistent with</li> </ul>	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>the most recent guidelines from CDFW (e.g., California Department of Fish and Game 2012) and submitted to and approved by CDFW. Burrow exclusion may be conducted for burrows located in the project footprint and within a 160-foot buffer zone as necessary.</p> <ul style="list-style-type: none"> <li>Information about avoidance and minimization measures for western burrowing owl shall be included in the WEAP described above in Mitigation Measure 3.4-1.</li> </ul>	
		<p><b>Mitigation Measure 3.4-8. Compensate for the Loss of Burrowing Owl Habitat</b></p> <p>If burrowing owls are documented as breeding in the project area, compensatory mitigation shall be provided for permanent impacts on (removal of) burrowing owl nesting and foraging habitat. Burrowing owl foraging and nesting habitat will still be available after installation of solar panels. However, if the project results in a net loss of nesting or grassland foraging habitat due to conversion of 57.2 acres of grassland habitat to project infrastructure the loss of habitat will be mitigated as described in CDFW guidelines (CDFG 2012) in consultation with CDFW. The performance standard for compensatory mitigation for nesting and foraging habitat will be to achieve no net loss of habitat value to the burrowing owl. Compensatory mitigation for habitat loss shall be consistent with guidance by CDFW (CDFG 2012) and may include development and implementation of a land management plan to address long-term ecological sustainability and maintenance of the site for burrowing owls on the project site, acquisition of credits in a burrowing owl</p>	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>mitigation bank, or another form of mitigation acceptable to CDFW, such as payment of fees into the PCCP's in-lieu fee program under a Memorandum of Understanding (MOU) with the PCA prior to issuance of improvement plans. In-lieu fee payments would address impacts to special-status species, sensitive natural communities, wetlands and other waters of the US and state/County, and impacts to agricultural lands resulting from the conversion of important farmland (see Mitigation Measure 3.2-1 in Section 3.2 "Agricultural Resources" of this Draft EIR). Payments may be spread out in alignment with construction phasing and will occur prior to the start of each new phase. The compensatory mitigation will be consistent with the PCCP goal of maintaining or increasing the population size of overwintering western burrowing owl and promoting expansion of breeding populations of burrowing owls and will be approved by CDFW. Compensatory mitigation will include the following requirements as described in CDFG 2012:</p> <ul style="list-style-type: none"> <li>• Permanently protect mitigation land through a conservation easement deeded to a non-profit conservation organization or public agency with a conservation mission, for the purpose of conserving burrowing owl habitat and prohibiting activities incompatible with burrowing owl use. This may occur through the payment of fees into the PCCP's in-lieu fee program under a Memorandum of Understanding (MOU) with the PCA prior to issuance of improvement plans. In-lieu fee payments would address impacts to special-status species, sensitive natural communities, wetlands and other waters of the US and state/County, and</li> </ul>	

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**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>impacts to agricultural lands resulting from the conversion of important farmland (see Mitigation Measure 3.2-1 in Section 3.2 “Agricultural Resources” of this Draft EIR). Payments may be spread out in alignment with construction phasing and will occur prior to the start of each new phase. If the project is located within the service area of a CDFW-approved burrowing owl conservation bank, the project proponent may also purchase available burrowing owl conservation bank credits.</p> <ul style="list-style-type: none"> <li>• Develop and implement a mitigation land management plan to address long-term ecological sustainability and maintenance of the site for burrowing owls.</li> <li>• Fund the maintenance and management of mitigation land through the establishment of a long-term funding mechanism such as an endowment.</li> </ul>	
Swainson’s Hawk	S	<p><b>Mitigation Measure 3.4-9. Conduct Pre-Construction Surveys for Swainson’s Hawk and Implement Protective Buffers.</b></p> <p><b>Preconstruction Surveys.</b> A qualified biologist will conduct preconstruction surveys for Swainson’s hawks during the nesting season (March 1 through August 21) within the project footprint and of all suitable nesting habitat within line of sight of construction activities within a 0.25-mile radius of the project footprint. The surveys will be conducted no more than 15 days prior to ground disturbance and will be conducted using methods consistent with guidelines provided in <i>Recommended Timing and Methodology for</i></p>	LTS

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p><i>Swainson's Hawk Nesting Surveys in the Central Valley</i> (SHTAC 2000) with the following exceptions:</p> <ul style="list-style-type: none"> <li>• Surveys will be required within a 0.25 miles (1,320-foot) radius around the project site. In instances where an adjacent parcel is not accessible to survey because the qualified biologist was not granted permission to enter, the qualified biologist will scan all potential nest tree(s) from the adjacent property, road sides, or other safe, publicly accessible viewpoints, without trespassing, using binoculars and/or a spotting scope to look for Swainson's hawk nesting activity;</li> <li>• Surveys will be required from February 1 to September 15 (or sooner if it is found that birds are nesting earlier in the year); and</li> <li>• If a Swainson's hawk nest is located and presence confirmed, only one follow-up visit is required (to avoid disturbance of the nest due to repeated visits).</li> </ul> <p><b>Nest Buffers.</b> If active Swainson's hawk nests are found, appropriate buffers shall be established around active nest sites, in coordination with CDFW, to provide adequate protection for nesting raptors and their young. No project activity shall commence during the nesting season within the buffer areas until the qualified biologist has determined that the young have fledged, the nest is no longer active, or reducing the buffer would not result in nest abandonment.</p> <p><b>Nest Monitoring.</b> Monitoring of the nest by a qualified biologist during construction activities may be required if the qualified biologist determines that the activity has</p>	

Table ES-1. Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>potential to adversely affect the nest. If construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the no-disturbance buffer shall be increased until the agitated behavior ceases. The exclusionary buffer will remain in place until the qualified biologist has confirmed that the chicks have fledged.</p> <p>Information about avoidance and minimization measures for Swainson's hawk shall be included in the WEAP described above in Mitigation Measure 3.4-1.</p>	
		<p><b>Mitigation Measure 3.4-10. Compensate for the Loss of Swainson's Hawk Foraging Habitat</b></p> <p>To offset net impacts on foraging habitat for breeding Swainson's hawks SMUD will mitigate the loss of Swainson's hawk foraging habitat in accordance with CDFW recommendations (DFG 1994) by providing mitigation lands or securing Swainson's hawk mitigation bank credits as follows:</p> <ul style="list-style-type: none"> <li>Foraging habitat permanently lost within 5 miles of an active Swainson's hawk nest tree but more than 1 mile from the nest tree will be replaced with 0.75 acre of mitigation land for each acre of foraging habitat permanently lost because of project construction (0.75:1 ratio). Foraging habitat for nests that are within 1 mile of the project site will be mitigated at a 1:1 ratio. All mitigation lands protected under this requirement shall be protected in a form acceptable to CDFW (e.g., through fee title acquisition or conservation easement) on agricultural lands or other suitable habitats that</li> </ul>	LTS



Table ES-1. Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		provide foraging habitat for Swainson's hawk. This may occur through the payment of fees into the PCCP's in-lieu fee program under a Memorandum of Understanding (MOU) with the PCA prior to issuance of improvement plans. In-lieu fee payments would address impacts to special-status species, sensitive natural communities, wetlands and other waters of the US and state/County, and impacts to agricultural lands resulting from the conversion of important farmland (see Mitigation Measure 3.2-1 in Section 3.2 "Agricultural Resources" of this Draft EIR). Payments may be spread out in alignment with construction phasing and will occur prior to the start of each new phase. Management authorization holders/project sponsors will provide for management of the mitigation lands in perpetuity by funding a management endowment.	
Tricolored Blackbird	S	<b>Mitigation Measure 3.4-11. Conduct Focused Pre-Construction Surveys for Nesting Tricolored Blackbird and Avoid Impacts During Construction</b> <ul style="list-style-type: none"> <li><b>Preconstruction Tricolored Blackbird Surveys.</b> Before any ground-disturbing activities or vegetation clearing that may result in effects on potential habitat for Tricolored Blackbird (TRBL), a qualified biologist will conduct a preconstruction survey in potentially suitable nesting habitat (i.e., blackberry thickets and cattail marsh) for this species in the project footprint and a 500-foot buffer to the project footprint. The biologist will conduct three separate surveys, one each in mid-April, mid-May, and mid-June (Beedy, pers. comm., 2022a), and will use methods consistent with survey protocol used by</li> </ul>	LTS

Table ES-1. Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>surveyors for the Western Riverside County MSHCP 2018 <a href="https://www.wrc-rca.org/species/survey_protocols/2018_Tricolored_Blackbird_Survey_Protocol.pdf">https://www.wrc-rca.org/species/survey_protocols/2018_Tricolored_Blackbird_Survey_Protocol.pdf</a>). If an active nesting colony is detected during the surveys CDFW will be consulted to provide any guidance on appropriate avoidance and minimization measures in addition to those described below.</p> <ul style="list-style-type: none"> <li>• <b>Avoidance and Minimization.</b> Project activities will avoid occupied TRBL nesting habitat. If TRBL colonies are identified during the breeding season, an approximate buffer of up to 500 feet will be established around the colony, depending on site-specific conditions and at the discretion of a qualified biologist in consultation with CDFW. Any construction-related activities will be excluded from the buffer until the end of the breeding season.</li> <li>• <b>Construction Monitoring.</b> If construction takes place during the breeding season when an active colony is present within 500 feet of construction activities, a qualified biologist will regularly monitor construction to ensure that the buffer zone is enforced and to verify that construction is not disrupting the colony. The intensity and frequency of the monitoring will be established in consultation with CDFW. If monitoring indicates that construction outside of the buffer is affecting a breeding colony, the buffer will be increased, as needed, in consultation with CDFW.</li> <li>• Information about avoidance and minimization measures for tricolored blackbird shall be included</li> </ul>	

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		in the WEAP described above in Mitigation Measure 3.4-1.	
Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp	S	<p><b>Mitigation Measure 3.4-12. Avoid Impacts on Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp During Construction</b></p> <p>Vernal pools and seasonal wetlands in the project area provide potentially suitable habitat for vernal pool fairy shrimp and tadpole shrimp. A 250-foot no-disturbance buffer area will be established from the high-water mark of the vernal pool or wetland habitat prior to construction and will be delineated by fencing as described in Mitigation Measure 3.4-2 and confirmed by a qualified biologist. The boundaries of vernal pools, seasonal wetlands and associated 250-foot buffers will also be clearly delineated on project plans and specifications boundaries. No construction or ground-disturbing activities shall occur within the 250-foot buffer. All construction activities are prohibited within this buffer area. With complete avoidance of ground-disturbing activities within vernal pools and seasonal wetlands and a 250-foot buffer beyond the boundaries of these aquatic features, no direct or indirect impacts will occur to vernal pool fairy shrimp or tadpole shrimp and no further avoidance or minimization measures are required.</p> <p>Information about avoidance and minimization measures for vernal pool fairy shrimp and vernal pool tadpole shrimp shall be included in the WEAP described above in Mitigation Measure 3.4-1.</p>	LTS
American Badger	PS	<b>Mitigation Measure 3.4-13. Conduct Focused Pre-Construction Surveys for American Badger and</b>	LTS

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p><b>Implement Avoidance Measures during Construction</b></p> <p>A qualified biologist shall conduct focused surveys for American badger dens no more than 14 days prior to ground-disturbing activities in grassland habitat. The survey shall cover the limits of ground disturbance and a 100-foot buffer. Any winter or natal American badger dens located during the survey shall be evaluated (typically with remote cameras) to determine activity status.</p> <p>If American badger dens are detected in the project area, the qualified biologist shall establish a 100-foot no-disturbance buffer (e.g., wildlife-friendly fencing, flagging, or similar) around any active American badger natal dens identified during the survey. The buffer shall be maintained until the qualified biologist determines that the den is no longer active, and the young are no longer dependent upon the den for survival.</p> <p>If construction is scheduled to begin during the non-breeding period (i.e., typically from June through February) and an active non-natal den is found in or adjacent to the construction footprint, a qualified biologist shall develop a plan in consultation with CDFW to trap or flush the individual and relocate it to suitable habitat away from construction. If no dens are observed, and/or after a trapping or flushing effort is completed, and/or after it is confirmed that a natal den is no longer active, the vacated or unoccupied den can be excavated, and construction can proceed.</p> <p>If American badger is detected during the surveys the qualified biologist will determine if regular monitoring of the badger den is required to ensure there are no</p>	

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**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		impacts to this species and its habitat during construction.  Information about avoidance and minimization measures for American badger shall be included in the WEAP described above in Mitigation Measure 3.4-1.	
Western Red Bat	LTS	No mitigation is required.	LTS
Nesting Raptors and Migratory Birds	PS	<b>Mitigation Measure 3.4-14. Conduct Pre-Construction Surveys for Nesting Birds and Raptors</b>  Tree or vegetation removal shall be conducted outside of the nesting season (i.e., the nesting season is defined as February 1 through August 31) to the greatest extent feasible.  If construction activities will begin during the nesting season, a qualified biologist shall conduct a survey for nesting birds no more than 3 days prior to vegetation removal or ground-disturbing activities during the nesting season within suitable habitat (i.e., February 1 through August 31). The survey shall cover the limits of construction and accessible suitable nesting habitat within 500 feet. If any active nests are observed during surveys, a qualified biologist should establish a suitable avoidance buffer from the active nest. The buffer distance will typically range from 50 feet (for nesting passerines) to 500 feet (for nesting raptors) and will 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.  If vegetation removal activities are delayed, additional nest surveys shall be conducted such that no more	LTS

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**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		than 7 days are allowed to pass between the survey and vegetation removal activities.	
		<p><b>Mitigation Measure 3.4-15. Avoid Impacts on Nesting Birds and Raptors during Construction</b></p> <p>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 and the nests are no longer active, as determined by the qualified biologist.</p> <p>If an active nest is identified in or adjacent to the construction zone after construction has started, work in the vicinity of the nest shall be halted until the qualified biologist can provide appropriate avoidance and minimization measures to ensure that the nest is not disturbed by construction. Appropriate measures may include a no-disturbance buffer until the nest has fledged and/or full-time monitoring by a qualified biologist during construction activities conducted near the nest.</p> <p>Information about avoidance measures to protect nesting birds and raptors shall be included in the WEAP described above in Mitigation Measure 3.4-1.</p>	LTS
<p><b>Impact 3.4-2.</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?</p>	PS	<p><b>Mitigation Measure 3.4-16. Avoid, Minimize and Compensate for Impacts on Sensitive Natural Communities and Comply with Federal, State and Local Permits</b></p> <p>Prior to project implementation, SMUD shall refine potential impacts on sensitive natural communities based on advanced designs and obtain the necessary permits for impacts on any sensitive natural communities. These include the following permits:</p>	LTS

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<ul style="list-style-type: none"> <li>• Section 1600 Streambed Alteration Agreement from CDFW (for impact on riparian area and other sensitive natural communities not considered Waters of the U.S. (WUS) or State)</li> <li>• CWA Section 404 permit from USACE for impacts to WUS</li> <li>• CWA Section 401 Clean Water Certification from the Regional Water Quality Control Board for impacts to WUS</li> <li>• Waste Discharge Permit from Regional Water Quality Control board for impacts to water of the state</li> <li>• Floodplain encroachment permit from the County, if necessary based on advanced designs</li> <li>• As part of the permit applications, SMUD shall develop a habitat mitigation plan that will include mitigation for impacted sensitive natural communities on a no-net-loss basis. The plan may include onsite restoration, if feasible, offsite preservation, or purchasing mitigation credits from an agency-approved wetlands mitigation bank, paying an agency-approved in-lieu fee, and/or developing conservation lands to compensate for permanent loss of resources. Mitigation ratios shall be no less than 1:1 and shall be determined during the permitting process. This may also occur through the payment of fees into the PCCP's in-lieu fee program under a Memorandum of Understanding (MOU) with the PCA prior to issuance of improvement plans. In-lieu fee payments would address impacts to special-status species, sensitive</li> </ul>	

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**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>natural communities, wetlands and other waters of the US and state/County, and impacts to agricultural lands resulting from the conversion of important farmland (see Mitigation Measure 3.2-1 in Section 3.2 “Agricultural Resources” of this Draft EIR). Payments may be spread out in alignment with construction phasing and will occur prior to the start of each new phase.</p> <ul style="list-style-type: none"> <li>• SMUD shall implement all conditions of the permits, including any performance monitoring, if required for onsite restoration and report on the results of the monitoring to the appropriate agencies at the frequency and duration included in the permits.</li> <li>• Sensitive natural communities shall be included in the WEAP described above in Mitigation Measure 3.4-1.</li> </ul>	
<b>Impact 3.4-3.</b> 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?	PS	<p><b>Mitigation Measure 3.4-17. Avoid impacts to jurisdictional features and sensitive natural communities by use of horizontal directional drilling.</b></p> <p>The following avoidance and minimization measures shall be implemented to protect listed and other special-status plants and animals, and to avoid impacts to wetlands and riparian zones:</p> <ul style="list-style-type: none"> <li>• Boring activities and set-up activities for boring operations shall be situated outside of wetlands and riparian areas. An earthen or sandbag berm shall be installed around all drilling fluid mixing and pumping areas to contain any inadvertently spilled material. Sediment control devices shall be installed between the drilling staging areas and any waterways. This</li> </ul>	LTS



**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>includes any culverts or drainage ditches that lead to a waterway.</p> <ul style="list-style-type: none"> <li>• HDD operations at the creek crossings and/or jurisdictional features shall be limited to daylight hours because of the difficulty in identifying the loss of bentonite or machine pressure without daylight. This shall be defined by the termination of drilling 30 minutes before dusk, and resumption of drilling at dawn. The contractor will make every effort to schedule drilling activities to be completed between dawn and 30 minutes to dusk. Should the drilling activities be within one hour of completion, 30 minutes before dusk, drilling activities may be allowed to continue until completion if the Project environmental monitor and/or the CDFW or its agents determine that completing the drilling activities will result in less risk to the stream.</li> <li>• Visual inspection along the bore alignment for frac-outs shall take place at all times while the drill is in operation. The monitor shall be in radio contact with the boring machine operator at all times. A biologist/monitor's presence shall be required during all boring activities (i.e. boring, back reaming, etc.) within CDFW jurisdiction unless the drainage is dry.</li> <li>• The HDD Operator shall design, pre-plan, and direct the HDD operation in such a way as to minimize the risk of spills of all types. The HDD Operator shall prepare and implement a Frac-Out Contingency Plan and submit it to SMUD and CDFW for review and approval 30 days prior to construction, which includes the boring plans and frac-out and clean-up plans, in the event of the accidental release of</li> </ul>	

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>drilling lubricants through fractures in the streambed or bank ("frac-outs"). In substrates where frac-outs are likely to occur, the HDD Operator shall operate in a manner that will reduce risk, such as using lower pressure and greater boring depths. The Contingency Plan shall be kept on site at all times.</p> <ul style="list-style-type: none"> <li>• A non-toxic fluorescent water-soluble dye shall be added to the drilling muds to allow for frac-outs to be seen in muddy waters. The dye shall be used in a concentration which allows the monitors to easily determine the source of the frac-out, and shall be a type of dye approved for use by the local Regional Water Quality Control Board.</li> <li>• All equipment required to contain and clean up a frac-out release shall be available at the work site.</li> <li>• Boring plans should include: <ul style="list-style-type: none"> <li>○ A sketch of the construction site, including equipment staging areas, approximate location of drill entry and exit points and the approximate location of access roads in relation to the surrounding area,</li> <li>○ Proposed depth of bore and statement of streambed or wetland condition (subsurface strata and percent of gravel and cobble) that support the depth of the bore,</li> <li>○ Approximate length of bores (50-foot increments),</li> <li>○ Type and size of boring equipment to be used (categorized as mini, mid or maxi),</li> <li>○ Estimated time to complete bore,</li> </ul> </li> </ul>	

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<ul style="list-style-type: none"> <li>○ List of lubricants and HDD additives to be used including Material Safety Data Sheets (MSDS), and</li> <li>○ Name of Operator's agents and cell phone numbers.</li> <li>• Frac-out prevention and clean-up plans should include:               <ul style="list-style-type: none"> <li>○ Name(s) and phone numbers of biological monitor(s) and crew supervisor(s),</li> <li>○ Site specific resources of concern (if applicable, include factors such as possible presence of sensitive species),</li> <li>○ Monitoring protocols (include biological monitoring and frac-out monitoring), and</li> <li>○ Containment and clean-up plan (include staging location of vacuum trucks and equipment, equipment list, necessary hose lengths, special measures needed for steep topography, etc. at each location).</li> </ul> </li> <li>• If a frac-out or spill occurs in a sensitive resource, the Operator shall immediately notify the SMUD Environmental Monitor.</li> <li>• If a frac-out occurs, the SMUD Environmental Monitor, shall determine whether clean-up actions are warranted. If containment and clean-up is needed to prevent additional impacts, the Contractor shall begin the following containment and clean up measures immediately. Where water flows allow, the Contractor shall immediately construct a sandbag well around the frac-out or place a standing pipe (such as a 55-gallon drum</li> </ul>	

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**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		with the top and bottom removed, heavy PVC pipe or CMP or culvert type material) around the frac-out to contain the drilling mud. A trailer-mounted vacuum or vacuum truck shall be deployed to vacuum out spilled drilling fluids that continue to leak. Removed drilling fluids shall not be placed where they are likely to re-enter the stream. All cleanup and containment efforts shall adhere to the Frac-out Contingency Plan approved by the SMUD for spill response.	
<b>Impact 3.4-4.</b> 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?	LTS	No mitigation is required.	LTS
<b>Impact 3.4-5.</b> Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	LTS	No mitigation is required.	LTS
<b>Impact 3.4-6.</b> Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	LTS	No mitigation is required.	LTS
<b>3.5 Cultural Resources</b>			
<b>Impact 3.5-2.</b> Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	PS	<b>Mitigation Measure 3.5-1: Halt ground-disturbing activity upon discovery of subsurface archaeological features.</b>  In the event that any prehistoric or historic-era subsurface archaeological features or deposits, including locally darkened soil ("midden"), that could conceal cultural deposits, are discovered during construction, all ground-disturbing activity within 100	LTS

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		feet of the resources shall be halted and a qualified professional archaeologist shall be retained to assess the significance of the find. If the find is determined to be significant by the qualified archaeologist (i.e., because it is determined to constitute either an historical resource, a unique archaeological resource, or a tribal cultural resource), the archaeologist shall develop appropriate procedures to protect the integrity of the resource and ensure that no additional resources are affected. Procedures could include, but would not necessarily be limited to, preservation in place (which shall be the preferred manner of mitigating impacts to archaeological sites), archival research, subsurface testing, or contiguous block unit excavation and data recovery (when it is the only feasible mitigation, and pursuant to a data recovery plan).	
<b>Impact 3.5-2.</b> Disturb any human remains, including those interred outside of dedicated cemeteries?	PS	<b>Mitigation Measure 3.5-2: Halt ground-disturbing activity upon discovery of human remains.</b> If human remains are discovered during any construction activities, potentially damaging ground-disturbing activities within 100 feet of the remains shall be halted immediately, and SMUD will notify the Placer County coroner and the NAHC immediately, according to PRC Section 5097.98 and Section 7050.5 of the California Health and Safety Code. If the remains are determined by the NAHC to be Native American, the guidelines of the NAHC shall be followed during the treatment and disposition of the remains. SMUD will also retain a professional archaeologist with Native American burial experience to conduct a field investigation of the specific site and consult with the Most Likely Descendant, if any, identified by the NAHC.	LTS

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		Following the coroner's and NAHC's findings, the archaeologist and the NAHC-designated Most Likely Descendant shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. PRC Section 5097.94 identifies the responsibilities for acting upon notification of a discovery of Native American human remains.	
<b>3.6 Energy</b>			
<b>Impact 3.6-1.</b> Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	LTS	No mitigation is required.	LTS
<b>Impact 3.6-2.</b> Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	LTS	No mitigation is required.	LTS
<b>3.7 Geology and Soils</b>			
<b>Impact 3.7-1.</b> Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	LTS	No mitigation is required.	LTS
<b>Impact 3.7-2.</b> Result in substantial soil erosion or the loss of topsoil?	LTS	No mitigation is required.	LTS
<b>Impact 3.7-3.</b> 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?	PS	No mitigation is required.	LTS
<b>Impact 3.7-4.</b> 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?	LTS	No mitigation is required.	LTS

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
<b>Impact 3.7-5.</b> Directly or indirectly destroy a unique paleontological resource or site?	PS	<p><b>Mitigation Measure 3.7-5: Avoid Impacts to Unique Paleontological Resources.</b></p> <p>To minimize the potential for destruction of or damage to previously unknown unique, scientifically important paleontological resources during earthmoving activities at the project site, SMUD shall do the following:</p> <ul style="list-style-type: none"> <li>• Prior to the start of earthmoving activities, retain either a qualified archaeologist or paleontologist to inform all construction personnel involved with earthmoving activities regarding the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and proper notification procedures should fossils be encountered.</li> <li>• If paleontological resources are discovered during earthmoving activities, the construction crew shall immediately cease work in the vicinity of the find and notify SMUD and the County. SMUD shall retain a qualified paleontologist to evaluate the resource and prepare a recovery plan. The recovery plan may include, but is not limited to, a field survey, construction monitoring, sampling and data recovery procedures, museum curation for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by SMUD and the County to be necessary and feasible shall be implemented before construction activities can resume at the site where the paleontological resource or resources were discovered.</li> </ul>	LTS

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
<b>3.8 Greenhouse Gas Emissions</b>			
<b>Impact 3.8-1.</b> Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Less Than Cumulatively Considerable	No mitigation is required.	Less Than Cumulatively Considerable
<b>Impact 3.8-2.</b> Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	LTS	No mitigation is required.	LTS
<b>3.9 Hazards and Hazardous Materials</b>			
<b>Impact 3.9-1.</b> Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	LTS	No mitigation is required.	LTS
<b>Impact 3.9-2.</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	PS	<b>Mitigation Measure 3.9-1: Conduct Phase II Environmental Site Assessment and Implement Remedial Measures</b>  To reduce health hazards associated with potential exposure to hazardous substances, SMUD shall implement the following measures before the start of ground-disturbing activities: <ul style="list-style-type: none"> <li>Retain a certified environmental professional to conduct a Phase II ESA that includes appropriate soil and/or groundwater testing. Recommendations in the Phase II ESA to address any contamination that is found shall be implemented before ground-disturbing activities can resume in the areas where contamination is identified, including at the two REC areas in the Phase I ESA recommended for further investigation.</li> <li>Notify the appropriate federal, State, and local agencies if evidence of previously undiscovered soil or groundwater contamination (e.g., stained or</li> </ul>	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>odoriferous soil or groundwater) or if previously undiscovered underground storage tanks are encountered during construction activities. Any contaminated areas shall be remediated in accordance with recommendations made by the Placer County Department of Health and Human Services-Division of Environmental Health Services, Central Valley RWQCB, DTSC, and/or other appropriate Federal, state, or local regulatory agencies.</p> <ul style="list-style-type: none"> <li>Remove all surface debris such as the used tires, tractor trailers, recreational vehicles, Polyvinyl chloride (PVC) piping, and soil piles observed within the proposed project boundaries during the site visit conducted in January 2022, and dispose of such materials at an appropriately permitted off-site disposal facility.</li> </ul>	
<b>Impact 3.9-3.</b> Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	LTS	No mitigation is required.	LTS
<b>3.10 Hydrology and Water Quality</b>			
<b>Impact 3.10-1.</b> Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	LTS	No mitigation is required.	LTS
<b>Impact 3.10-2.</b> Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	LTS	No mitigation is required.	LTS
<b>Impact 3.10-3.</b> Substantially Alter Drainage Patterns or Add Impervious Surfaces that would Result in Substantial Erosion, Exceed Storm Drainage System	LTS	No mitigation is required.	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Capacity, or Provide Substantial Additional Sources of Polluted Runoff?			
<b>Impact 3.10-4.</b> Substantially Alter Drainage Patterns or Add Impervious Surfaces that would Result in Increased Flooding, or Impede or Redirect Flood Flows?	LTS	No mitigation is required.	LTS
<b>Impact 3.10-5.</b> In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	NI/PS	<b>Mitigation Measure 3.10-1: Locate Construction Equipment and Material Storage Areas Outside of the 100-Year Floodplain During the Winter Rainy Season.</b>  In order to protect human life, water quality, and designated in-stream beneficial uses of waterbodies, the construction contractor shall implement the following: <ul style="list-style-type: none"> <li>The on-site construction trailer and its associated portable restrooms, fencing, power supply, and parking area, shall not be located within a 100-year floodplain.</li> <li>During the winter rainy season (i.e., November 1 through April 1), construction materials and equipment shall not be stored in a 100-year floodplain.</li> </ul>	LTS
<b>Impact 3.10-6.</b> Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	LTS	No mitigation is required.	LTS
<b>3.11 Land Use and Planning</b>			
<b>Impact 3.11-2.</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?	LTS	No mitigation is required.	LTS

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
<b>3.12 Mineral Resources</b>			
<b>Impact 3.12-1.</b> Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?	NI	No mitigation is required.	NI
<b>Impact 3.12-2.</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?	NI	No mitigation is required.	NI
<b>3.13 Noise</b>			
<b>Impact 3.13-1.</b> Temporary, short-term exposure of sensitive receptors to construction noise.	PS	<p><b>Mitigation Measure 3.13.1. Implement Noise-Reducing Construction Practices, Prepare and Implement a Noise Control Plan, and Monitor and Record Construction Noise near Sensitive Receptors.</b></p> <p>The project applicant(s) and primary contractors for engineering design and construction of all project phases shall employ noise-reducing construction practices and ensure that the following requirements are implemented at each worksite in any year of project construction to avoid and minimize construction noise effects on sensitive receptors. Measures that shall be used to limit noise shall include the measures listed below:</p> <ul style="list-style-type: none"> <li>Noise-generating construction operations shall be limited to the hours between 6 a.m. and 8 p.m. Monday through Friday, and between 8 a.m. and 6 p.m. on Saturdays.</li> <li>Construction equipment and equipment staging areas that could produce noise perceptible at the</li> </ul>	LTS

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>adjacent property boundary shall be located as far as feasible from nearby noise-sensitive land uses.</p> <ul style="list-style-type: none"> <li>• All construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.</li> <li>• All motorized construction equipment shall be shut down when not in use to prevent idling.</li> <li>• Individual operations and techniques shall be replaced with available quieter procedures and equipment (e.g., using welding instead of riveting, mixing concrete off-site instead of on-site).</li> <li>• Noise-reducing enclosures shall be used around stationary noise-generating equipment (e.g., compressors and generators).</li> <li>• Construction-related traffic shall be limited along roadways within residential uses such as South Brewer Road and Phillip Road as discussed in Mitigation Measure 3.17-1 Prepare and Implement Traffic Control Plan and Mitigation Measure 3.17-2 Prepare and Implement a Construction Transportation Plan.</li> <li>• Written notification of construction activities shall be provided to all noise-sensitive receptors located within 700 feet of construction activities. The notification shall include anticipated dates and hours during which construction activities are anticipated to occur and contact information, including a daytime telephone number, for the project</li> </ul>	

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**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>representative to be contacted in the event that noise levels are deemed excessive. Recommendations to assist noise-sensitive land uses in reducing interior noise levels (e.g., closing windows and doors) shall also be included in the notification.</p> <ul style="list-style-type: none"> <li>Acoustic barriers (e.g., lead curtains, sound barriers) shall be used, particularly during site grading and excavation activities, and when construction equipment operates along the project site boundaries within 700 feet of existing residential uses, to reduce construction-generated noise levels at affected noise-sensitive land uses. The barriers shall be designed to obstruct the line of sight between the noise-sensitive land use and on-site construction equipment.</li> </ul>	
<b>Impact 3.13-2.</b> Temporary, short-term exposure of sensitive receptors to increased traffic noise levels from project construction.	LTS	No mitigation is required.	LTS
<b>Impact 3.13-3.</b> Temporary, short-term exposure of sensitive receptors to potential groundborne noise and vibration from project construction.	LTS	No mitigation is required.	LTS
<b>Impact 3.13-4.</b> Permanent, long-term exposure of sensitive receptors to increased noise level from project operation.	LTS	No mitigation is required.	LTS
<b>3.14 Population and Housing</b>			
<b>Impact 3.14-1.</b> Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses)	NI	No mitigation is required.	NI

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
or indirectly (for example, through extension of roads or other infrastructure)?			
<b>Impact 3.14-2.</b> Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	NI	No mitigation is required.	NI
<b>3.15 Public Services</b>			
<b>Impact 3.15-1.</b> 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:	LTS/NI	No mitigation is required. See sub-topics below.	LTS/NI
Fire protection?	LTS	No mitigation is required.	LTS
Police protection?	LTS	No mitigation is required.	LTS
Schools?	NI	No mitigation is required.	NI
Parks?	NI	No mitigation is required.	NI
Other public facilities?	NI	No mitigation is required.	NI
<b>3.16 Recreation</b>			
<b>Impact 3.16-1.</b> 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?	NI	No mitigation is required.	NI
<b>Impact 3.16-2.</b> Does the project include recreational facilities or require the construction or expansion of	NI	No mitigation is required.	NI

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
recreational facilities which might have an adverse physical effect on the environment?			
<b>3.17 Transportation</b>			
<b>Impact 3.17-1.</b> Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	PS	<b>Mitigation Measure 3.17.1. Prepare and Implement a Traffic Control Plan</b> <ul style="list-style-type: none"> <li>Prior to the start of construction, the construction contractor shall prepare and submit a Traffic Control Plan (TCP) to Placer County for review and approval. The TCP shall be implemented to minimize construction-related traffic impacts on affected roadways. The contractor shall coordinate the development and implementation of this plan with agencies with jurisdiction over the affected routes (i.e., Placer County), as appropriate, and consider any other nearby construction happening at the same time. The TCP shall, at a minimum: define traffic controls, such as flag persons, warning signs, lights, barricades, cones, and detours, etc. to provide safe work areas and to warn, control, protect, and expedite vehicular traffic, based on County requirements and any conditions of project approval and shall aim to coordinate with other projects to minimize disruption to local and regional traffic flows during construction;</li> <li>show any proposed construction access location and encroachment onto a County roadway. The construction access location shall be reviewed and approved by the County at the time of Improvement Plan submittal. All approved construction access locations shall include an appropriate construction encroachment designed to the satisfaction of the</li> </ul>	LTS

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>County that may exceed typical construction encroachment designs (i.e. Baseline Road construction encroachment may be required to include larger radii and acceleration and deceleration tapers).</p> <ul style="list-style-type: none"> <li>• require the installation and maintenance of construction area signs in accordance with the current edition of the California Department of Transportation Manual on Uniform Traffic Control Devices (CA MUTCD) and/or California Department of Transportation Manual of Traffic Controls for Construction and Maintenance Work Zones, Traffic Control Plans must follow California MUTCD (Chapter 6) guidelines;</li> <li>• discuss work hours and haul routes, delineate work areas, and identify traffic control methods and plans for flagging;</li> <li>• develop and implement a process for communicating with affected residents and landowners about the project before the start of construction. The public notice shall include posting notices and appropriate signage regarding construction activities. The written notification shall include the construction schedule, the exact location and duration of activities on each roadway (e.g., which roads/lanes and access points/driveways will be blocked on which days and for how long), and contact information for questions and complaints;</li> <li>• notify the public regarding alternative routes that may be available to avoid delays;</li> </ul>	



**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<ul style="list-style-type: none"> <li>include measures to avoid disruptions or delays in access for emergency service vehicles and to keep emergency service agencies fully informed of road closures, detours, and delays. Police departments, fire departments, ambulance services, and paramedic services shall be notified at least one month in advance by the construction contractor of the proposed locations, nature, timing, and duration of any construction activities and advised of any access restrictions that could impact their effectiveness; and</li> <li>identify all emergency service agencies, include contact information for those agencies, assign responsibility for notifying the service providers, and specify coordination procedures. TCPs shall be provided to all affected police departments, fire departments, ambulance and paramedic services.</li> </ul>	
	PS	<p><b>Mitigation Measure 3.17-2. Prepare and Implement a Construction Transportation Plan</b></p> <p>Where construction traffic has the potential to significantly affect regional and local roadways (e.g., Baseline Road, South Brewer Road, and Phillip Road) by generating additional vehicle trips, or potentially causing unsafe situations by construction vehicles making left hand turns into the construction site, the construction contractor shall prepare and implement a Construction Transportation Plan (CTP) describing alternate traffic routes, timing of commutes, reduction in crew-related traffic, potential temporary turning lanes/pockets, if required, and other mitigation methods for reducing construction-generated additional traffic on regional and local roadways and to guarantee safe</p>	LTS

NI = No impact

B = Beneficial

LTS = Less than significant

PS = Potential significant

S = Significant

SU = Significant and unavoidable

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>local traffic patterns during construction. The CTP shall also require the following:</p> <ul style="list-style-type: none"> <li>• distribute worker trips to multiple roadways and limit construction-related trips along South Brewer Road and Phillip Road to 100 worker trips or less during the peak hours (7 a.m. – 9 a.m. and 4 p.m. – 6 p.m.);</li> <li>• if deemed necessary by the County to ensure safe traffic conditions during construction based on advanced designs, include temporary turning lanes/pockets off Baseline Road, South Brewer Road, and Phillip Road in the CTP; these temporary turning lanes/pockets shall be engineered according to County standards, and shall be used temporarily only during construction; following construction, any turning lanes/pockets shall be removed, and the road conditions shall be restored to pre-construction conditions;</li> <li>• avoid construction-related trips during the morning and afternoon peak hours; and</li> <li>• construction workers park personal vehicles at staging yards and carpool to work sites within the project area.</li> </ul> <p>The construction contractor shall submit the CTP to Placer County for review and approval 30 days prior to commencing construction activities.</p>	
<b>Impact 3.17-2.</b> Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?	LTS	No mitigation is required.	LTS
<b>Impact 3.17-3.</b> Substantially increase hazards due to a geometric design feature (e.g., sharp curves or	Construction - PS	Implement Mitigation Measures 3.17-1 and 3.17-2, and;	LTS

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
dangerous intersections) or incompatible uses (e.g., farm equipment)?	Operational - NI	<p><b>Mitigation Measure 3.17-3. Resurface, Repair and/or Restore Roadways to Pre-Construction Condition.</b></p> <p>Prior to Improvement Plan approval, the applicant shall provide a video/photo survey of the existing surfacing condition of South Brewer and Phillip Roads to the satisfaction of the County. A cash security deposit (i.e. cash, CD, letter of credit – no bonds) shall also be provided to the County in an amount determined by the County and SMUD for the repair and restoration of the roadways to their original condition, including removal of any temporary turning lanes/pockets as discussed under Mitigation Measure 3.17-2 that would be constructed under the CTP, if deemed necessary based on advanced designs. Upon completion of construction of the project improvements (i.e. beginning operation/use of the site; and/or prior to Building Permit Certificate of Occupancy; and/or acceptance of the project construction as complete by the County), the existing South Brewer and Phillip roadway surfaces shall be repaired and/or restored to their original condition by the developer, including removal of any temporary improvement to ensure safe access, such as temporary turning lanes/pockets. The improvements required for repair and restoration shall be described by and at the sole discretion of the County and shall be constructed to County standards and to the satisfaction of the County. Improvement Plans and/or Encroachment Permits will need to be obtained by the developer for any required improvements, repair and restoration construction. After completing the repair and restoration to the satisfaction of the County, the cash security deposit will be released.</p>	

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
<b>Impact 3.17-4.</b> Result in inadequate emergency access?	Construction - PS Operational - LTS	Implement Mitigation Measure 3.17-1.	LTS
<b>3.18 Tribal Cultural Resources</b>			
<p><b>Impact 3.18-1.</b> Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 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:</p> <p>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</p> <p>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 § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.</p>	PS	<p><b>Mitigation Measure 3.18-1</b></p> <p>The following method is intended to minimize impacts to existing or previously undiscovered Tribal Cultural Resources (TCRs), archaeological, or cultural resources during a project's ground disturbing activities at the following locations: substation, switch yard, battery storage area. The project proponent and its construction contractor(s) will implement the following methods to identify TCRs at the earliest possible time during project-related earthmoving activities:</p> <ul style="list-style-type: none"> <li>• A compensated (paid) Tribal Monitor from a traditionally and culturally affiliated Native American Tribe shall be retained to monitor specified ground disturbing project related activities in the substation, switch yard, and battery storage area of the project area.</li> <li>• The specified ground disturbing activities include grading, trenching, and ground disturbance to a depth of up to approximately 6 feet.</li> <li>• Spot monitoring at these locations will be done by the Tribal Monitor in coordination with the construction schedule.</li> <li>• Consulting Tribes shall be contacted at least 2 weeks prior to project ground-disturbing activities in order to retain the services of a paid Tribal Monitor.</li> </ul>	LTS

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>The duration of the monitoring and construction schedule shall be determined at this time.</p> <ul style="list-style-type: none"> <li>Field-monitoring activities will be documented on a Tribal Monitor log. The total time commitment of the Tribal Monitor will vary depending on the intensity and location of construction and the sensitivity of the area, including the number of finds.</li> <li>The Tribal Monitor/s shall wear the appropriate safety equipment and shall have the necessary background training in construction safety protocols.</li> <li>The Tribal Monitor/s will have all necessary background training to identify and recommend appropriate treatment for any discoveries, including sites and objects of cultural value, that are a potential TCR.</li> <li>Tribal Monitors or Tribal Representatives have the authority to request that work be temporarily stopped, diverted, or slowed within 100 feet of the direct impact area if sites or objects of significance are identified. Only a Tribal Monitor or Representative from a culturally affiliated Tribe can recommend appropriate treatment and final disposition of TCRs.</li> <li>When avoidance is infeasible, preservation in place is the preferred option for mitigation of TCRs under CEQA and Tribal protocols, and every effort shall be made to preserve the resources in place, including through project redesign, if feasible. Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place</li> </ul>	

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>within the landscape, or returning objects to a location within the project area where they will not be subject to future impacts. Permanent curation of TCRs will not take place unless approved in writing by consulting Tribes.</p> <ul style="list-style-type: none"> <li>The contractor shall implement any measures deemed by the CEQA lead agency to be necessary and feasible to preserve in place, avoid, or minimize impacts to the resource, including, but not limited to, facilitating the appropriate tribal treatment of the find, as necessary. Treatment that preserves or restores the cultural character and integrity of a TCR may include Tribal Monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil.</li> <li>Work at the discovery location cannot resume until all necessary investigation and evaluation of the discovery under the requirements of the CEQA, including AB 52, have been satisfied.</li> </ul>	
<b>3.19 Utilities and Service Systems</b>			
<b>Impact 3.19-1.</b> Require or result in the relocation or construction of new or expanded water, wastewater treatment, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			
Water	LTS	No mitigation is required.	LTS
Wastewater	LTS	No mitigation is required.	LTS
Electric Power	LTS	No mitigation is required.	LTS
Natural Gas	NI	No mitigation is required.	NI

NI = No impact

B = Beneficial

LTS = Less than significant

PS = Potential significant

S = Significant

SU = Significant and unavoidable

**Table ES-1. Summary of Impacts and Mitigation Measures**

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Telecommunications Facilities	LTS	No mitigation is required.	LTS
<b>Impact 3.19-2.</b> Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	LTS	No mitigation is required.	LTS
<b>Impact 3.19-3.</b> 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?	LTS	No mitigation is required.	LTS
<b>Impact 3.19-4.</b> 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?	LTS	No mitigation is required.	LTS
<b>Impact 3.19-5.</b> Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	LTS	No mitigation is required.	LTS
<b>3.20 Wildfire</b>			
<b>Impact 3.20-1.</b> Substantially impair an adopted emergency response plan or emergency evacuation plan?	NI	No mitigation is required.	NI
<b>Impact 3.20-2.</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?	LTS	No mitigation is required.	LTS
<b>Impact 3.20-3.</b> 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	LTS	No mitigation is required.	LTS

**Table ES-1. Summary of Impacts and Mitigation Measures**

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
that may result in temporary or ongoing impacts to the environment?			
<b>Impact 3.20-4.</b> 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?	NI	No mitigation is required.	NI



## **1.0 INTRODUCTION**

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This draft environmental impact report (EIR) evaluates the potential environmental impacts of the proposed Country Acres Solar Project. This Draft EIR has been prepared under the direction of the Sacramento Municipal Utility District (SMUD) in accordance with the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000-21177) and the State CEQA Guidelines (California Code of Regulations [CCR], Title 14, Division 6, Chapter 3, Sections 15000-15387) (“CEQA Guidelines”). SMUD is the lead agency for this EIR and project approval.

### **1.1 Purpose and Intended Uses of the Draft EIR**

CEQA requires that public agencies consider the potentially significant adverse environmental effects of projects over which they have discretionary approval authority before taking action on those projects (PRC Section 21000 et seq.). CEQA also requires that each public agency avoid or mitigate to less-than-significant levels, wherever feasible, the significant adverse environmental effects of projects it approves or implements. If a project would result in significant and unavoidable environmental impacts (i.e., significant effects that cannot be feasibly mitigated to less-than-significant levels), the project can still be approved, but the lead agency’s decision-maker, in this case the SMUD Board of Directors, must prepare findings and issue a “statement of overriding considerations” explaining in writing the specific economic, social, or other considerations that they believe, based on substantial evidence, make those significant effects acceptable (PRC Section 21002, CCR Section 15093).

According to 14 CCR Section 15064(f)(1), preparation of an EIR is required whenever a project may result in a significant adverse environmental impact. An EIR is an informational document used to inform public agency decision makers and the general public of the significant environmental effects of a project, identify possible ways to mitigate or avoid the significant effects, and describe a range of reasonable alternatives to the project that could feasibly attain most of the basic objectives of the project while substantially lessening or avoiding any of the significant environmental impacts. Public agencies are required to consider the information presented in the EIR when determining whether to approve a project.

In accordance with 14 CCR Section 15161, this document is a project EIR that examines the environmental impacts of a specific project. This type of EIR focuses on the changes in the environment that would result from a specific project. In accordance with CCR Section 15161, a project EIR must examine the environmental effects of all phases of the project, including construction and operation.

Because SMUD has the principal authority over approval or denial of the project, SMUD is the lead agency, as defined by CEQA, for this EIR. Other public agencies with

jurisdiction over the project are listed below in Section 1.3, “Agency Roles and Responsibilities.”

## **1.2 Scope of the Draft EIR**

Pursuant to CEQA and the CEQA Guidelines, a lead agency shall focus an EIR’s discussion on significant environmental effects and may limit discussion on other effects to brief explanations about why they are not significant (PRC Section 21002.1, CCR Section 15128). This Draft EIR addresses all of the subject areas in Appendix G of the CEQA Guidelines.

Chapters 3.1 through 3.20 of the draft EIR consider plans, policies, and regulations adopted for the protection of the environment and public safety when making impact determinations.

## **1.3 Agency Roles and Responsibilities**

This Draft EIR will be used by SMUD and CEQA responsible and trustee agencies to ensure that they have met their requirements under CEQA before deciding whether to approve or permit project elements over which they have jurisdiction. It may also be used by other state and local agencies, which may have an interest in resources that could be affected by the project, or that have jurisdiction over portions of the project. In addition, federal agencies may use information included in the EIR to assist in their environmental evaluation in connection with permits they would need to issue. As the lead agency pursuant to CEQA, SMUD is responsible for considering the adequacy of the EIR and determining if the project should be approved.

Under CEQA, a responsible agency is a public agency, other than the lead agency, that has responsibility to carry out or approve a project (PRC Section 21069). A trustee agency is a state agency that has jurisdiction by law over natural resources that are held in trust for the people of the State of California (PRC Section 21070).

The following agencies may serve as responsible and trustee agencies for the project:

### **1.3.1 State**

- State Water Resources Control Board
- Central Valley Regional Water Quality Control Board
- California Department of Fish and Wildlife, Region 2
- California Department of Transportation, District 3
- California State Office of Historic Preservation

### **1.3.2 Local**

- Placer County (Conditional Use Permit, improvement/grading plans, Regional University Specific Plan (RUSP) Amendment, General Plan Amendment to

Health and Safety Element Policy 8b.1.4, RUSP Design Agreement Amendment, groundwater well permit, septic system permit, driveway encroachment permits, and other potential building and grading permits, as determined by County)

- Placer County Air Pollution Control District

While not a state or local agency, the federal agencies listed below may use environmental information in this EIR to inform their permitting actions.

### 1.3.3 Federal

- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- State Historic Preservation Office
- Federal Emergency Management Agency

## 1.4 CEQA Public Review Process

### 1.4.1 Notice of Preparation

The purpose of a Notice of Preparation (NOP) is to provide sufficient information about the project and its potential environmental impacts to allow agencies and interested parties the opportunity to provide a meaningful response related to the scope and content of the EIR, including mitigation measures that should be considered and alternatives that should be addressed (CCR Section 15082[b]). Comments submitted in response to the NOP are used by the lead agency to identify broad topics to be addressed in the EIR.

In accordance with PRC Section 21092 and CCR Section 15082, SMUD issued an NOP on November 19, 2021 to inform agencies and the general public that an EIR was being prepared and to invite comments on the scope and content of the document (Appendix F). The NOP was submitted to the State Clearinghouse, which then distributed the NOP to potential responsible and trustee agencies; posted on the SMUD's website (<https://www.smud.org/en/Corporate/Environmental-Leadership/Power-Sources/Country-Acres-Solar-Project>); posted with the Placer County Clerk; and made available at SMUD's offices. In addition, the NOP was distributed directly to Native American Tribes and other various stakeholders and responsible agencies. Finally, a legal notice regarding the NOP was published in the *Sacramento Bee* on November 19, 2021. The NOP was circulated for a 30-day review period, with comments accepted through December 21, 2021.

In accordance with Title 14 CCR Section 15082(c), a noticed virtual scoping meeting for the EIR occurred on December 8, 2021.

Comments on environmental issues received during the NOP public comment period are considered and addressed in this Draft EIR. Appendix F contains the comment letters submitted during the NOP public comment period.

### 1.4.2 Public Review of this Draft EIR

This Draft EIR is being circulated for public review and comment for a period of 45 days, from **September 13 to October 28, 2022**.

A public meeting will be held on **October 13, 2022** to receive input from agencies and the public on the Draft EIR.

During the public comment period, written comments from the public as well as organizations and agencies on the Draft EIR's accuracy and completeness may be submitted to SMUD. Written comments (including via email) must be received by 5:00 p.m. on October 28, 2022. Written comments should be addressed to:

SMUD–Environmental Services Department  
P.O. Box 15830  
Sacramento, CA 95852-0830  
Attn: Amy Spitzer

Email comments may be addressed to [amy.spitzer@smud.org](mailto:amy.spitzer@smud.org) and should contain “Country Acres Solar Project” in the title. If you have questions regarding the Draft EIR, please call Amy Spitzer at (916) 732-5384. Digital copies of the Draft EIR are available at: <https://www.smud.org/CEQA>. Printed copies of the Draft EIR are available for public review at the following locations:

Sacramento Municipal Utility District  
Customer Service Center  
6301 S Street  
Sacramento, CA 95817

Sacramento Municipal Utility District  
East Campus Operations Center  
4401 Bradshaw Road  
Sacramento, CA 95827

Placer County Community Development Resource Agency  
3091 County Center Drive  
Auburn, CA 95603

Roseville Public Library  
225 Taylor Street  
Roseville, CA 95678

### 1.4.3 Final EIR

After the end of the public comment period, responses to comments on environmental issues will be prepared. Consistent with CCR Section 15088(b), commenting agencies will be provided a minimum of 10 days to review the proposed responses to their comments before any action is taken on the Final EIR or project. The Final EIR

(containing any changes to this Draft EIR and the Responses to Comments document) will then be considered for possible certification and approval by SMUD's Board of Directors. If the Board finds that the Final EIR is "adequate and complete," the Board may certify the Final EIR in accordance with CEQA. The rule of adequacy generally holds that an EIR can be certified if:

1. The EIR shows a good faith effort at full disclosure of environmental information; and
2. The EIR provides sufficient analysis to allow decisions to be made regarding the proposed project with consideration given to its environmental impacts. The level of detail contained throughout this EIR is consistent with Section 15151 of the CEQA Guidelines and recent court decisions, which provide the standard of adequacy on which this document is based. The Guidelines states as follows:

The level of detail contained throughout this EIR is consistent with Section 15151 of the State CEQA Guidelines and recent court decisions, which provide the standard of adequacy on which this document is based. The State CEQA Guidelines state as follows:

An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of the environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.

CEQA states that when a public agency makes findings based on an EIR, the public agency must adopt a reporting or monitoring program for those measures it has adopted or made a condition of the project approval to mitigate significant adverse effects on the environment. The reporting or monitoring program must be designed to ensure compliance during project implementation.

## **1.5 Organization of the Draft EIR**

This Draft EIR is organized as follows:

**Executive Summary.** This chapter introduces the proposed Country Acres Solar Project; provides a summary of the environmental review process, effects found not to be significant, and key environmental issues; and lists significant environmental impacts and mitigation measures to reduce significant impacts to a less-than-significant level.

**Chapter 1: Introduction.** This chapter describes the legal authority and purpose of the EIR, the scope of the environmental analysis, agency roles and responsibilities, the CEQA public review process, and organization of this Draft EIR.

**Chapter 2: Project Description.** This chapter describes the project background, objectives, and location, and provides a detailed description of the characteristics associated with the proposed Country Acres Solar Project.

**Chapter 3: Environmental Setting, Impacts, and Mitigation Measures.** The resource sections within this chapter evaluate the potential environmental impacts resulting from the project. Each subsection of Chapter 3, describes the regulatory setting, environmental setting, methods and assumptions, and the thresholds of significance. Each chapter then evaluates the anticipated changes to the existing environmental conditions after development of the project for each resource. For any significant or potentially significant impact that would result from project implementation, mitigation measures are presented along with the remaining level of significance. Environmental impacts are numbered sequentially throughout the sections of Chapter 3 (e.g., Impact 3.1-1, Impact 3.1-2, etc.). Any required mitigation measures are numbered to correspond to the impact numbering; therefore, the mitigation measure for Impact 3.1-1 would be Mitigation Measure 3.1-1.

**Chapter 4: Cumulative Impacts.** This chapter provides information about the potential cumulative impacts that would result from implementation of the project together with other past, present, and reasonably foreseeable future projects.

**Chapter 5: Other CEQA Sections.** This chapter provides a discussion of potential significant and unavoidable impacts, significant and irreversible commitment of resources, and growth-inducing impacts.

**Chapter 6: Alternatives.** This chapter provides a discussion of alternatives to the project, including the No Project Alternative; alternatives considered but rejected from further consideration; and the environmentally superior alternative.

**Chapter 7: List of Preparers.** This chapter identifies the individuals who contributed to the preparation of this Draft EIR.

**Chapter 8: References.** This chapter lists the references used in preparation of this Draft EIR.

## **2.0 PROJECT DESCRIPTION**

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This chapter presents a detailed description of the Country Acres Solar Project (project), including the project location, project background and history, project objectives, proposed facilities and operations, and anticipated construction and operation activities. Sacramento Municipal Utility District (SMUD), a local public agency, proposes to build and operate a photovoltaic (PV) solar power and battery storage renewable energy generation facility interconnected to SMUD's transmission grid in southwestern Placer County. SMUD is proposing to construct PV solar panels, battery storage facilities, and interconnection facilities, including a high voltage substation, switching station, and interconnection to the existing SMUD transmission system. SMUD is purchasing approximately 230 acres of the project area for the substation, switching station, and battery storage facilities, which will remain after the life of the solar project. SMUD will also lease up to 945 acres of land for the installation of solar panels and associated infrastructure. The Project is proposed to support SMUD's 2030 Zero Carbon Plan.

### **2.1 Project Location**

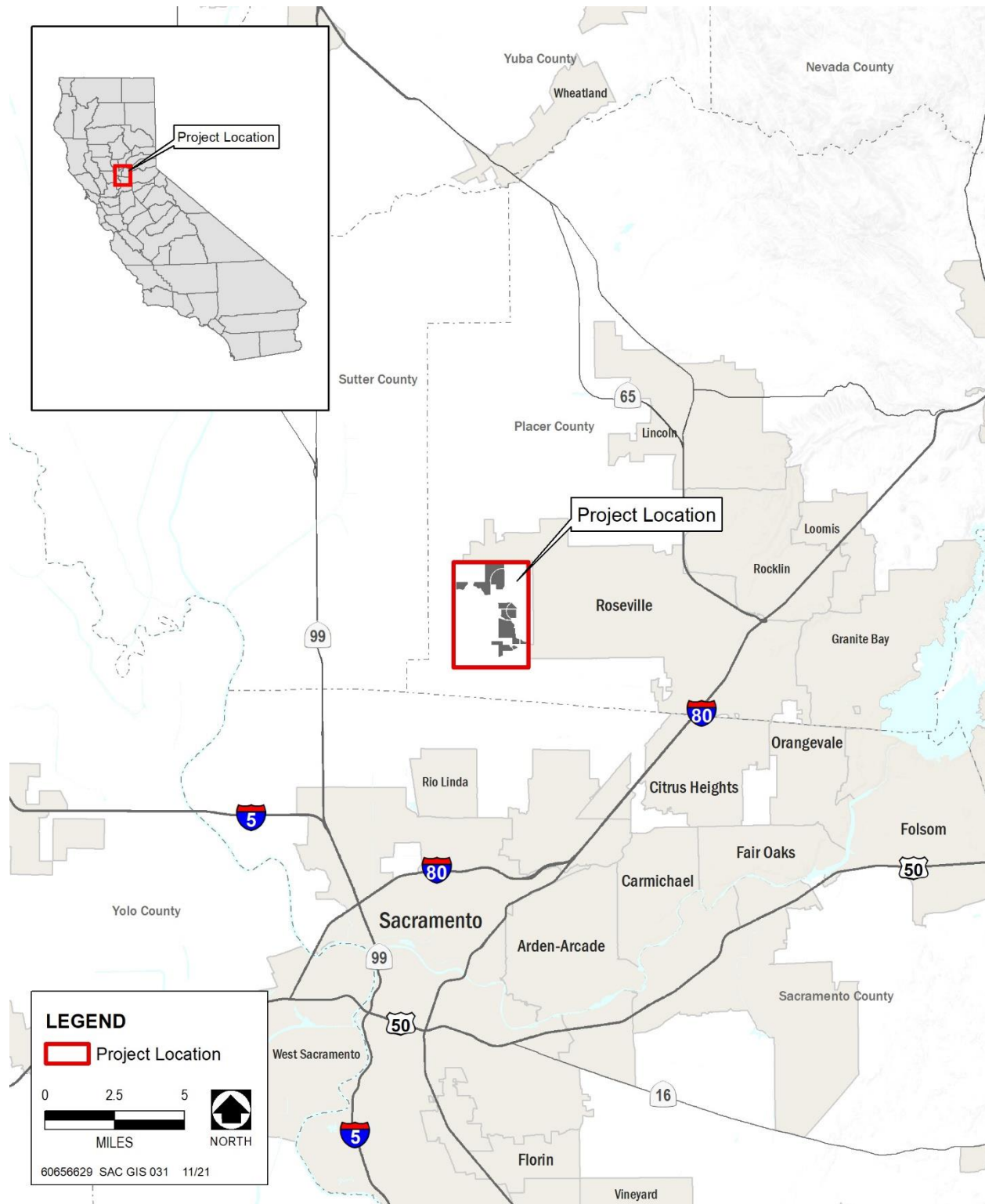
The project would be located on approximately 1,170 acres of land in southwestern Placer County, west of the City of Roseville, north of Baseline Road and east of South Brewer Road (Exhibit 2-1). Primary access to the project site would be provided by entry roads from Baseline Road to the south, South Brewer Road to the west, and Phillip Road to the north. The project area encompasses several parcels and includes a northern portion and a southern portion connected by an easement for electrical collection lines and roads.

The project site is relatively flat and open and includes grassland, agricultural rice fields and almond orchards. A portion of the grassland on the project site is interspersed with scattered seasonal wetlands, vernal pools, and drainages. A section of upper Curry Creek traverses the project site. Agricultural uses and grassland surround the project site with some residential development to the east of the project site in the City of Roseville.

### **2.2 Project Background and History**

California's energy supply and demand is continually evolving as a result of state mandates to address climate change and a growing population. SMUD has designed its resource procurement plans to meet the directive by its Board of Directors to use dependable renewable resources to eliminate carbon emissions from its power supply by 2030, as described in SMUD's 2030 Zero Carbon Plan (SMUD 2021). This goal is consistent with Senate Bill 350, which was signed into law in 2015. Senate Bill 100 accelerated the deadline for reaching the 50 percent milestone to 2026, and 60 percent by 2030. The law also establishes as state policy that renewable energy resources and zero-carbon resources are to supply 100 percent of retail sales of electricity to California end use customers by 2045. SMUD has the ambitious goal of becoming 100 percent

carbon free by 2030, ahead of the state target. The proposed project is an important element in helping SMUD achieve this goal.



**Exhibit 2-1. Regional Location Map**



## 2.3 Project Objectives

SMUD's objectives for the project include the following:

- Contribute to a diversified energy portfolio that will aid in the continued improvement of air quality in the Sacramento Valley Air Basin by decreasing reliance on fossil fuel combustion for the generation of electricity and reduce SMUD's exposure to price volatility associated with electricity and natural gas.
- Provide a renewable power resource to support the SMUD Board of Directors' 2030 Zero Carbon Plan, approved in 2021, which establishes a flexible pathway for SMUD to eliminate carbon emissions from its power supply by 2030 by developing and procuring dependable renewable resources.
- Develop a project that will deliver a reliable, long-term supply of economically feasible solar and battery storage for up to 344 megawatts (MW) of electrical capacity at a point of interconnection with the grid managed by SMUD.
- Site the project to avoid natural wetlands and other sensitive habitats as feasible within the available property.
- Integrate compatible agricultural activities such as grazing and/or pollinator habitat into solar operations.
- Optimize the delivery of solar-produced and stored energy and minimize the geographic extent of impacts by locating the facility near existing electrical infrastructure with available capacity.
- Design a flexible PV solar energy and battery storage facility that is capable of utilizing the best available, efficient, cost-effective, and proven PV solar and storage technology.
- Construct the facility in a location that is readily accessible from existing roads and that would not require the construction of major new roadway improvements.

## 2.4 Land Use and Zoning

The proposed project is proposed to be located on approximately 1,170 acres of property, portions of which would be leased by and portions of which would be owned by SMUD. The project site potentially includes Assessor's Parcel Numbers (APNs) 017-090-024, 017-090-047, 017-090-048, 017-090-056, 017-090-057, 017-090-058, 017-130-015, 017-130-016, 017-130-057, 017-130-058, 017-130-061, 017-152-002, and 017-152-003. The majority of these parcels are currently zoned F-B-X 80 in the Placer County Zoning Ordinance (Farm, combining minimum building site of 80 acres); however, APNs 017-090-047, 017-090-048, 017-090-057, and 017-090-058 are zoned SPL-RUSP, SPL-RUSP (Specific Plan - Regional University Specific Plan). The proposed project is located in areas identified as Potential Future Growth Area (PFG)

under the recently adopted Placer County Conservation Program (PCCP) (Placer County 2021a); however, Municipal Power Generation is not considered a covered activity in the PCCP. For at least the last 70 years, zoning ordinances of a county or city did not apply to the location, construction, or production of facilities for the generation or storage of electrical energy by a local agency, per Government Code Section 53091(e). However, in 2019 a California Court of Appeal held, in *City of Hesperia vs. Lake Arrowhead Community Services District*, that this express exemption does not exist if the energy produced from the generation facility would be conveyed somewhere, given that Section 53091(e) says zoning ordinances *do* apply to the *transmission* of energy.” Under this reasoning, because SMUD plans to convey the energy through onsite conduit from the PV generation facilities to a substation and then into its existing transmission system, entitlements for the project would be required, including but not limited to a Conditional Use Permit (CUP) from Placer County. SMUD and Placer County have agreed that SMUD is the appropriate Lead Agency for the project, with Placer County acting as a principal Responsible Agency. SMUD and Placer County have collaborated closely during the conceptual design of the project and the preparation of this Draft EIR. SMUD has submitted an application for a CUP to Placer County.

Several of the properties identified within the project description are subject to the existing Regional University Specific Plan (RUSP) and the RUSP Development Agreement. As such, the properties located in the RUSP area (APN: 017-090-047, -048, -057 zoned University zoning district) must comply with the Specific Plan or propose an amendment to the RUSP entitlement. It is SMUD’s understanding that currently the Regional University is not prepared to complete a campus master plan and SMUD does not want to complete the University Site Review Process for construction of the photovoltaic collection system.

Therefore, SMUD has requested Placer County’s consideration of the following specific plan amendments to the Regional University Specific Plan (RUSP) and the RUSP Development Agreement. Specifically, the amendments would include the following changes to these existing documents (underlined):

#### **RUSP, Page 10-3 10.2.4 Subsequent Conformity Review**

A Subsequent Conformity Review Questionnaire (SCRQ) shall be submitted to Placer County in conjunction with the application for any discretionary development entitlement, such as a tentative subdivision map, conditional use permit or other similar entitlement, for individual projects within the RUSP and also as part of the Campus Master Plan and University Site Review process, for any uses other than an electric generation plant project, which requires a conditional use permit. The purpose of the SCRQ will be to enable the County to determine if the proposed project is consistent with the Specific Plan and to examine if there are project-specific effects that are peculiar to the project or its site that were not considered in the Specific Plan EIR, or if an event as described in CEQA Guidelines Section 15162 has occurred.

**RUSP Design Standards and Guidelines, Page 5-1 5.D. Development Standards and Permitted Uses**

The University Campus (Parcel 29) will require a site-specific master plan for review and approval by the County prior to improvements on the campus site. Land uses permitted in the University District will be determined during the Campus Master Plan process as described in Section 10.2.4 of the Regional University Specific Plan, for any uses other than an electric generation plant project, which requires a conditional use permit. The University is planned as a “full service” campus that will have typical features and academic uses similar to a major university of national stature.

SMUD has been working with County staff on these specific plan amendments and will continue to work with the County on additional pertinent sections of the RUSP Development Agreement that may need clarification regarding this project and defers to County staff on which areas need to be discussed in further detail.

SMUD has also been working with Placer County on a General Plan Amendment to Health and Safety Element Policy 8.b.1.4 (Placer County 2021b), which states:

*New construction shall not be permitted within 100 feet of the centerline of permanent streams and within 50 feet of intermittent streams, or within the 100-year floodplain, whichever distance is greater.*

The County and SMUD have agreed on a General Plan Amendment to Policy 8.b.1.4, which will state the following:

*New construction shall not be permitted within 100 feet of the centerline of permanent streams and within 50 feet of intermittent streams, or within the 100-year floodplain, whichever distance is greater, except for long-term, nonpermanent solar electric generation projects with a conditional use permit, as long as any impacts to the floodplain, vegetation and wetlands are less than significant, grading and increases to water surface elevations of the base flood are minor, and the stream is not anadromous fish bearing.*

**2.4.1 Topography and Natural Habitat**

Topography in the project area is generally flat (0-5%). The elevation varies between approximately 58 feet above mean sea level (msl) and 100 above msl.

While much of the project area is currently in agricultural production (rice, orchards), seasonal wetlands, cattail marsh, vernal pools, drainages, riparian vegetation, and creeks also occur within the project area. Curry Creek bisects the project area. Curry Creek and many of the other drainages and creeks in the area are channelized and exhibit perennial or near-perennial hydrology as influenced by adjacent rice field and pasture irrigation practices.

### 2.4.2 Existing Land Uses

Existing land uses within the project area include predominantly agricultural rice fields and almond orchards, and some annual non-native grassland with seasonal wetlands previously farmed for grain; however, in recent years this non-native grassland has been left fallow. Irrigation wells exist throughout the project site. The wells are powered either via overhead electrical distribution lines, diesel, or propane fuel.

Surrounding land uses include rice fields and almond orchards, urban development, and open space areas with seasonal wetland, riparian, and annual grassland vegetation. Curry Creek has been channelized in the project area. A hydrology and hydraulic study (Black and Veatch 2022) has been completed to determine the existing conditions of the regulatory floodway and floodplain associated with Curry Creek. The majority of the region is privately owned and developed or in the process of development for agricultural, industrial, residential, and transportation uses.

## 2.5 Project Characteristics and Components

The Country Acres Solar Project includes construction and operation of a PV solar power and battery storage facility and interconnection facilities, including a generation substation, switch station, and interconnection lines, that would provide new power production capacity of up to 344 MW delivered at the point of interconnection with the electrical grid managed by SMUD. The project site would generally comprise PV solar modules, foundation piles, racking, direct current (DC) collection, alternative current (AC) collection, fencing, roads, inverters, medium voltage transformers, an interconnection line between the generation substation and switch station, battery storage equipment, and interconnection lines to the existing SMUD transmission system. During construction, a temporary construction trailer/office complex and staging areas would be established. During operation, the proposed project would likely include an operations facility that would provide space for equipment and an onsite office for the site operator. At the end of the project's life (anticipated to be 30 to 35 years), the project and its assets would be decommissioned; however, SMUD may retain the substation, switching station, and battery storage facilities. Details about the decommissioning process are not known at this time, thus potential impacts from decommissioning cannot be analyzed in this Draft EIR. The project will prepare a decommissioning and reclamation plan prior to decommissioning that will detail the timeline for removal of the improvements and specific measures to return the site to agricultural capability. Additionally, prior to decommissioning, additional CEQA analysis would be performed.

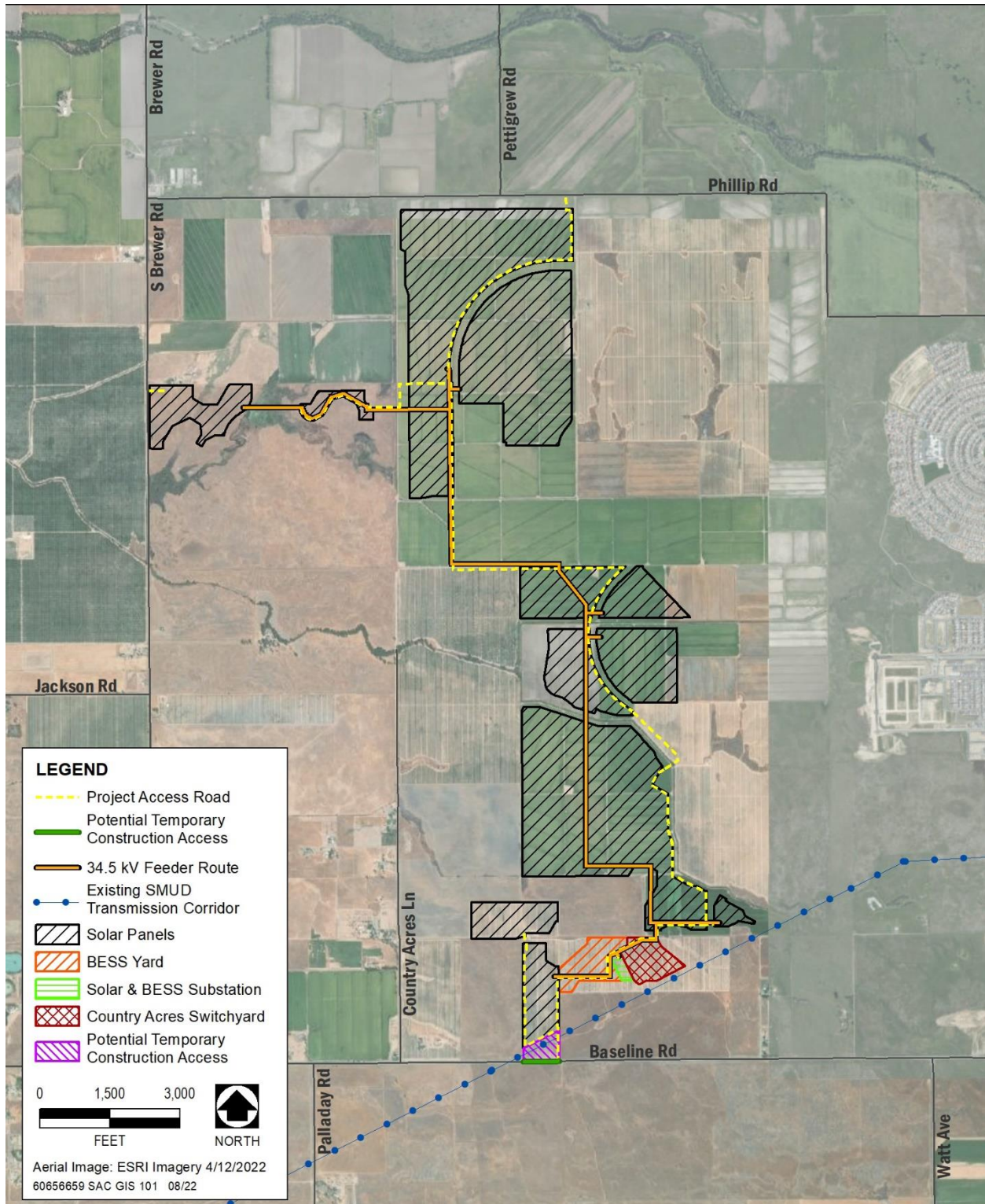
Exhibit 2-2 provides a conceptual site layout for the solar and battery storage facility and supporting infrastructure based on currently available 10% design drawings. Based on analysis in this Draft EIR and advanced design engineering, the area developed by the project could differ slightly from what is shown in Exhibit 2-2. For example, the solar arrays could be arranged differently, the collection line layout altered, the battery storage may be in one yard area or may be dispersed within the solar arrays, the generation substation or switch station locations could be modified, or the access

roadway or fencing alignments could change. However, the project footprint would not be larger than that shown in Exhibit 2-2 which therefore represents the largest potential development footprint. Furthermore, development of the current layout presented in Exhibit 2-2 has been guided by resource inventories for natural and cultural resources, and the layout has been sited to minimize and avoid sensitive resources. These siting constraints will be carried forward in future engineering design.

### *2.5.1 Energy-Related Infrastructure*

#### *Solar Modules, Collection Systems, and Inverters*

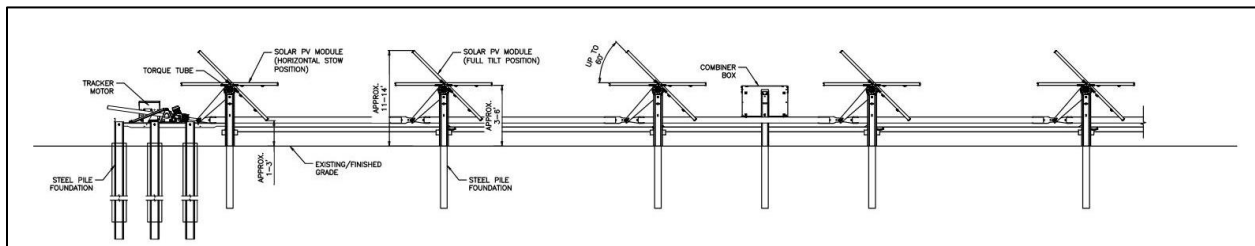
The project would involve the installation of solar PV module arrays that would convert solar energy directly to electrical power to supply the electrical grid. The solar PV modules would convert the sunlight striking the modules directly into DC power, which would be transformed to AC power via an inverter. The precise configuration of the arrays within the project site may vary to avoid constraints identified over the course of environmental review and further design development.



**Exhibit 2-2. Site Location Map with Proposed Project Elements**

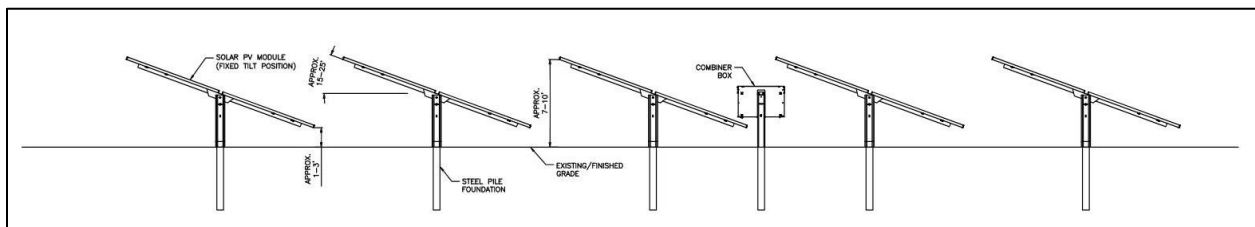
The project would include PV modules mounted on a single-axis horizontal tracking system or a fixed tilt system, or a combination of both. The infrastructure described herein would be similar for either a single-axis tracking system or a fixed-tilt system.

A single-axis horizontal tracking system, shown in Exhibit 2-3, includes the installation of PV modules mounted on a rack with a rotating-gear drive, which would be designed to track the sun's path through the sky along a single axis. When the sun is directly overhead, the modules would be at a zero-degree angle (level to the ground). The modules would tilt in either direction (east or west), tracking the sun through the course of the day. At a horizontal position, the modules would be approximately 6 to 12 feet off the ground. The tracking system would be fixed to the ground via driven piles, and would involve no spinning machinery, no thermal cycle, and no water use except for panel washing, when necessary.



**Exhibit 2-3. Single-Axis Tracker Solar PV Typical Elevation View**

If a fixed-tilt system is used, as shown in Exhibit 2-4, the modules would be fixed at an angle of approximately 15 to 25 degrees to the south and would not move. The mounting system for the fixed-tilt module includes posts driven into the ground, with table frames bolted to the driven posts. The modules are then mechanically fastened to the tables. Fixed-tilt modules would be up to 8 feet off the ground surface at the highest point of the array and 1 to 2 feet off the ground at the lowest point of the array depending on the terrain.



**Exhibit 2-4. Fixed-Tilt Racking Solar PV Typical Elevation View**

Depending upon soil and hydrologic conditions, the posts would be driven into the soil approximately 5 to 8 feet deep. If the results of detailed geotechnical investigations indicate that driven steel posts are not an optimal foundation, other embedded foundation designs may be utilized.

The project would have an underground network of AC power cables and communication lines that would connect the array transformers to a medium voltage

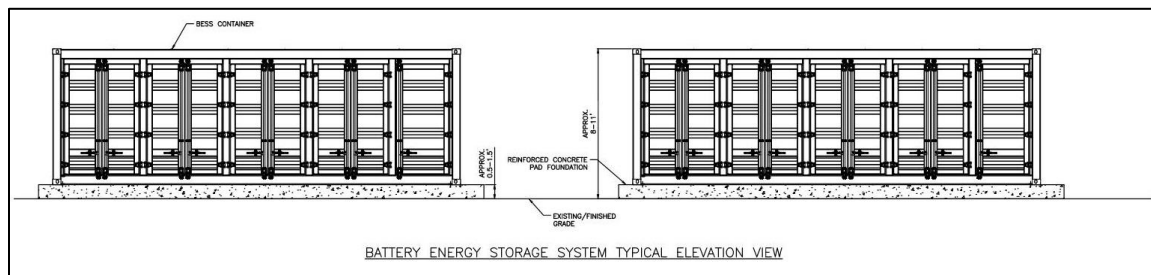


combining switchgear and communication equipment. The cables would typically be located in trenches up to 4 feet in depth backfilled with native soils or engineered material. This switchgear would connect, via an overhead or underground collection system, to the proposed generation substation. Where an overhead line is used it would be supported by wooden or steel poles approximately 30 to 40 feet tall. These lines would follow existing infrastructure easements or access roads when feasible. The onsite substation would then transform the final voltage to connect the project power to the existing SMUD transmission system.

### Battery Energy Storage System

A battery energy storage system (BESS) is proposed to be constructed within the project footprint (see Exhibit 2-5 and Exhibit 2-6). Two main types of BESSs are being considered for the project: a DC-coupled and an AC-coupled system. A DC-coupled system would consist of multiple small battery units located on concrete skids or metal posts adjacent to the solar arrays. An AC-coupled system would consist of one or more metal containers similar in size to a shipping container likely located on a concrete pad in the battery storage area. The BESS would be connected to the proposed generation substation via an overhead or underground collection system similar to the solar component of the project.

The BESS storage system would follow the latest national fire protection safety codes. The codes include fire prevention, and mitigation and suppression system requirements.



**Exhibit 2-5. Battery Energy Storage System Typical Elevation View**





**Exhibit 2-6. Battery Energy Storage System**

### Substation and Switching Station

The proposed onsite substation would be a minimum of 600 feet by 300 feet and include one or more generation step-up transformers, breakers, buswork, protective relaying, meters, a site control center building, backup power provided from the local utility, associated substation equipment, and a dedicated perimeter fence. The substation would be constructed and operated to step up the voltage of the electricity generated from the PV arrays or stored in the BESS. The substation site would be improved with compacted materials and foundations to support electrical equipment and supporting infrastructure. The substation structures would range in height from approximately 20 to 72 feet. Ten (10) foot security fencing consisting of chain link topped by barbed wire would be placed around the perimeter of the new substation. Station service is planned to be provided via one of the adjacent electrical distribution lines. Emergency generators may be needed in the event of loss of station service.

The proposed 230 kV switching station would be a minimum of 800 feet by 600 feet in size and may include a storm water detention basin. The switch station would be designed and built to meet SMUD's specification, guidelines, and standards. The major equipment and associated support structure would include 230 kV bus, circuit breakers, disconnect and ground switches, metering, other ancillary equipment, and a control building. Station service would be provided to the switch station via a local distribution circuit.

Both the Switching Station and the Substation are planned with site control center buildings. The buildings would be less than 3,600 square feet in size and designed to meet federal, state and local building, electrical and fire codes with adjacent parking for employees. The buildings would include restrooms connected to a septic system. No

public water supply is available at the site, thus water for the restrooms will be from a domestic ground water well. During construction portable sanitary facilities will be utilized.

### Interconnection Lines

The interconnection of the project to SMUD's grid would be accomplished through removal of a section of the existing SMUD transmission lines and installation of new overhead double circuit lines on galvanized steel mono structure poles or lattice structures to interconnect the new switching station. The new poles would be up to approximately 130 feet tall and extend from the switching station to the existing lines.

From the proposed onsite substation to the proposed 230-kV switch station, SMUD proposes to install new overhead generation interconnection lines on galvanized steel mono structure poles. The new poles would be up to approximately 130 feet tall.

The overhead lines (including the overhead transmission lines and the line from the substation to the switch station) would be designed to reduce raptor and other bird collisions and electrocutions in compliance with SMUD's current Avian Protection Plan (APP) standards (SMUD 2016). Avian protection design standards and mortality reduction measures in the SMUD APP include installing flight diverters to increase overhead wire visibility in high-risk collision areas and using 60-inch clearance (minimum vertical separation of 36 inches from phase to ground on single-phase structures or 43 inches between energized conductors and ground on three-phase structures) pole design in eagle/raptor use areas. In addition, the APP requires that avian injuries and mortalities be reported to the SMUD APP Coordinator and that corrective actions be implemented if high mortality rates or avian caused power outages are recorded. Observations of injured or deceased birds during routine inspections are reported to SMUD's APP Coordinator.

### Facility Finishes

All project facilities, including operations and maintenance buildings, poles, array facilities, would blend in with the colors found in the natural landscape, and all color treatments would be matte or nonglossy finishes.

## *2.5.2 Other Structures and Improvements*

### *Access and Internal Road Improvements*

Primary access to the project site during construction and operation would be provided by existing, or newly constructed, paved, graveled, or dirt roads and/or driveways extending to the project site from Baseline Road, South Brewer Road, and Phillip Road. This could involve a temporary turn lane from Baseline Road onto the project site, which could require road widening at that location and temporary construction access improvements. Improved (earthen or graveled) roads, approximately 12 to 20 feet wide, would be constructed throughout the site and between arrays to provide access to the

solar and BESS equipment and accommodate on-going maintenance of the solar and battery facilities and emergency vehicles. Existing earthen farm roads would be used for construction and maintenance and would be improved with a gravel overlay to minimize air quality impacts during construction and reduce dust accumulation on nearby almond trees and future solar panels. An existing crossing over Curry Creek could require improvements to accommodate construction traffic including adding reinforcement materials such as steel plating. These improvements would not require in-channel work and would be removed following construction.

### *Utilities*

Existing overhead distribution lines adjacent to and within the project site may be used to provide energy to project infrastructure and personnel during construction and operation of the project. Additional poles and lines may be required to extend service to proposed project components such as the project generation substation or 230 kV switching station. Some existing distribution lines may need to be removed and/or placed underground.

### *Fencing and Lighting*

The entire project site would be fenced to restrict access to authorized personnel only, improve safety, isolate electrical equipment, protect onsite improvements from theft and vandalism, and minimize potential conflicts with surrounding land use. The new security fencing would be chain link and typically six feet in height topped with three-strand security wire. A small gap at the bottom will allow small wildlife (e.g., small mammals, reptiles, and amphibians) passage under the fence. The final location and design of the fencing would depend on the final design of the project site. Additional fencing within the project site would be installed to protect sensitive resources (such as vernal pools and seasonal wetlands and adjacent buffers) and would remain in place during construction and operation of the project. The fencing would be checked periodically, including after storms, and any debris build up removed by maintenance personnel.

The project would include external dark sky compliant safety lighting and permanent lighting on the switch station, substation, entrances to the arrays, and certain array or BESS-related equipment such as medium voltage combining switchgear. Temporary construction lighting also may be necessary. Construction lighting would be shielded and angled downwards. Mobile lighting would be used for nighttime construction activities and would also be shielded and angled downwards. No bright white lights, such as metal halide, halogen, fluorescent, mercury vapor, and incandescent lighting will be used during construction or for long-term operations. Lighting at the inverters medium voltage combining switchgear, substation, and switching station would generally be switched off and only switched on if maintenance is required outside of daylight hours. Lighting at entrances would be on motion sensors or on from dusk until dawn and some motion sensor lights would be installed along perimeters for security. These lights would be similar to flood lighting on the front of a home.

### *Meteorological Station and Telecommunications*

Meteorological stations, approximately 10 to 15 feet in height, would be installed within the PV solar field. Telecommunications would be provided from a local provider or a microwave/satellite communications tower. Underground and/or overhead fiber optic cables would be installed onsite and along the interconnection and collection between the solar plant, BESS yard, the generation substation, and the switching station.

### *Setbacks*

A 250-foot setback would be established from the project boundary (footprint) to any seasonal wetlands or vernal pool wetland. Wildlife friendly fencing would be used to demarcate the buffer and protect the seasonal wetlands and vernal pools during construction and operation.

### *Transmission System Network Upgrades*

The proposed transmission system upgrades may include reconductoring of up to 60 miles of existing transmission system cable. Reconductoring typically includes replacing the cable on the existing poles or within existing underground conduits. One or more poles may need to be replaced to accommodate the installation of the new cable, and junction boxes may need to be accessed and modified to allow for access to underground cables. The upgrades would be designed and built to meet federal, state, local and SMUD's specification, guidelines, and standards.

### *2.5.3 Construction Activities*

Construction of the project would take approximately eighteen months to two years and is proposed to begin as early as first quarter 2023 and conclude in 2024 or 2025. Preconstruction activities would include permitting, any required preconstruction resource surveys, geotechnical and other surveying, and installation of fencing. Additionally, the contractor would begin to mobilize for construction. Construction mobilization would include preparing and constructing site access road improvements, removal of existing agricultural operations, establishing temporary construction trailers and sanitary facilities, preparing initial construction staging areas, and preparing water access areas near existing onsite wells.

Construction staging and the temporary construction office would be located within the project site. Temporary lighting may be installed to facilitate deliveries and construction management. Construction staging areas would be used to store construction materials, worker parking, and provide a designated area for receiving construction deliveries, including temporary parking for delivery trucks waiting to unload. The staging areas would be cleared of vegetation during construction and may be graveled. Upon completion of construction, staging areas would be restored consistent with the rest of the site to post-construction conditions. Other temporary staging/laydown areas would also be established within the main project site during construction.

After establishment of the staging area(s), project construction would begin with initial site preparation work. Within the solar field and interconnection facility areas and following environmental clearance, limited grading may be used to prepare the site for post and PV modules installation. Grading would be minimized to the extent feasible within the solar array and would be consistent with the setback requirements. Grading will likely be required for the proposed BESS yard, generation substation, and switching station. It is assumed that earthwork will be balanced onsite and up to 572,400 cubic yards of earthwork is needed. Approximately 76,800 cubic yards of aggregate are assumed to need to be delivered for the purpose of constructing certain roadways and areas of the BESS yard, substation and switching station.

Following site preparation, vertical support posts would be driven into the ground. These posts would hold the support structures, or tables, on which PV modules would be mounted. Trenches for the underground AC and DC cabling and collection, and the foundations for the inverter enclosures and transformers, would be prepared. Trenching would occur within each array to place the AC and DC electrical cables underground. Upon placing the cables in the trenches, the trenches would be backfilled, and previous contours restored to the maximum extent feasible. The trenches for these cables are typically 3 and 3.5 feet deep. During construction the trenches will be covered when not in active construction or ramps provided to ensure wildlife escape. Concrete foundations will be prepared for the BESS, generation substation and switchyard components as well as for the interconnection poles.

Once the foundations are complete, BESS, generation substation and switchyard equipment will be delivered, placed, and mounted on foundations. The BESS, generation substation and switchyard components will be connected and prepared for commissioning and energization. Interconnection poles will be set at their foundation sites and conductor will be strung between the different facilities prior to commissioning and energization.

Typical construction equipment such as scrapers, dozers, dump trucks, watering trucks, motor graders, vibratory compactors, sheepsfoot, trenching and cable installation equipment, and backhoes would be used during construction. Other construction equipment that may be used would include generators, all-terrain vehicles (ATVs), pickup trucks, loaders, excavators, skid loaders, directional and other drilling equipment, road reclaimers, post drivers, forklifts, a mobile crane, and a boom lift.

Post-construction, the majority of the site would be vegetated with grazing and pollinator friendly vegetation, with the exception of the footprints for the substation, switching station, BESS yard, the solar panel support posts, the foundations for the inverters, switchgear and transformers and roadways. The total expected permanent disturbance associated with the footprints of these features is 120 acres.

Fuel may be stored onsite during peak construction activities and would be stored consistent with standard construction best management practices. Self-contained concrete washout stations may be needed on the project site to support concrete foundation installation.

### *Construction Workforce*

The construction workforce (with an expected average of 177 and a peak of 650 construction workers) is expected to arrive at the project site between approximately 6:00 a.m. and 7:00 a.m. and leave the site between approximately 4:00 p.m. and 5:00 p.m., Monday through Friday for most of the project construction period. During hotter weather, construction crews may arrive earlier or leave later in the evening. Some earlier or later hours and weekend work may also be required to maintain the project construction schedule, complete critical activities, and accommodate deliveries. The number of personnel onsite during nighttime construction would depend upon the nature of the construction activity or materials being delivered to the site. As needed, mobile lighting units would be used to accommodate temporary construction activities.

### *Access and Traffic*

Most of the traffic generated during project construction would be for employee commuting and the delivery of components and equipment. Primary access to the project site during both construction and operation would be provided by an existing road from Baseline Road, as shown in Exhibit 2-2. This could involve a temporary turn lane from Baseline Road onto the project site for construction, which could require road widening at that location and temporary construction access improvements.

In addition to construction workforce trips, project construction would require the following types of vehicle trips (all heavy vehicles):

- equipment and material deliveries;
- excavation, debris, and material hauling; and
- visitors, inspectors, management.

Most of the construction traffic would likely originate from Baseline Road via Highway 99, but may also access the site from the east via Interstate 80 to Watt Avenue to Baseline Road. Materials would generally be delivered outside of the peak morning and afternoon traffic hours to the extent feasible and would be delivered to the designated receiving area. The materials would then be distributed within the site as needed. It is estimated that an average of 42 truck trips per day would be needed during construction typically peaking during the period when posts and modules are delivered. The estimated average truck trips per day associated with excavation, debris, and material hauling is six (6).

The project site may also be accessed from South Brewer Road to the west and Phillip Road to the north.

### *Grading and Vegetation Removal*

Limited grading and vegetation removal is proposed along the access roads, at the location of the inverters and transformers, at the BESS yard, the generation substation,

and the switching station. Aside from these areas, vegetation removal and site clearing would generally occur where solar panels would be installed in areas currently in rice fields and orchards. Tree removal would occur in areas currently planted in almonds as part of site preparation. Grasslands would not have to be cleared. Following project construction, the majority of the site occupied by solar panels would be vegetated with grazing and pollinator friendly vegetation.

#### *Other Site Improvements*

To help prepare the project site for development of the project, the following site improvements would be completed:

- installation of a temporary 12 kV line to provide power at staging yards;
- removal of current agricultural operation equipment such as orchard irrigation;
- removal of existing 12 kV lines providing power to wells; alternatively, these lines may be relocated underground.

#### *Construction Waste Management and Recycling*

Construction activities would generate waste and recyclables that in some cases may require off-site disposal. The California Green Building Code requires that 65 percent of construction and demolition waste be diverted from landfills.

Construction and demolition waste generated from the proposed project will consist of the following:

- Scrap metal – copper wire, transformers, iron, steel, and aluminum;
- Solid waste – trash, cardboard, wood products, inert organics, non-hazardous solar panels, and concrete;
- Universal waste – solar panels, inverters, DC disconnect, battery pack, and power meters;
- Hazardous waste – lubricants and oils, and spill clean-up debris.

Organic agriculture biomass, such as any removed orchard trees, would be chipped on site and used as mulch.

All waste shipped offsite will be transported in accordance with the Department of Transportation, Code of Federal Regulations (CFR) Title 49, Subtitle B, Chapter I and California Code of Regulations (CCR), Title 13, Division 2.

Hazardous waste generated would be properly stored and disposed of in accordance with federal, state, and local regulations. No hazardous waste is expected to be generated during construction; however, construction equipment uses various

hazardous materials (diesel fuel, oil, solvents, etc.). If disposal of these materials would be needed, they would be disposed of off-site in accordance with all applicable laws pertaining to the handling and disposal of hazardous waste.

#### *2.5.4 Operation and Maintenance Activities*

The project would operate seven days per week. One regular onsite employee may be required, and some personnel may visit the site to monitor, maintain, and if needed, repair the system. PV panels may be periodically washed with water during project operation, as needed. To conservatively estimate potential panel washing operational water use, it is estimated that solar panels would be washed once per year in case of excessive soiling. The project may also require occasional repair or replacement of project components. Inverters may require replacement every 10 years, while PV panels generally last 30 to 40 years. Thus, infrastructure replacement is expected to be rare. Other operational activities would include BESS equipment maintenance, interconnection equipment maintenance, production reporting, equipment inspecting and testing, and similar activities. General site maintenance would include vegetation management, road maintenance, removal of debris from fences, and general upkeep of the facility.

Pickup trucks and flatbeds, forklifts, and loaders may be used for normal maintenance. Large, heavy-haul, transport equipment would be occasionally used to repair or replace equipment. Non-hazardous waste would be collected in designated locations and picked up/disposed of by a local waste disposal or recycling company. Oil, electronic equipment, and other potentially hazardous waste would be collected, stored, and disposed of in accordance with applicable laws and regulations.

The site control center building design includes restrooms connected to a septic system. Water for the restrooms will be from a domestic ground water well.

Preventive maintenance kits and certain critical spare equipment would be stored onsite, while all other components would be readily available from a remote warehouse facility.

A Pest Management Plan (PMP) will be prepared for the project prior to approval of improvement/grading plans for operations and maintenance that will identify the methods and frequency for management of weeds, insects, disease and vertebrate pests that may impact the project and adjacent sites.

#### *Safety Controls*

Health and safety plans would be developed for the construction and operational phases of the project. While project-specific plans have not yet been prepared, the plans would call for implementation of various measures including safety signage in accordance with applicable regulatory requirements.



### *2.5.5 Decommissioning and Site Restoration*

At the end of the project's useful life (anticipated to be 30 to 35 years), the solar panels and associated infrastructure will be decommissioned; however, SMUD may retain the substation, switching station, and battery storage facilities. Given the project's operating life cycle and distant timeframe for decommissioning activities, it would be too speculative to describe the specific decommissioning activities in this Draft EIR. Currently, standard decommissioning practices include dismantling and repurposing, salvaging/recycling, or disposing of the solar energy improvements, and site stabilization. The project will prepare a decommissioning and reclamation plan prior to decommissioning that will detail the timeline for removal of the improvements and specific measures to return the site to agricultural capability.

Actual decommissioning and site restoration activities for the project would be conducted in accordance with all applicable requirements in effect at the time of project termination, and a final decommissioning plan, based on then-current technology, site conditions, and regulations, would be prepared prior to actual decommissioning.

Under current standard decommissioning practices, solar modules are removed, collected, and recycled or disposed of at a properly licensed landfill. Some or all components (i.e., aluminum and steel components) are salvaged and/or recycled, as feasible. Components that cannot be salvaged are removed and disposed of in accordance with applicable laws and regulations.

Generally, only those portions of the underground collection system that would conflict with future land uses would be removed. Components of an underground system that would not conflict with other land uses typically would be kept in place to minimize disturbances to existing vegetation. Similarly, access roads that would conflict with other land uses would be removed and the aggregate recycled, and roads that are compatible with other land uses would be left in place. Overhead electrical collection lines, poles, and associated components would be disassembled and removed, and reprocessed, sold, salvaged, or otherwise disposed of in an appropriate manner.

Substation components including steel, conductors, switches, transformers, fencing, control houses, and other materials, typically would be removed from a site and would be repurposed, salvaged, or recycled, or disposed of in an appropriate manner.

Some grading may be required to re-contour access road areas or address erosion. Future site restoration activities are assumed to be similar to the procedures used during construction to restore temporarily disturbed areas.

The above information is provided for context only. Additional CEQA analysis will be conducted prior to decommissioning, at the time when further details are known and the decommissioning plan has been prepared.

## 2.6 Potential Permits and Approvals Required

Elements of the project would be subject to permitting and/or approval authority of other agencies. As the CEQA lead agency, SMUD is responsible for determining whether the EIR complies with CEQA and whether the project should be approved by SMUD's Board of Directors. Permits that may be required from other agencies are listed below.

### 2.6.1 *Federal*

- **U.S. Army Corps of Engineers:** Compliance with Section 404 of the Clean Water Act (CWA) for discharge of fill to Waters of the U.S.
- **U.S. Fish and Wildlife Service:** Section 7 of the Endangered Species Act (ESA) Consultation. Letter of Concurrence for a Not Likely to Adversely Affect (NLAA) determination.
- **State Historic Preservation Office (SHPO):** Compliance with Section 106 of the National Historic Preservation Act (required in support of CWA Section 404 permit, if needed)
- **Federal Emergency Management Agency (FEMA):** Conditional Letter of Map Revision (CLOMR/LOMR) for floodplain boundary.

### 2.6.2 *State*

- **State Water Resources Control Board:** Clean Water Act Section 402, construction general permit.
- **Central Valley Regional Water Quality Control Board:** Clean Water Act Section 401, water quality certification; and/or waste discharge permit for waters of the state, if applicable.
- **California Department of Fish and Wildlife:** Compliance with California Endangered Species Act (CESA), potential permits under Section 2081 of the Fish and Game Code if take of listed species is likely to occur; and Section 1602 streambed alteration agreement for construction activities that occur within the bed, bank or channel of waterways.
- **California Department of Transportation:** Encroachment permit and/or transportation management plan for any oversized equipment, such as transformers.

### 2.6.3 *Local*

- **Placer County:** Conditional Use Permit (CUP), improvement/grading plans, Regional University Specific Plan (RUSP) Amendment, General Plan Amendment to Health and Safety Element Policy 8b.1.4, RUSP Design Agreement Amendment, groundwater well permit, septic system permit, driveway

encroachment permits, and other potential building and grading permits, as determined by the County.

- **Placer County Air Pollution Control District (PCAPCD):** Authority to Construct/Permit to Operate pursuant to PCAPCD Regulation 5 (Rule 501), and Air Quality Management Plan consistency determination.

Prior to project determination by the County, SMUD will retain the services of an economic consultant to determine the reasonable net costs to the County of the development, including providing fire, police and public protection services,. The costs will be identified pursuant to a memorandum of understanding (MOU) between SMUD and the County, approved prior to or concurrent with the CUP. As identified in the MOU, starting with Improvement/Grading Plan approval and continuing annually, SMUD or a third party will make a payment to the County in an amount agreed upon by SMUD and the County with consideration of the economic consultant's reasonable cost determination, subject only to an annual increase consistent with an inflation mechanism identified in the MOU. SMUD will cease making such annual payments upon the earlier of the following events: (1) the Project does not begin construction or ceases operation and decommissioning has completed; or (2) the Project is sold to a third party that assumes the responsibility for making the annual reasonable cost payment. If SMUD or a third party starts making annual property tax payments on portions of the Project property where a portion or portions of the Project is/are taxable, its reasonable cost payment shall be reduced or eliminated in accordance with the increased amount of the payments as identified in the MOU. If in SMUD's determination, the reasonable net cost identified pursuant to the MOU would make the project impracticable for achieving the goals of the 2030 Zero Carbon Plan, or if the County does not approve the CUP, then SMUD may elect alternative project approval methods.

The project proponent/operator shall obtain a street address within the unincorporated portion of Placer County for acquisition, purchasing, and billing purposes and, register this address with the State Board of Equalization, using this address for acquisition, purchasing and billing purposes associated with the proposed project. As an alternative to the aforementioned process, the project proponent/operator may make arrangements with Placer County for a guaranteed single payment with the amount of the single payment to be determined via a formula approved by Placer County.

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### **3.0 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES**

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This chapter is organized by environmental resource category; each resource category is organized to provide an integrated discussion of the existing environmental conditions (including regulatory setting and environmental setting), potential environmental effects (including direct and indirect impacts), and measures to reduce significant effects, where feasible, of construction and operation of the Country Acres Solar Project.

Cumulative and growth-inducing impacts are discussed in Chapters 4, “Cumulative Impacts,” and 5, “Other CEQA Sections,” respectively.

#### **Approach to the Environmental Analysis**

In accordance with Section 15126.2 of the State CEQA Guidelines, this Draft EIR identifies and focuses on the significant direct and indirect environmental effects of the project, giving due consideration to both its short-term and its long-term effects. Short-term effects are generally those associated with construction, and long-term effects are generally those associated with solar facility operations.

The remainder of this chapter addresses the following resource topics:

- Section 3.1, Aesthetics
- Section 3.2, Agriculture and Forestry
- Section 3.3, Air Quality
- Section 3.4, Biological Resources
- Section 3.5, Cultural Resources
- Section 3.6, Energy
- Section 3.7, Geology, Soils, and Paleontological Resources
- Section 3.8, Greenhouse Gas Emissions
- Section 3.9, Hazards and Hazardous Materials
- Section 3.10, Hydrology and Water Quality
- Section 3.11, Land Use and Planning
- Section 3.12, Mineral Resources
- Section 3.13, Noise
- Section 3.14, Population and Housing
- Section 3.15, Public Services
- Section 3.16, Recreation
- Section 3.17, Transportation
- Section 3.18, Tribal Cultural Resources
- Section 3.19, Utilities and Service Systems
- Section 3.20, Wildfire

Sections 3.1 through 3.20 follow the same general format:

**Regulatory Setting** presents the laws, regulations, plans, and policies that are relevant to each issue area. Regulations originating from the federal, state, and local levels are each discussed as appropriate.

**Environmental Setting** presents the existing environmental conditions on the project site and surrounding area as appropriate, in accordance with the State CEQA Guidelines (California Code of Regulations [CCR] Section 15125). This setting generally serves as the baseline against which environmental impacts are evaluated. The extent of the environmental setting area evaluated (the project study area) differs among resources, depending on the locations where impacts would be expected. For example, air quality impacts are assessed for the air basin (macroscale) as well as the site vicinity (microscale), whereas noise impacts are assessed for the project site vicinity only.

**Environmental Impacts and Mitigation Measures** identifies the thresholds of significance used to determine the level of significance of the environmental impacts for each resource topic, in accordance with the State CEQA Guidelines (CCR Sections 15126, 15126.2, and 15143). The thresholds of significance used in this Draft EIR are based on the checklist presented in Appendix G of the State CEQA Guidelines; best available data; and regulatory standards of federal, state, and local agencies. The level of each impact is determined by comparing the effects of the project to the environmental setting. Key methods and assumptions used to frame and conduct the impact analysis as well as issues or potential impacts not discussed further (such issues for which the project would have no impact) are also described.

Project impacts are organized numerically in each subsection (e.g., Impact 3.1-1, Impact 3.1-2, Impact 3.1-3). A bold-font impact statement, a summary of each impact, and its level of significance precedes the discussion of each impact. The discussion that follows the impact summary includes the substantial evidence supporting the impact significance conclusion.

The Draft EIR must describe any feasible measures that could avoid, minimize, rectify, reduce, or compensate for significant adverse impacts, and the measures are to be fully enforceable through incorporation into the project and adoption of a Mitigation Monitoring and Reporting Plan (Public Resources Code Section 21081.6[b]). Mitigation measures are not required for effects that are found to be less than significant. Where feasible mitigation for a significant impact is available, it is described following the impact along with its effectiveness at addressing the impact. Each identified mitigation measure is labeled numerically to correspond with the number of the impact that would be mitigated by the measure. Where sufficient feasible mitigation is not available to reduce impacts to a less-than-significant level, or where SMUD lacks the authority to ensure that the mitigation is implemented when needed, the impacts are identified as remaining “significant and unavoidable.”

## Terminology Used in the EIR

This Draft EIR uses the following terms to describe the level of significance of impacts identified during the environmental analysis:

**Significant and Unavoidable Impact:** An impact that exceeds the defined threshold of significance and cannot be eliminated or reduced to a less than significant level through the implementation of feasible mitigation measures.

**Potentially Significant Impact:** An impact that exceeds the defined thresholds of significance, and can be reduced to a less than significant level through implementation of feasible mitigation measures. If feasible mitigation measures are not available or would not reduce the magnitude of the impact below the threshold of significance, the impact would be determined significant and unavoidable.

**Less-than-Significant Impact:** An impact that does not exceed the defined thresholds of significance or that is potentially significant and can be eliminated or reduced to a less than significant through implementation of feasible mitigation measures.

**No Impact:** Where an environmental issue is evaluated and it is determined that the project would have no effect on the issue, the conclusion is drawn that the proposed project would have “no impact” and no further analysis is presented.

**Cumulative Impacts:** Under CEQA, “cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts” (CEQA Guidelines, Section 15355). CEQA requires that cumulative impacts be discussed when the “project’s incremental effect is cumulatively considerable... [or] ... provide a basis for concluding that the incremental effect is not cumulatively considerable (CEQA Guidelines, CCR Section 15130 (a)).”

**Mitigation Measures:** The CEQA Guidelines (Title 14, CCR Section 15370) define mitigation as:

- a) avoiding the impact altogether by not taking a certain action or parts of an action;
- b) minimizing impacts by limiting the degree of magnitude of the action and its implementation;
- c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
- e) compensating for the impact by replacing or providing substitute resources or environments.

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### 3.1 Aesthetics

Visual resources are defined as the visible natural and human-built features of the landscape that contribute to an attractive landscape appearance and the public's enjoyment of the environment.

This section summarizes regulations applicable to visual resources, describes the existing visual resources within the project area, and provides an assessment of potential changes to those conditions that would result from implementation of the proposed project. Effects of the proposed project on the visual environment are generally defined in terms of the proposed project's physical characteristics and the potential visibility of those changes (including changes in lighting and glare), the extent to which the proposed project would change the perceived visual character and quality of the visual environment where it is located, and the expected level of sensitivity of the viewing public in the area.

#### 3.1.1 Regulatory Setting

##### *Federal*

There are no relevant federal regulations regarding aesthetics applicable to the proposed project.

##### *State*

##### *California Scenic Highway Program*

The California Department of Transportation (Caltrans) manages the California Scenic Highway Program. The goal of the program is to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to the highways.

##### *Local*

##### *Placer County Design Guidelines*

The Placer County Design Guidelines Manual (Placer County 2003) includes guidelines and standards for all commercial, multi-family, and industrial development in Western Placer County. The design guidelines/standards included in the manual would not apply to the proposed project as the site is not located within the Design Scenic Corridor, Design Historic, or Design Sierra design control zoning district (Placer County 2022).

The Placer County Rural Design Guidelines (Placer County 1997) established goals and implementation techniques to preserve and protect rural qualities in Placer County, related to residential subdivisions. These guidelines would not apply to the proposed project.

Placer County General Plan

The Placer County Countywide General Plan (Placer County 2021) Land Use Element and Public Facilities and Services Element contain policies related to aesthetics. These include policies to minimize the visual intrusion related to utility facilities and preserve scenic resources:

**Policy 1.K.1:** The County shall require that new development in scenic areas (e.g., river canyons, lake watersheds, scenic highway corridors, ridgelines and steep slopes) is planned and designed in a manner which employs design, construction, and maintenance techniques that:

- a. Avoids locating structures along ridgelines and steep slopes;
- b. Incorporates design and screening measures to minimize the visibility of structures and graded areas;
- c. Maintains the character and visual quality of the area.

**Policy 1.K.2:** The County shall require that new development in scenic areas be designed to utilize natural landforms and vegetation for screening structures, access roads, building foundations, and cut and fill slopes.

**Policy 1.K.3:** The County shall require that new development in rural areas incorporates landscaping that provides a transition between the vegetation in developed areas and adjacent open space or undeveloped areas.

**Policy 1.K.4:** The County shall require that new development incorporates sound soil conservation practices and minimizes land alterations. Land alterations should comply with the following guidelines:

- a. Limit cuts and fills;
- b. Limit grading to the smallest practical area of land;
- c. Limit land exposure to the shortest practical amount of time;
- d. Replant graded areas to ensure establishment of plant cover before the next rainy season;
- e. Create grading contours that blend with the natural contours on site or with contours on property immediately adjacent to the area of development; and,
- f. Provide and maintain site-specific construction Best Management Practices (BMPs).

**Policy 1.K.5:** The County shall require that new roads, parking, and utilities be designed to minimize visual impacts. Unless limited by geological or engineering

constraints, utilities should be installed underground and roadways and parking areas should be designed to conform to the natural terrain.

**Policy 4.A.4:** The County shall require proposed new development in identified underground conversion districts and along scenic corridors to underground utility lines on and adjacent to the site of proposed development or, when this is infeasible, to contribute funding for future undergrounding.

### 3.1.2 Environmental Setting

Aesthetic resources are generally defined as both the natural and built features of the landscape that contribute to the public's experience and appreciation of the environment. Therefore, the environmental setting consists of the quality and character of the site and its surroundings as well as sensitivity of viewers.

#### *Project Site and Surroundings*

The project is located in southwestern Placer County just west of the City of Roseville, north of Baseline Road and east of South Brewer Road. The project site is relatively flat and open and includes grassland, agricultural rice fields, and almond orchards with scattered seasonal wetlands including vernal pools and drainages, including portions of upper Curry Creek. The vegetated ground surface appears green during the spring and summer months and brown the rest of the year, with exposed soil visible throughout the site. Agricultural irrigation practices occur during the late spring and summer and include deliberate flooding of fields for rice production and drip irrigation of almond orchards. Rice fields are also often flooded in late fall, after the harvest, to promote decomposition and provide habitat for migratory waterfowl and shorebirds that overwinter in the Central Valley. Agricultural uses and grassland surround the project site with some residential development to the east of the project site in the City of Roseville. Exhibit 3.1-1 through Exhibit 3.1-16 depict existing views of and from the project site.

The area surrounding the project site is generally used for agriculture and residential uses. Several small rural residences with associated landscaping, fencing, barns, sheds and vehicles, are located on parcels adjacent to the proposed project to the north, south, and west. Westpark, a 1,500-acre master planned community in Roseville, is located approximately 0.70 mile east from the eastern boundary of the proposed project. Views from the site contain agricultural rice fields and almond orchards, grasslands, trees, and overhead utility lines. Existing sources of glare during the day are from windshields of vehicles, which are transient. Nighttime lighting and glare is produced by traffic headlights traveling on local roadways and from security lighting nearby rural residential uses.

There are no state scenic highways located within or adjacent to the project site (Caltrans 2018). The closest highway that is designated scenic is State Route (SR) 160. However, SR 160 is more than 23 miles from the project site, and the site is not visible from this location.

#### *Viewer Groups and Sensitivity*

Viewer groups in this area predominantly consist of motorists traveling along Baseline Road, South Brewer Road, Country Acres Lane, and Phillip Road. Viewer groups also include residents on public roads at Westpark to the east.

Sensitivity of the viewers is based on the visibility of resources in the landscape, proximity of the viewers to the visual resource, elevation of the viewers relative to the visual resource, frequency and duration of views, numbers of viewers, and types and expectations of individuals and viewer groups. It is likely that most motorists are local residents, or commuters or travelers from outside the local area. Although they may be frequently exposed to the views in the area, commuters would be expected to have reduced visual expectations or concerns because they are commuting, and views are temporary. The duration of views from these viewpoints is variable and largely dependent on vehicle speed traveled. The proposed project appears relatively flat from the viewpoint of passing motorists. Most roadways within and adjacent to the project site provide long segments of road with no signalized or non-signalized intersections. The higher vehicle speeds allowed on these roadways reduce the opportunity for prolonged views of the project site. Given these considerations, viewer sensitivity is considered low for motorists. Agricultural workers are also of low sensitivity because their focus during work activities would not be on the visual setting of the area.

### **Viewpoints**

Five viewpoints were selected that are representative of the existing visual character of the site as well as the most publicly-accessible viewpoints. Each viewpoint is discussed below in terms of visual character and quality. Visual quality depends on the following attributes:

- **Vividness:** The extent to which the landscape is memorable, which is associated with the distinctiveness, diversity, and contrast of visual elements.
- **Intactness:** The integrity of visual order in the landscape and the extent to which the existing landscape is free from non-typical visual intrusions.
- **Unity:** The extent to which visual intrusions are sensitive to and in visual harmony with the existing landscape.

Additionally, the viewer's distance from landscape elements plays an important role in the determination of an area's visual quality. Visibility and visual dominance of landscape elements depend on their placement within a viewshed.

The development of photographic simulations is assisted with the determination and verification of the impacts associated with the project area. The approach used to develop photographic simulations is broken down into six main steps:

1. data collection
2. determine observation points
3. modeling/texturizing
4. virtual cameras aligned to collected data
5. rendering
6. compositing/layout.

Collecting various data types and sources, such as GIS data, is crucial in the initial development of an accurate 3D visual simulation. Observation points were determined by analyzing potential impacts and sensitive areas and potential visibility was evaluated by conducting either a view shed analysis or terrain map/modeling software.

Computer-aided design (CAD) drawings were then either created or imported from client provided data to create a three-dimensional (3D) environment to scale. The 3D model was then imported into Autodesk 3Ds Max software where colors, textures and lighting are applied to the model for rendering. Virtual cameras within the 3Dmodel were then aligned with digital elevation models collected from the GIS process.

The 3D model, the virtual 3D camera position and the lighting information was then rendered to generate a two-dimensional image of the proposed project and composited with the site photography taken as a panoramic with the images stitched together. The subsequent renderings created show detailed information about the future proposed project location and scene. Table 3.1-1 summarizes the viewpoints.

**Table 3.1-1. Viewpoint Summaries**

<b><i>Viewpoint Number</i></b>	<b><i>Location</i></b>	<b><i>View Direction</i></b>
1C	South Brewer Road	Northeast and Southeast
2C	Baseline Road	North
3B	Southwestern Boundary of Westpark	West
3C	Westpark	West and Southwest
4A	Philip Road	South

*Viewpoint 1C: Northeast and Southeast from South Brewer Road*

Viewpoint 1C is shown in Exhibit 3.1-1 and Exhibit 3.1-3 and represents the view towards the southeastern and northeastern portion of the site from the western project site boundary, at South Brewer Road. The foreground is dominated by the asphalt roadway, low fencing, utility poles and overhead lines that continue along the roadway into the middleground and background. Low-rolling, barren foothills are visible in the middleground and background. Undeveloped agricultural rice fields and grasslands cover most of the view frame. The visual character is rural and open space.

Vividness is low since the roadways, fencing, utility poles, and overhead lines in the foreground and additional fencing, utility poles, and overhead lines that extend into the middleground do not form a striking or distinctive visual pattern. Views of grasses and low-lying vegetation are typical of the rural landscape throughout this portion of the project area and do not provide a memorable landscape. Intactness and unity are low because of the encroaching human-built elements, including the fencing, utility poles, and overhead lines, in the middleground and background views tend to intrude into the viewshed and create a lack of visual coherence and compositional harmony. Overall,

considering the low degree of vividness, intactness, and unity, the project viewshed from Viewpoint 1C is considered to be of low visual quality.

*Viewpoint 2C: North from Baseline Road*

Viewpoint 2C is shown in Exhibit 3.1-5 and Exhibit 3.1-7 and represents the view north from Baseline Road at the southern boundary of the project site. Looking north, gentle rolling grasslands, which are green in the spring and brown during the rest of the year, are visible in the foreground. Orchards, utility poles, and overhead lines at the project site fill the viewshed in the middleground and background. The visual character is primarily rural, but is disrupted by urban elements like utility poles and overhead lines.

Vividness is low since the grasslands in the foreground and orchards, utility poles, and overhead lines in the middleground that extend into the background do not have distinct visual elements or patterns that would make the landscape memorable. Intactness and unity are low because of the urban elements encroaching into the rural landscape, including the utility poles and overhead lines in the middleground and background views tend to intrude into the viewshed. The undeveloped areas throughout the viewshed provide some visual coherence, however in combination with the industrial elements, represent a lack of visual harmony and unity. Overall, the visual quality at Viewpoint 2C is considered low based on the low degree of vividness, intactness, and unity.

*Viewpoint 3B: West from Southwestern Boundary of Westpark*

Viewpoint 3B is shown in Exhibit 3.1-9 represents the view west from the southwestern boundary of the Westpark community, the southeastern portion of the site. Signage, grasslands, and a wire fence are visible in the foreground. Grasslands on the project site fill the viewshed in the middleground and background. Overhead power lines and utility structures are also visible in the background. Most of the project site as viewed to the southwest from the southwestern boundary of Westpark public roads appears as flat to gently rolling grassland (in the foreground and middleground) that is green in the spring and during periods of heavy rainfall, but brown for most of the year. The visual character is rural and open space.

Vividness is low since the grasslands in the foreground, and utility poles and overhead lines in the middleground that extend into the background do not have distinct visual elements or patterns that would make the landscape memorable. Intactness and unity are low because of the utility structures present along the horizon in the rural landscape that interfere with the viewshed. The undeveloped areas throughout the viewshed provide some visual coherence, however in combination with the industrial elements, represent a lack of visual harmony and unity. Overall, the visual quality at Viewpoint 3B is considered low based on the low degree of vividness, intactness, and unity.

*Viewpoint 3C: West/Southwest from Westpark*

Viewpoint 3C is shown in Exhibit 3.1-11 and Exhibit 3.1-13 represents the view west/southwest from Westpark public roads, the northeastern portion of the site.

Pavement, undeveloped grasslands, fencing, and short wooden posts are visible in the foreground. The middleground is dominated by flat grasslands and agricultural areas, that extend into the background. Orchards are also visible in the foreground extending into the background to the west. Trees, overhead poles, and overhead powerlines are visible in the background.

Similar to Viewpoint 3B, the primary elements within this view are agricultural fields, orchards, and undeveloped grasslands, in addition to trees and overhead power lines along the horizon.

Vividness is low since the undeveloped areas and fencing in the foreground that extend into the middleground and background with utility poles and overhead lines do not form a striking or distinctive visual pattern. Intactness and unity are low because of the encroaching human-built elements, including the fencing in the foreground and utility poles and overhead lines visible along the horizon somewhat detract from the viewshed and provide a contrast to the landscape. Overall, the project viewshed from Viewpoint 3B is considered to be low.

*Viewpoint 4A: South from Phillip Road*

Viewpoint 4A is shown in Exhibit 3.1-15 and represents the view south from Phillip Road. Rice fields, along with the access road to the east, are visible in the foreground. The middleground includes rice fields along with utility poles and overhead power lines adjacent to the access road to the east. Background views include green trees at the project site, in addition to utility poles and overhead lines. The visual character is primarily rural.





**Viewpoint 1c**  
**Existing Conditions**  
**Looking Northeast**



Time of photograph:	11:09 AM
Date of photograph:	1-12-2022
Weather condition:	Partly cloudy
Viewing direction:	Northeast
Latitude:	38°47'25.68" N
Longitude:	121°27'4.848" W

August 2022

**Exhibit 3.1-1. Viewpoint 1c Existing Conditions Looking Northeast**





**Viewpoint 1c**  
**Simulated Conditions**  
**Looking Northeast at solar facilities**



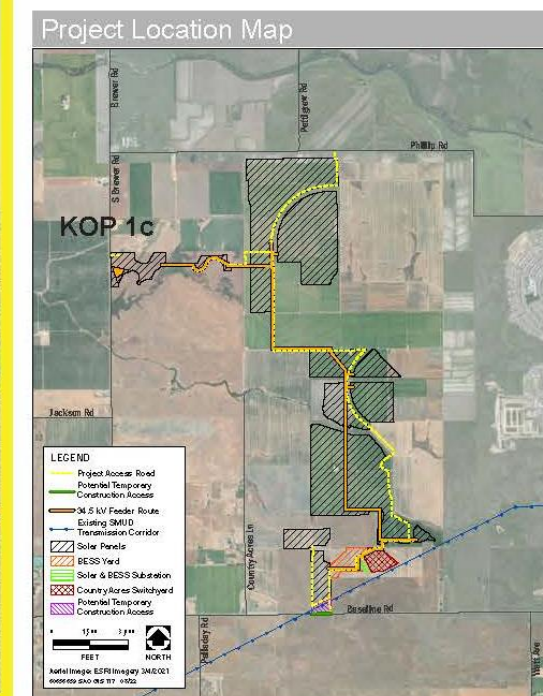
Time of photograph:	11:09 AM
Date of photograph:	1-12-2022
Weather condition:	Partly cloudy
Viewing direction:	Northeast
Latitude:	38°47'25.68" N
Longitude:	121°27'4.848" W

August 2022





**Viewpoint 1c**  
**Existing Conditions**  
**Looking Southeast**



Time of photograph:	11:09 AM
Date of photograph:	1-12-2022
Weather condition:	Partly cloudy
Viewing direction:	Southeast
Latitude:	38°47'25.68" N
Longitude:	121°27'4.848" W

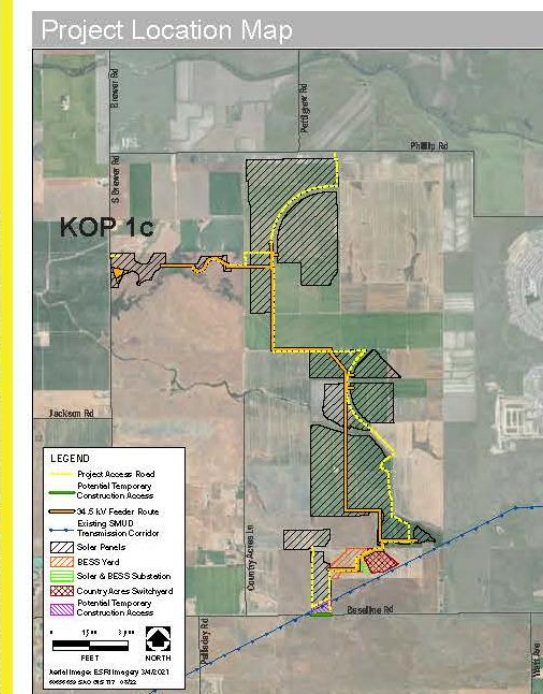
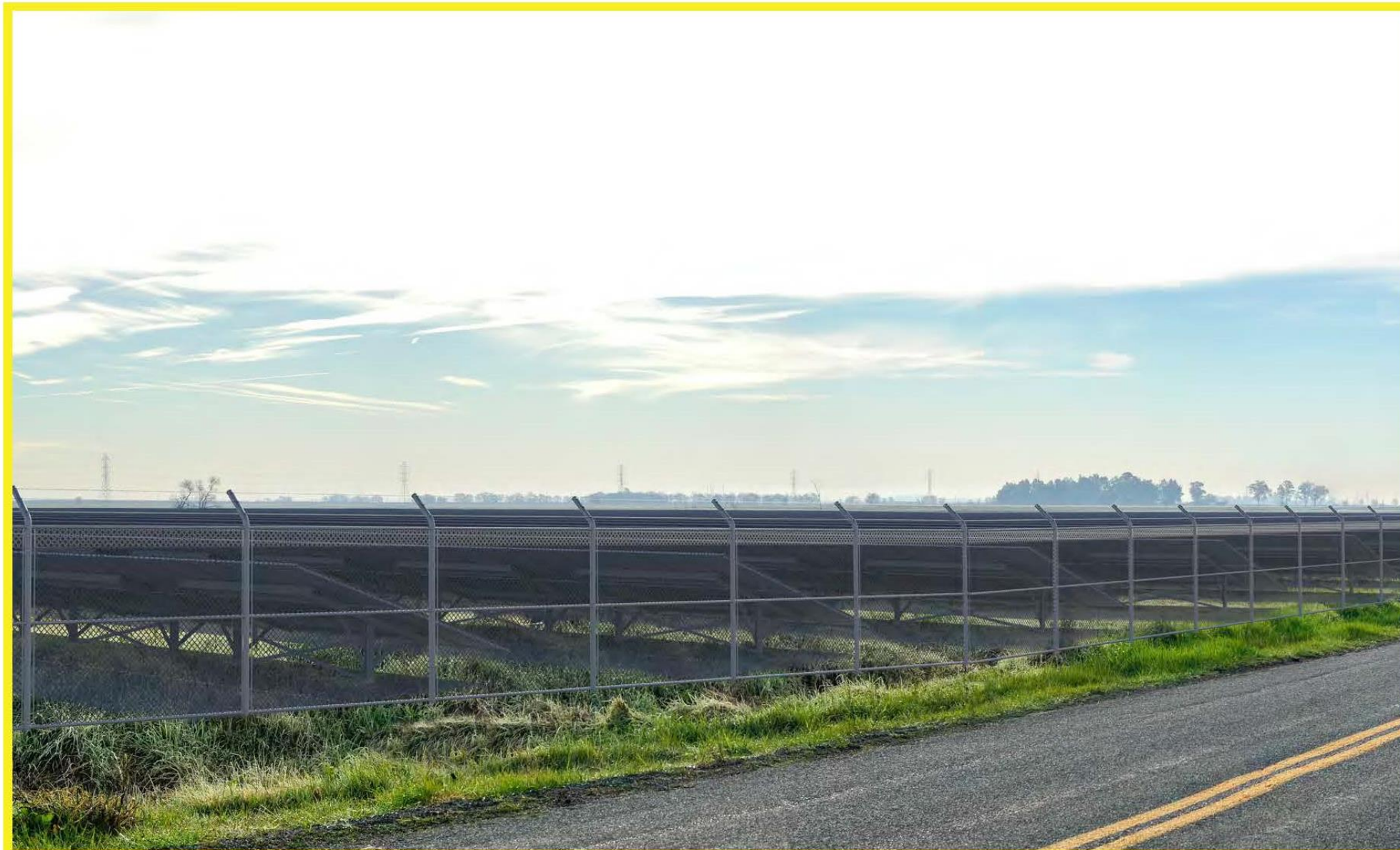
August 2022

### Exhibit 3.1-3. Viewpoint 1c Existing Conditions Looking Southeast



**SMUD County Acres Solar Project**

**Viewpoint 1c  
Simulated Conditions  
Looking Southeast  
at solar and substation facilities**



Source: SMUD 2022

**Photograph Information**

Time of photograph: 11:09 AM  
Date of photograph: 1-12-2022  
Weather condition: Partly cloudy  
Viewing direction: Southeast  
Latitude: 38°47'25.68" N  
Longitude: 121°27'4.848" W

August 2022

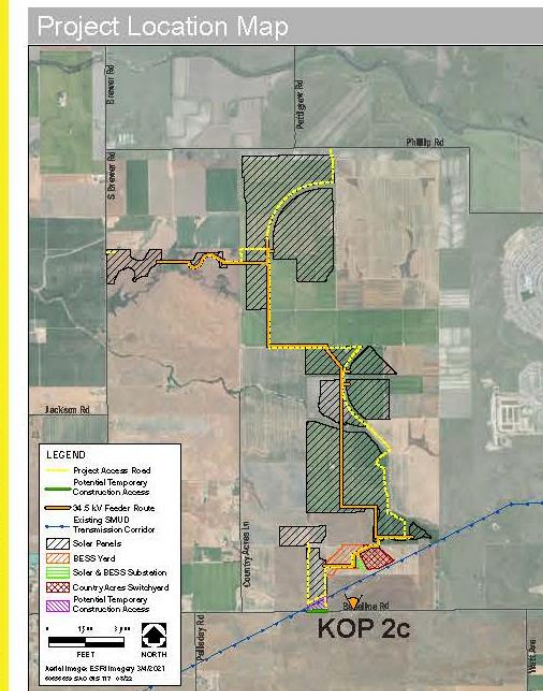


**Exhibit 3.1-4. Viewpoint 1c Simulated Conditions Looking Southeast at Solar and Substation Facilities**



SMUD County Acres Solar Project

Viewpoint 2c  
Existing Conditions  
Looking North



Source: SMUD 2022

Photograph Information

Time of photograph: 11:45 AM  
Date of photograph: 1-13-2022  
Weather condition: Partly cloudy  
Viewing direction: North  
Latitude: 38°45'6.52"N  
Longitude: 121°25'4.01"W

August 2022

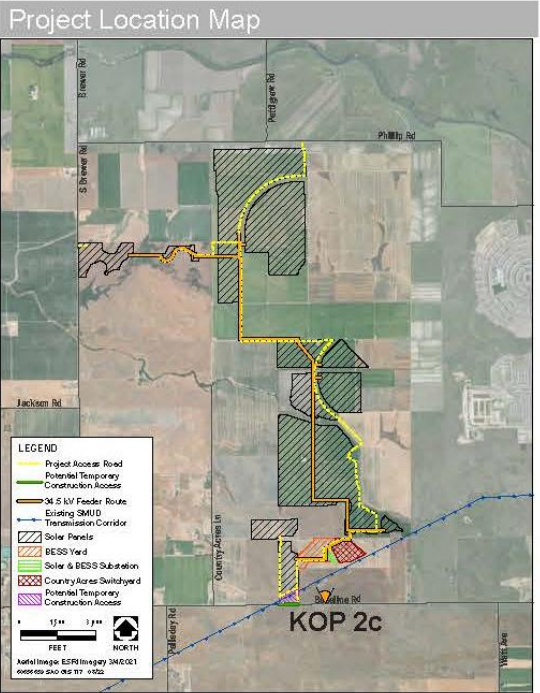


Exhibit 3.1-5. Viewpoint 2c Existing Conditions Looking North



SMUD County Acres Solar Project

Viewpoint 2c  
Simulated Conditions  
Looking North towards BESS storage  
and solar facilities



Photograph Information

Time of photograph: 11:45 AM  
Date of photograph: 1-13-2022  
Weather condition: Partly cloudy  
Viewing direction: North  
Latitude: 38°45'6.52"N  
Longitude: 121°25'4.01"W

August 2022

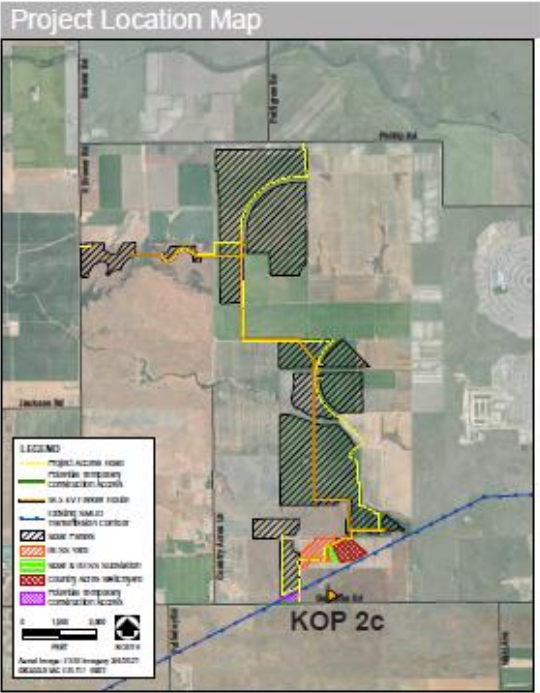


Exhibit 3.1-6. Viewpoint 2c Simulated Conditions Looking North towards BESS Storage and Solar Facilities



SMUD County Acres Solar Project

Viewpoint 2c  
Existing Conditions  
Looking North



Photograph Information

Time of photograph:	11:45 AM
Date of photograph:	1-13-2022
Weather condition:	Partly cloudy
Viewing direction:	North
Latitude:	38°45'6.52"N
Longitude:	121°25'4.01"W

August 2022



Exhibit 3.1-7. Viewpoint 2c Existing Conditions Looking North





**Viewpoint 2c  
Simulated Conditions  
Looking North  
towards substation facilities**



Time of photograph:	11:45 AM
Date of photograph:	1-13-2022
Weather condition:	Partly cloudy
Viewing direction:	North
Latitude:	38°45'6.52"N
Longitude:	121°25'4.01"W

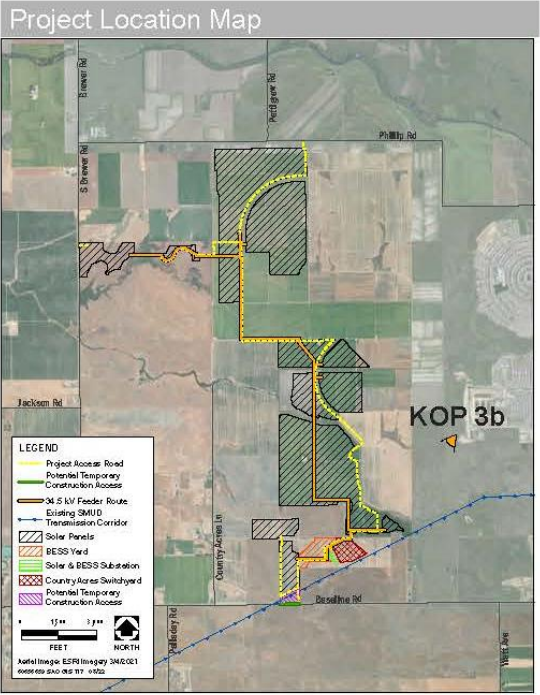
August 2022

**Exhibit 3.1-8. Viewpoint 2c Simulated Conditions Looking North towards Substation Facilities**



SMUD County Acres Solar Project

Viewpoint 3b  
Existing Conditions  
Looking Southwest



Photograph Information	
Time of photograph:	12:42 PM
Date of photograph:	1-12-2022
Weather condition:	Clear
Viewing direction:	Southwest
Latitude:	38°46'12.036" N
Longitude:	121°23'56.88" W

August 2022

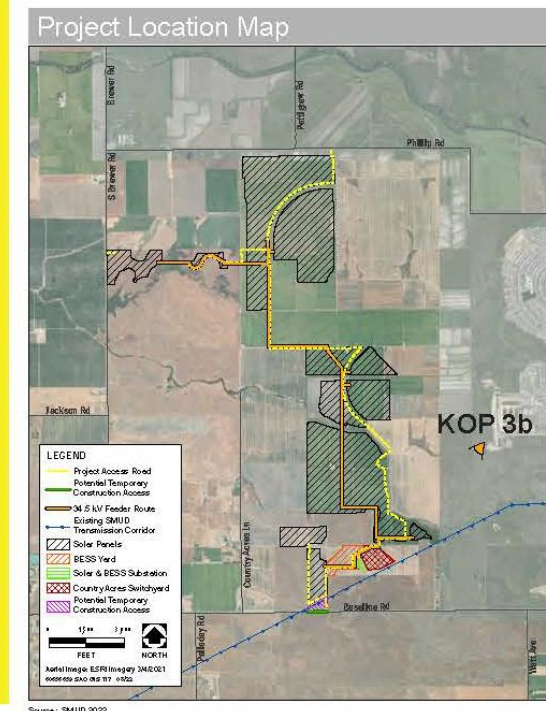


Exhibit 3.1-9. Viewpoint 3b Existing Conditions Looking Southwest



**SMUD County Acres Solar Project**

**Viewpoint 3b  
Simulated Conditions  
Looking Southwest towards  
substation. BESS storage and  
solar facilities screened by  
existing vineyard**



**Photograph Information**

Time of photograph: 12:42 PM  
Date of photograph: 1-12-2022  
Weather condition: Clear  
Viewing direction: Southwest  
Latitude: 38°46'12.036" N  
Longitude: 121°23'56.88" W

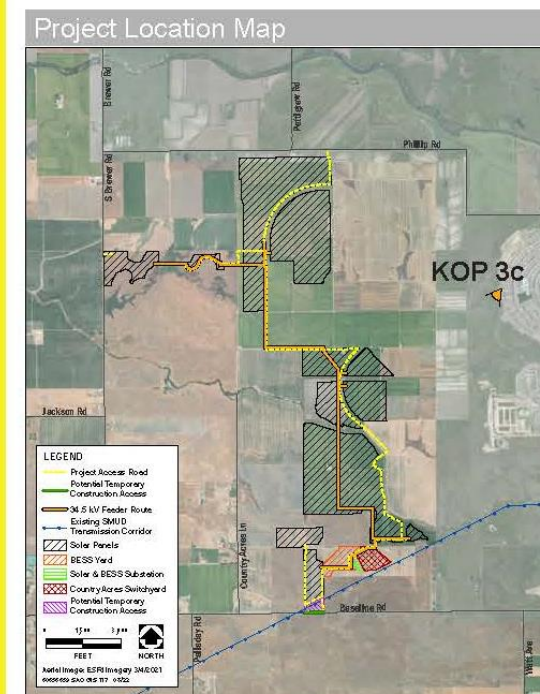
August 2022

**Exhibit 3.1-10. Viewpoint 3b Simulated Conditions Looking Southwest towards Substation. BESS Storage and Solar Facilities Screened by Existing Vineyard**



SMUD County Acres Solar Project

Viewpoint 3c  
Existing Conditions  
Looking Southwest



Photograph Information

Time of photograph: 12:13 PM  
Date of photograph: 1-12-2022  
Weather condition: Clear  
Viewing direction: Southwest  
Latitude: 38°47'14.478" N  
Longitude: 121°23'44.418" W

August 2022

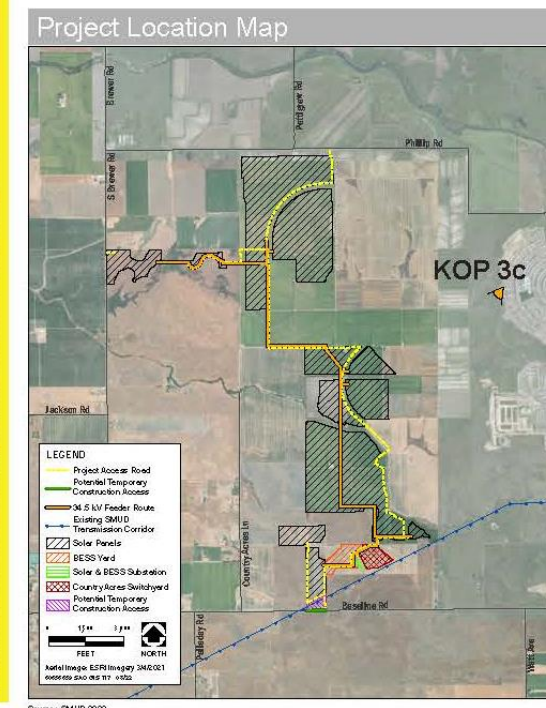


Exhibit 3.1-11. Viewpoint 3c Existing Conditions Looking Southwest



**SMUD County Acres Solar Project**

**Viewpoint 3c  
Simulated Conditions  
Looking Southwest towards BESS  
storage, substation  
and solar facilities**



**Photograph Information**

Time of photograph: 12:13 PM  
Date of photograph: 1-12-2022  
Weather condition: Clear  
Viewing direction: Southwest  
Latitude: 38°47'14.478" N  
Longitude: 121°23'44.418" W

August 2022

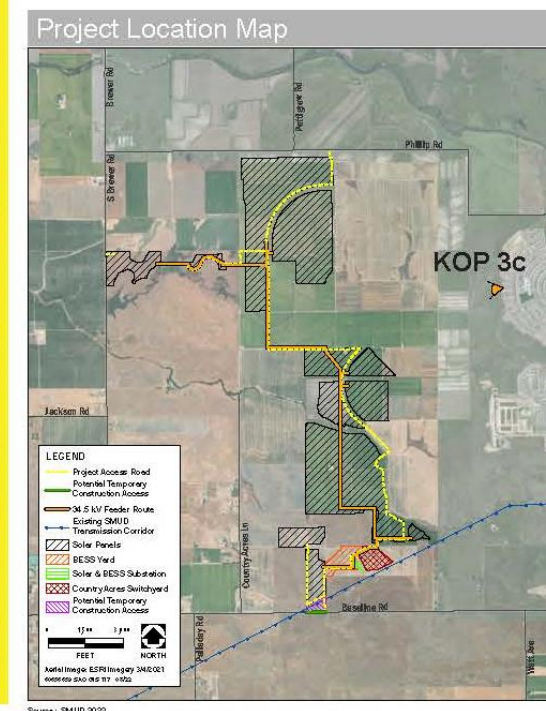


**Exhibit 3.1-12. Viewpoint 3c Simulated Conditions Looking Southwest towards BESS Storage, Substation and Solar Facilities**



SMUD County Acres Solar Project

Viewpoint 3c  
Existing Conditions  
Looking West



Photograph Information

Time of photograph: 12:13 PM  
Date of photograph: 1-12-2022  
Weather condition: Clear  
Viewing direction: Southwest  
Latitude: 38°47'14.478" N  
Longitude: 121°23'44.418" W

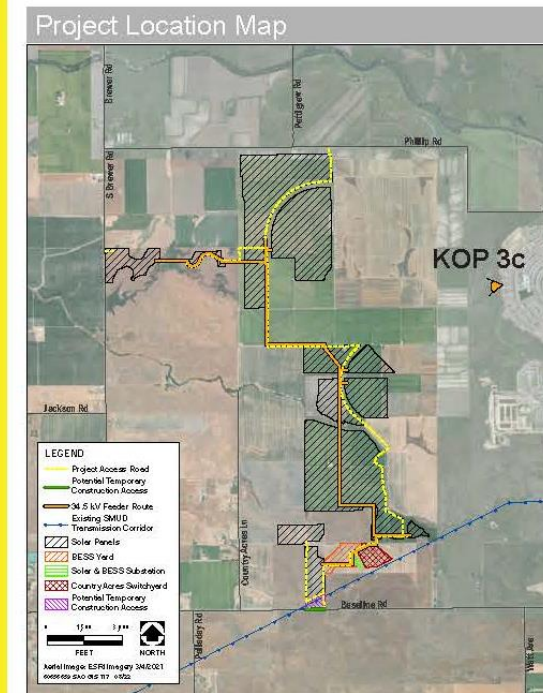
August 2022

Exhibit 3.1-13. Viewpoint 3c Existing Conditions Looking West



**SMUD County Acres Solar Project**

**Viewpoint 3c  
Simulated Conditions  
Looking West towards  
solar facilities**



**Photograph Information**

Time of photograph: 12:13 PM  
Date of photograph: 1-12-2022  
Weather condition: Clear  
Viewing direction: Southwest  
Latitude: 38°47'14.478" N  
Longitude: 121°23'44.418" W

August 2022

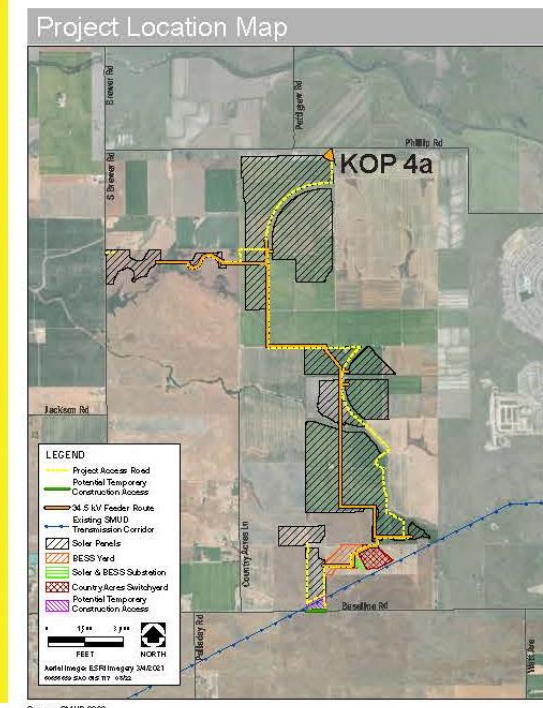


**Exhibit 3.1-14. Viewpoint 3c Simulated Conditions Looking West towards Solar Facilities**



# SMUD County Acres Solar Project

## Viewpoint 4a Existing Conditions Looking South



### Photograph Information

Time of photograph: 11:40 AM  
Date of photograph: 1-12-2022  
Weather condition: Clear  
Viewing direction: South  
Latitude: 38°48'8.50"N  
Longitude: 121°25'8.88"W

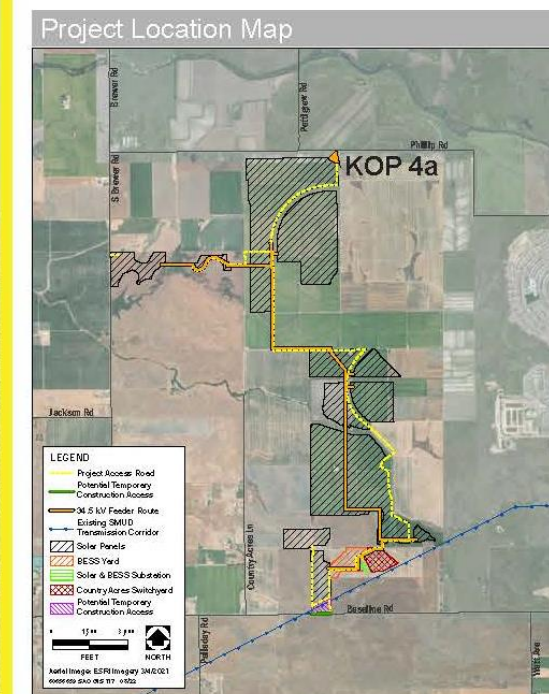
August 2022

Exhibit 3.1-15. Viewpoint 4a Existing Conditions Looking South



**SMUD County Acres Solar Project**

**Viewpoint 4a  
Simulated Conditions  
Looking South at solar facilities**



**Photograph Information**

Time of photograph: 11:40 AM  
Date of photograph: 1-12-2022  
Weather condition: Clear  
Viewing direction: South  
Latitude: 38°48'8.50"N  
Longitude: 121°25'8.88"W

August 2022



**Exhibit 3.1-16. Viewpoint 4a Simulated Conditions Looking South at Solar Facilities**



Vividness is low since the rice fields and utility poles and overhead lines in the foreground and middleground, that extend into the background, do not have distinct visual elements or patterns that would make the landscape memorable. Intactness are moderate because of the minimal non-natural elements encroach into the rural landscape. The undeveloped, agricultural areas throughout the view provides some visual coherence, but in combination with the overhead powerlines and access road represent a slight lack of visual harmony, indicating moderately unity. Overall, scenic quality for Viewpoint 4A is moderate.

### 3.1.3 Environmental Impacts and Mitigation Measures

#### *Methods and Assumptions*

The evaluation of potential impacts of the proposed project on aesthetics was based on consideration of both the visual character and quality of the resource affected, and the value given the resource by viewers. Viewer valuation or response is a combination of viewer exposure and viewer sensitivity. Viewer exposure is a function of the visibility of the affected area, number of viewers, and viewing duration.

Changes in foreground views from a position where large numbers of viewers are relatively stationary for extended periods would generate greater viewer exposure than changes in a background view seen by a limited number of viewers driving rapidly past the viewing site. Viewer sensitivity relates to viewer expectations and the extent of the public's concern for a particular viewshed. Viewers undertaking recreational activities in a location known for high-quality aesthetic resources are expected to have higher expectations and express greater concern relative to preservation of scenic conditions than workers in an industrial setting in an urban area. The significance of the change on scenic qualities of the landscape and publicly available viewpoints is evaluated using the thresholds below.

#### *Thresholds of Significance*

Based on Appendix G of the State CEQA Guidelines, implementation of the proposed project would result in a potentially significant impact on aesthetics if it would do the following:

- have a substantial adverse effect on a scenic vista;
- substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings along a scenic highway;
- in nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings. In urbanized areas, conflict with applicable zoning or other regulations governing scenic quality; or

- create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.

*Issues Not Discussed Further*

**Have a Substantial Adverse Effect on a Scenic Vista.** A scenic vista is generally defined as a distant public view along or through an opening or corridor that is recognized and valued for its scenic quality, or a natural or cultural resource that is indigenous to the area. There are no designated scenic vistas in the project area. The project site consists of generally flat agricultural land with fencing and utility poles. The project site does not contain any unique geologic features, waterfalls, rock outcroppings, gorges, mountains, large stands of native trees, or other features that could be regarded as outstanding scenic features. Distant views of the snow-capped Sierra Nevada Mountains can be seen in Viewpoint 1C; however, the view is obstructed by intervening trees and vegetation, homes, and utility infrastructure. Views of the agricultural land at the project site from the surrounding area are typical of rural agricultural land throughout Placer County. Therefore, the proposed project would have no impacts on scenic vistas and this issue is not discussed further in this EIR.

**Substantially Damage Scenic Resources, including, but not limited to, Trees, Rock Outcroppings, and Historic Buildings within a State Scenic Highway.** As discussed above, there are no state scenic highways located within or adjacent to the project site (Caltrans 2018); therefore, the proposed project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. The proposed project would have no impact on scenic highways and this issue is not discussed further in this EIR.

*Impact Analysis*

**Impact 3.1-1. In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?**

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*Construction*

While there are no designated scenic vistas in the project area, there are long-range scenic views from the roadways adjacent to the project site.

Project construction activities would occur over approximately 18 to 24 months. Limited grading and vegetation removal is proposed along the access roads, at the location of the inverters and transformers, at the BESS yard, the generation substation, and the switching station. Aside from these areas, vegetation removal and site clearing would generally occur where solar panels would be installed in areas currently in rice fields

and orchards. Tree removal would occur in areas currently planted in almonds as part of site preparation. Grasslands would not have to be cleared.

Equipment storage and construction activities would be visible on-site to nearby motorists during that time. Typical construction equipment that could be visible includes scrapers, dozers, dump trucks, watering trucks, motor graders, vibratory compactors, and trenching and cable installation equipment. Other construction equipment that may be used and could be visible to nearby motorists depending on location at the site would include generators, all-terrain vehicles (ATVs), pickup trucks, loaders, excavators, skid loaders, directional and other drilling equipment, road reclaimers, post drivers, forklifts, a mobile crane, and a boom lift. Project construction would involve ground-disturbing activities, including limited grading and vegetation removal along the access roads, at the location of the inverters and transformers, at the BESS yard, the generation substation, and switching station.

Motorists in Westpark and motorists adjacent to the project site would see intermittent construction activities in certain parts of the project site, based on the viewer location, activity location, and intervening topography. Overall, construction activities would be temporary and short term, no viewers would be able to see the entire project site, and many viewers along adjacent local roadways would have moderately low to low sensitivity. Therefore, this impact would be **less than significant**.

### Operation

Buildout of the proposed project would include construction and operation of a PV solar power and battery storage facility, substation, switching station, interconnection lines, and fencing on approximately 1,170 acres of property. The proposed onsite substation would be a minimum of 600 feet by 300 feet and range in height from approximately 20 to 72 feet. Ten (10) foot security fencing consisting of chain link topped by barbed wire would be placed around the perimeter of the new substation. The proposed 230 kV switching station would be a minimum of 800 feet by 600 feet in size and may include a storm water detention basin.

The interconnection of the project to SMUD's grid would be accomplished through removal of a section of the existing SMUD transmission lines, and installation of new overhead double circuit lines on galvanized steel mono structure poles or lattice structures to interconnect the new switching station. The new poles would be up to approximately 130 feet tall and extend from the switching station to the existing lines. Regular debris removal and site cleanup would occur at a minimum of four times a year, possibly in conjunction with panel washing activities.

Additionally, meteorological stations, approximately 10 to 15 feet in height, would be installed within the PV solar field. The exact locations of the meteorological stations would be determined during final design. These facilities could be seen above the horizon depending on where they are located within the site. However, they are not

expected to introduce substantial urban elements that would substantially interfere with the viewshed of the project site.

All project facilities, including operations and maintenance buildings, poles, and array facilities, would blend in with the colors found in the natural landscape, and all color treatments would be matte or nonglossy finishes. Following project construction, the majority of the site occupied by solar panels would be vegetated with grazing and pollinator friendly vegetation.

Potential impacts from project operation are analyzed below for the five representative public viewpoints previously described above.<sup>1</sup> The analysis focuses on viewer sensitivity and changes to visual quality via changes in vividness, unity, and intactness.

### **Viewpoint 1C: View East from South Brewer Road**

The existing view and the visual simulation of the project from Viewpoint 1C are provided in Exhibit 3.1-1 through Exhibit 3.1-4. The simulation shows the proposed solar and substation facilities towards the northeastern and southeastern portion of the site. The perimeter fence on the north (right) side of South Brewer Road is in the foreground, but the solar panels dominate the view. Some grasslands are visible surrounding the solar panels. The overhead utility lines and trees are still visible in the distance, however, the solar panels contrast with the rural character of the area and dominate the view. The panels would introduce additional elements into the view, which make the view less distinct and reduce vividness from moderate to low.

Viewers would primarily be motorists on South Brewer Road, which have moderately low to low sensitivity and would be subject to this view for less than a minute while driving by the site. Furthermore, South Brewer Road does not experience a high volume of motorists (viewers). Therefore, although the project would reduce the intactness and unity of this viewpoint, this change would not substantially reduce the visual character from this viewpoint because of the number of intrusions already visible and the low viewer sensitivity. Changes in views from Viewpoint 1C would therefore be **less than significant**.

### **Viewpoint 2C: View North from Baseline Road**

The existing view and the visual simulation of the project from Viewpoint 2C are provided in Exhibit 3.1-5 through Exhibit 3.1-8. The simulation shows the proposed BESS storage facility, solar panels, and substation facilities approximately 1,500 feet away from Baseline Road towards the northern portion of the site. The solar panels are somewhat noticeable, and the substation is visible in the middle ground. Substantial

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<sup>1</sup> As noted above, under CEQA, a lead agency is not required to evaluate potential visual changes from private viewpoints (*Mira Mar Mobile Community v. City of Oceanside*, 119 Cal.App.4th 477 [Cal. Ct. App. 2004]).

vegetated areas remain visible and still dominate the view. Overhead utility lines are visible in the distance.

Vividness remains low because the landscape does not have distinct or diverse visual elements or patterns that make the landscape memorable. While the facilities would be industrial elements that are not typical of agricultural rural areas, they would not create significant visual incompatibility due to the existing overhead utility facilities in the viewshed and the distance of the proposed facilities from Baseline Road. Therefore, the intactness and unity of this viewpoint remains low. Viewers would primarily be motorists on Baseline Road, which have moderately low to low sensitivity, would be more than 1,500 feet from the proposed facilities, and would be subject to this view for less than a minute while driving by the site. As such, changes in views from Viewpoint 2C would be **less than significant**.

### **Viewpoint 3B: View West from Southwestern Boundary of Westpark**

The existing view and the visual simulation of the project from Viewpoint 3B are provided in Exhibit 3.1-9 and Exhibit 3.1-10. The simulation shows barely noticeable substation facilities in the viewshed along the horizon. The BESS storage and solar facilities are screened by the existing vineyards. The remainder of the view is unchanged.

Visually, the facilities would be consistent with existing overhead utility facilities more than 0.65 mile away and would not detract from existing views. The vividness, intactness, and unity of the view would remain moderate, and the visual character of this viewpoint would remain the same with the project. Therefore, changes in views from Viewpoint 3 would be **less than significant**.

### **Viewpoint 3C: View West/Southwest from Westpark**

The existing view and the visual simulation of the project from Viewpoint 3C are provided in Exhibit 3.1-11 through Exhibit 3.1-14. Similar to Viewpoint 3B, the simulation shows barely noticeable BESS storage, substation, and solar panel facilities in the viewshed. The facilities would be sited more than one mile away, which would also reduce the intrusion of the facilities in the viewshed. The existing agricultural areas would also help to screen the proposed facilities. The remainder of the view is unchanged.

The project is barely visible in Viewpoint 3C and is therefore nearly unnoticeable to the viewer among the existing industrial elements. As a result, the vividness, intactness, and unity of the view would remain moderate. The visual character of this viewpoint would generally remain the same with the project. Therefore, changes in views from Viewpoint 3C would be **less than significant**.

**Viewpoint 4A: View South from Phillip Road**

The existing view and the visual simulation of the project from Viewpoint 4A are provided in Exhibit 3.1-15 and Exhibit 3.1-16. The simulation shows the proposed solar panels facilities at the northern portion of the site. Trees are visible in the foreground, however the backside of the solar panels dominate the view. Additionally, there would be a buffer of more than 250 feet from Phillip Road to the proposed solar panel facilities. While some vegetated, open space is visible surrounding the solar panels, the panels would introduce industrial elements into the view, which would make the view less distinct and reduce vividness from moderate to low.

Viewers would primarily be motorists along Phillip Road, who have moderately low to low sensitivity. Phillip Road is a rural, agricultural road and does not experience a high volume of motorists (viewers). Additionally, motorists would be subject to this view for less than a minute while driving by the site. Therefore, although the project would reduce the intactness and unity of this viewpoint, this change would not substantially reduce the visual character from this viewpoint because of the low viewer sensitivity. Changes in views from Viewpoint 4A would therefore be **less than significant**.

**Impact 3.1-4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?**

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*Construction*

The project site is uninhabited, and no structures exist that would constitute a significant source of light or glare during the nighttime. During construction, glare would be produced from sources such as reflective surfaces of construction vehicles. These sources would be from construction vehicles and use of a temporary construction office, which could be on-site for up to 24 months. Glare would depend on the time of day and would be transient as construction vehicles move throughout the project site.

Construction of the project would generally occur during daytime hours (generally 6:00 a.m. to 5:00 p.m.) so nighttime lighting would generally not be required. However, non-daylight hours may be necessary at times to make up for unanticipated schedule delays or to complete critical construction activities (e.g., pouring concrete). Nighttime construction could result in skyglow.<sup>2</sup> Single-family homes are scattered along Country Acres Lane, Brewer Road, and Philips Road. These residents may have views of the sky above the site, and night lighting may produce a detectable skyglow.

If work is performed between the hours of 9:00 p.m. to 6:00 a.m., construction crews would use minimal illumination to perform the work safely. During construction, dusk-to-dawn security lighting would be required for the temporary construction staging area, parking area, construction office trailer entries, and project site access points. All lighting would be directed downward and shielded to focus illumination on the desired work areas only, and to prevent light spillage onto adjacent properties. Bright white light,

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<sup>2</sup> Skyglow is a glow that extends beyond the light source above the horizon at night.

such as metal halide, halogen, fluorescent, mercury vapor, and incandescent lighting would not be used during construction. Therefore, overall impacts from lights and glare during construction would be **less than significant**.

### Operation

Solar panels may result in some glare during the daytime. The reflection of sunlight is the primary producer of any potential glare from glass or metallic surfaces associated with the project. As opposed to other surfaces, such as mirrors, a solar panel has, at a microscopic level, an irregular surface designed to capture the incident rays of sunlight with the goal of generating additional photon collision and energy production. If not absorbed, incident radiation would be reflected. Thus, the goal of any solar panel is to trap as much of the incident rays as possible, and minimize reflection, to maximize energy creation. The project would result in construction of PV solar panels on approximately 1,170 acres.

As previously discussed, viewers in the area are limited in number. Further, visibility of the site is limited by distance. Viewer groups who may be subject to glare from solar panels would be traveling on local roads. The solar panels would be mounted towards the south/southwest at a 210-degree azimuth, at a tilt of approximately 30 degrees.

Fixed panels have a potential for glare in the early morning and late afternoon hours. For the most part, glare from a fixed system would be redirected to the north and high in the sky. The greatest potential for glare would occur as the sun nears due east or west as the sun's light is parallel to the panels and would skip across the surface of the panels. The solar panels would be tilted away from the residents to the north and northeast. As discussed in Section 3.17, *Transportation*, South Brewer Road and Phillip Road are not heavily traveled roadways. While Baseline Road does experience a higher volume of motorists (viewers), the proposed project facilities would be partially screened by existing vegetated areas due to the distance of facilities from the roadway in KOP 2C. The proposed project is not within any approach-departure flight paths for any airport; therefore, solar arrays at the project site would not result in hazardous glare for aircraft pilots.

Sources of light associated with project operation would include external safety lighting and permanent lighting on the switch station, substation, entrances to the arrays, and certain array or BESS-related equipment such as medium voltage combining switchgear. This lighting would be dark sky compliant (i.e., pointed downwards). Bright white light, such as metal halide, halogen, fluorescent, mercury vapor, and incandescent lighting will not be used for long-term operations. Lighting at the inverters medium voltage combining switchgear, substation, and switching station would generally be switched off and only switched on if maintenance is required outside of daylight hours. Lighting at entrances would be on motion sensors or only on from dusk until dawn and some motion sensor lights would be installed along perimeters for security. These lights would be similar to flood lighting on the front of a home.

Therefore, impacts from light pollution during project operation would be less than significant.

In summary, though PV solar panels may produce a minor amount of glare, that glare would not be visible for a substantial amount of time to a substantial number of viewers and would not result in substantial glare for motorists traveling on local roadways, aircraft pilots, or nearby residents. No other substantial glare or light pollution would occur from operation of the project. Therefore, overall impacts from light and glare during operation would be **less than significant**.

#### *Mitigation Measures*

No mitigation is required.



## 3.2 Agriculture and Forestry Resources

This section addresses agricultural resources within the project site and surrounding areas. It describes Placer County's agricultural uses; identifies the extent of agricultural land on-site and within Placer County; and describes the factors contributing to the conversion of agricultural land to non-agricultural uses. This section also determines the significance and quality of agricultural land within the project site and evaluates potential impacts related to agricultural resources related to the implementation of the proposed project.

### 3.2.1 Regulatory Setting

#### *Federal*

There are no relevant federal regulations regarding agricultural and forestry resources applicable to the proposed project.

#### *State*

#### *California Important Farmland Inventory System and Farmland Mitigation and Monitoring Program*

The Farmland Mapping and Monitoring Program (FMMP) was established by the State of California in 1982 to continue the Important Farmland mapping efforts begun in 1975 by the U.S. Soil Conservation Service (now called the Natural Resources Conservation Service, under the U.S. Department of Agriculture). The intent was to produce agricultural resource maps, based on soil quality and land use across the nation. The Department of Conservation sponsors the FMMP and also is responsible for establishing agricultural easements, in accordance with California Public Resources Code Sections 10250–10255.

The Department of Conservation FMMP maps are updated every two years with the use of aerial photographs, a computer mapping system, public review, and field reconnaissance. The following list provides a comprehensive description of all the categories mapped by the Department of Conservation (DOC 2022a):

- **Prime Farmland**—Land that has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields.
- **Farmland of Statewide Importance**—Land similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture.
- **Unique Farmland**—Land of lesser quality soils used for the production of the state's leading agricultural cash crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California.

- **Farmland of Local Importance**—Land that is of importance to the local agricultural economy, as defined by each county’s local advisory committee and adopted by its board of supervisors. The Placer County Board of Supervisors has defined Farmland of Local Importance to consist of farmlands not covered by the categories of Prime, Statewide, or Unique; lands zoned for agriculture by County Ordinance and the California Land Conservation Act as well as dry farmed lands, irrigated pasture lands, and other agricultural lands of significant economic importance to the County; and lands that have a potential for irrigation from Placer County water supplies (DOC 2018b).
- **Grazing Land**—Land with existing vegetation that is suitable for grazing.
- **Urban and Built-Up Lands**—Land that is used for residential, industrial, commercial, institutional, and public utility structures and for other developed purposes.
- **Other Lands**—Land that does not meet the criteria of any of the previously described categories and generally includes low-density rural developments, vegetative and riparian areas not suitable for livestock grazing, confined-animal agriculture facilities, strip mines, borrow pits, and vacant and nonagricultural land surrounded on all sides by urban development.

Under the DOC’s FMMP, Agricultural Land is classified as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land. Under CEQA, the designations for Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are defined as “agricultural land” (Public Resources Code Sections 21060.1(a), and CEQA Guidelines Appendix G).

#### *Local*

#### *Placer County General Plan*

The *Placer County General Plan* (2013) includes the following policies that apply to the proposed project.

#### **Land Use Element**

- **Policy 1.H.1.** The County shall maintain agriculturally-designated areas for agricultural uses and direct urban uses to designated urban growth areas and/or cities.
- **Policy 1.H.3.** The County will maintain large-parcel agricultural zoning and prohibit the subdivision of agricultural lands into smaller parcels unless such development meets the following conditions:
  - a) The subdivision is part of a cluster project and such a project is permitted by the applicable zoning;

- b) The project will not conflict with adjacent agricultural operations; and,
- c) The project will not hamper or discourage long-term agricultural operations either on site or on adjacent agricultural lands.
- **Policy 1.H.4.** The County shall allow the conversion of existing agricultural land to urban uses only within community plan or specific plan areas, within city spheres of influence, or where designated for urban development on the General Plan Land Use Diagram.
- **Policy 1.H.6.** The County shall require new non-agricultural development immediately adjacent to agricultural lands to be designed to provide a buffer in the form of a setback of sufficient distance to avoid land use conflicts between the agricultural uses and the nonagricultural uses, except as it may be determined to be unnecessary or inappropriate within a Specific Plan as part of the Specific Plan approval. Such setback or buffer areas shall be established by recorded easement or other instrument, subject to the approval of County Counsel. A method and mechanism (e.g., a homeowners association or easement dedication to a non-profit organization or public entity) for guaranteeing the maintenance of this land in a safe and orderly manner shall be also established at the time of development approval.
- **Policy 1.N.3.** The County shall endeavor to protect the natural resources upon which the County's basic economy (e.g., recreation, forestry, agriculture, mining, and tourism) is dependent.

#### **Natural Resources Element**

- **Policy 7.A.1.** The County shall protect agriculturally-designated areas from conversion to nonagricultural uses.
- **Policy 7.A.3.** The County shall encourage continued and, where possible, increased agricultural activities on lands suited to agricultural uses.
- **Policy 7.A.7.** The County shall maintain agricultural lands in large parcel sizes to retain viable farming units.
- **Policy 7.A.11.** The County shall support appropriate efforts by public and private conservation organizations to use conservation easements as a tool for agricultural preservation.
- **Policy 7.B.1.** The County shall identify and maintain clear boundaries between urban/suburban and agricultural areas and require land use buffers between such uses where feasible, except as may be determined to be unnecessary or inappropriate within a Specific Plan as part of the Specific Plan approval. These buffers shall occur on the parcel for which the development permit is sought and shall favor protection of the maximum amount of farmland.

### 3.2.2 Environmental Setting

Placer County is the state's 39th largest agricultural county in terms of the total value of agricultural production (U.S. Department of Agriculture 2022). The total gross valuation for all agricultural commodities produced in Placer County in 2020 was approximately \$90.7 million. This value represents an increase of approximately 4 percent from the all-time high value in 2019 of \$86.7 million (Placer County Agricultural Commissioner 2020). In 2020, rice had the highest crop value (\$23.5 million); however, this represented a \$2.0 million decrease in value from 2019 due to a decrease in planted acreage. Beef cattle is the number two commodity at \$13.5 million, followed by walnuts (\$13.2 million), timber (\$6.1 million), and almonds (\$6.1 million) (Placer County Agricultural Commissioner 2020).

#### *Placer County Farmland Conversion*

The California Department of Conservation's Important Farmland classifications—Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance—identify the land's suitability for agricultural production by considering physical and chemical characteristics of the soil, such as soil temperature range, depth of the groundwater table, flooding potential, rock fragment content, and rooting depth. The classifications also consider location, growing season, and moisture available to sustain high-yield crops. (See "Regulatory Setting" above, for detailed descriptions of Important Farmland classifications.)

Table 3.2-1 summarizes acreages of agricultural land in Placer County between 2008 and 2018 and shows the net change in acreage over that 10-year period. DOC estimated that Placer County included 158,371 acres of agricultural land in 2008, of which 133,923 acres (84.6 percent) were classified as Important Farmland and 24,448 acres (15.4 percent) were classified as Grazing Land (DOC 2018a). In 2018, the total acreage of agricultural land decreased to 154,299 acres, of which 120,332 acres (78.0 percent) were classified as Important Farmland and 33,967 acres (22.0 percent) were classified as Grazing Land (DOC 2018a). Overall, the total acreage of Important Farmland increased by approximately 10.1 percent over the 20-year period, while the total acreage of agricultural land decreased by 2.6 percent (Table 3.2-1). While the number of acres of Prime Farmland, Farmland of Statewide Importance, and Farmland of Local Importance decreased by 6.8 percent, 13.1 percent and 11.5 percent, respectively, the number of acres of Unique Farmland increased by approximately 7.1 percent. The total acreage of grazing land has increased substantially at a greater rate (38.9 percent) during this period.

**Table 3.2-1. Summary of Agricultural Land Conversion in Placer County**

Important Farmland Category	Acres		Net Change (2008–2018)
	2008	2018	
Prime Farmland	7,894	7,354	-6.8
Farmland of Statewide Importance	4,823	4,193	-13.1
Unique Farmland	18,058	19,342	7.1
Farmland of Local Importance	101,011	89,443	-11.5
<b>Important Farmland Subtotal</b>	<b>133,923</b>	<b>120,332</b>	<b>-10.1</b>
Grazing Land	24,448	33,967	38.9
<b>Agricultural Land Total</b>	<b>158,371</b>	<b>154,299</b>	<b>-2.6</b>

Source: DOC 2018a

*Williamson Act*

Under the California Land Conservation Act of 1965, also known as the Williamson Act, local governments can enter into contracts with private property owners to protect land (within agricultural preserves) for agricultural and open space purposes. Placer County had approximately 32,839 acres of land under active Williamson Act contracts in 2021 (Placer County 2021). The majority of lands enrolled in Williamson Act contracts are found in the west and northwestern portion of western Placer County.

None of the project site is under a Williamson Act contract (Placer County 2021). The nearest parcels under Williamson Act contracts are located east of County Acres Lane (Exhibit 3.2-1).

*Existing Project Site Agricultural Uses*

Existing agricultural land uses within the project area include predominantly agricultural rice fields and almond orchards (see Exhibits 3.4-2. and 3.4-3. in Section 3.4, “Biological Resources”). As shown on Table 3.4-1 in Section 3.4, approximately 872 acres of rice fields and 131 acres of almond orchards are within the project site. Rice fields are generally located in the northern and central portions of the project site while the southern extent of the project site consists entirely of almond orchards. All almond orchards in and adjacent to the project site are newly planted. As discussed further in Section 3.19, “Utilities and Service Systems,” water supplies for irrigation are provided by onsite groundwater wells, and no agricultural surface water is supplied within the project boundaries. Some seasonal wetlands present onsite were previously farmed for grain; however, in recent years have become fallowed fields.

According to the Placer County Important Farmland map, published by the California Division of Land Resource Protection (DOC 2022b), approximately 44 acres of the project site is designated as Farmland of Statewide Importance, approximately 858 acres is designated Unique Farmland, and approximately 205 acres are designated

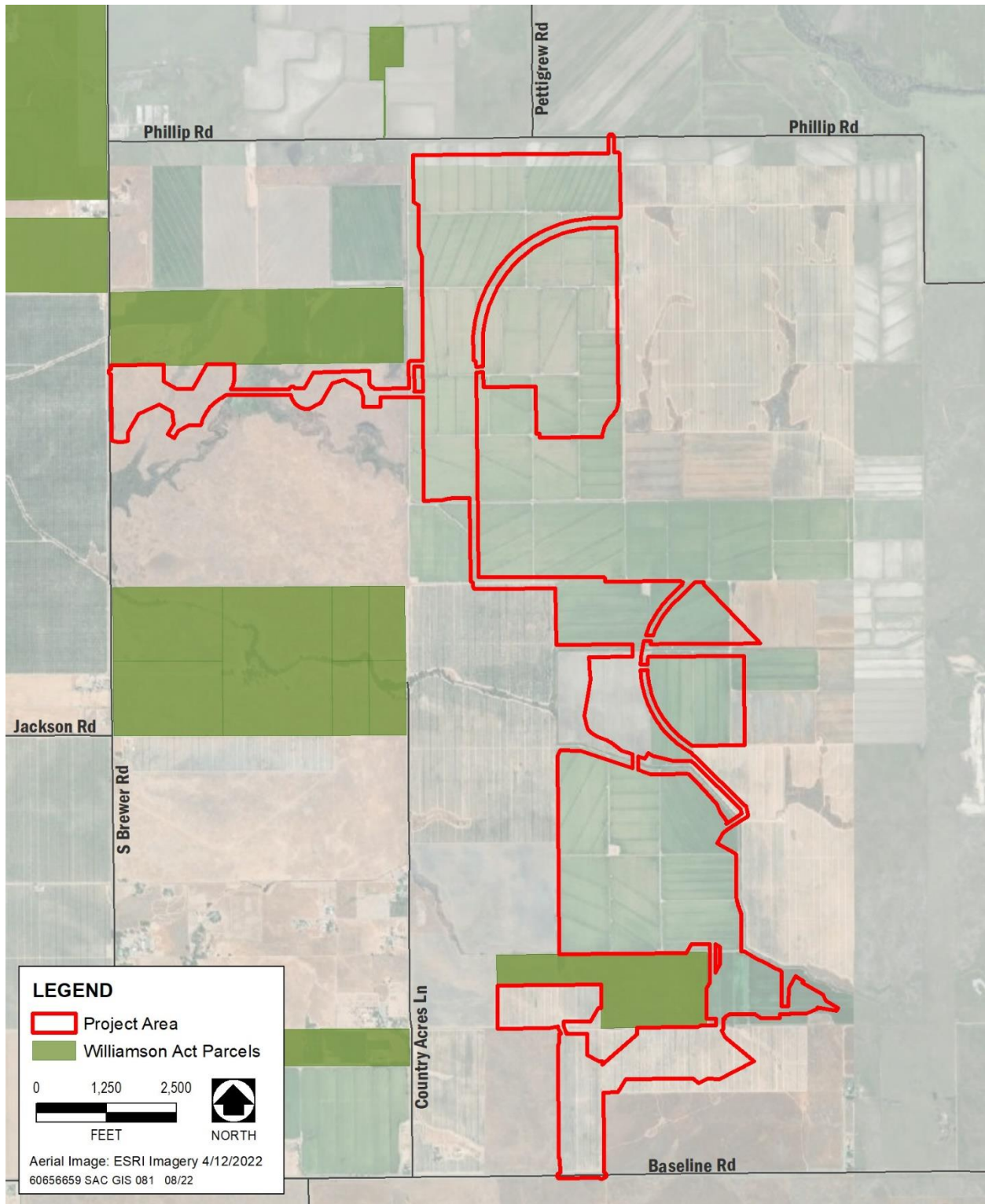
Farmland of Local Importance (Table 3.2-2). An additional 7.92 acres of Farmland of Local Importance is located where temporary construction access improvements off Baseline Road may be necessary.

Exhibit 3.2-2 shows the location of Important Farmland within and adjacent to the project site. Active agricultural land uses on and adjacent to the project site coincide with these farmland designations. In addition, approximately 62 acres of the project site is designated as Grazing Land.

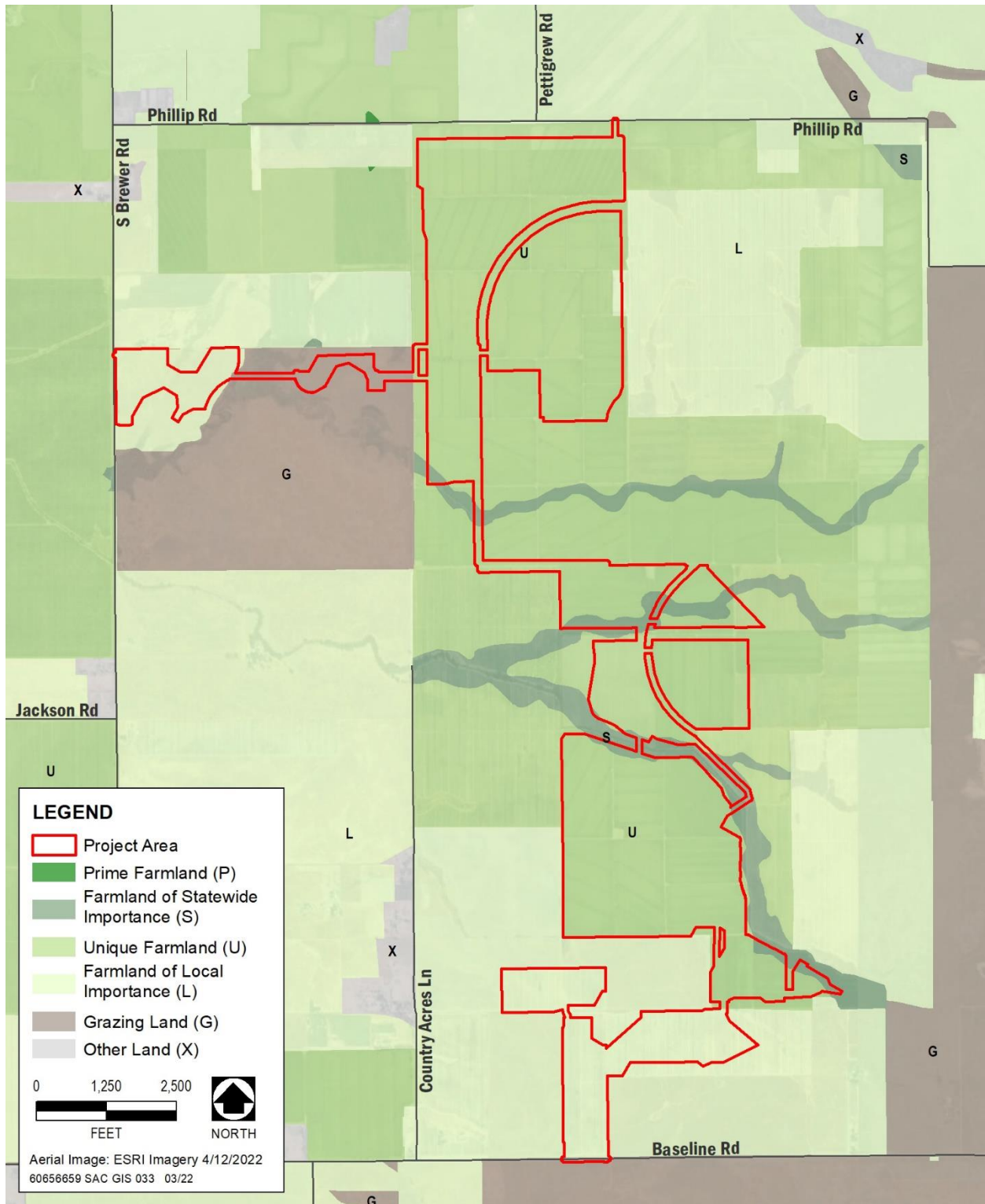
**Table 3.2-2. Summary of the California Department of Conservation Land Use Categories for the Project Site**

<b>Farmland Category</b>	<b>Acres</b>
Farmland of Statewide Importance	44.3
Unique Farmland	858.0
Farmland of Local Importance	205.5
<b>Important Farmland Subtotal</b>	<b>1,107.8</b>
Grazing Land	62.2
<b>Agricultural Land Total</b>	<b>1,170</b>

Source: DOC 2022b



**Exhibit 3.2-1. Williamson Act Contract Land**



**Exhibit 3.2-2. Important Farmland Map**



## **Agricultural Zoning**

The majority of the project site is currently zoned Farm, combining minimum building site of 80 acres (F-B-X 80) in the Placer County Zoning Ordinance. The F-B-X zoning designation is intended to provide areas for the conduct of commercial agricultural operations that can also accommodate necessary services to support agricultural uses, together with residential land uses at low population densities. Allowable land uses include crop production, equestrian facilities, grazing, farmworker dwelling units, and storage and accessory buildings.

### **3.2.3 Environmental Impacts and Mitigation Measures**

#### *Methods and Assumptions*

The evaluation of the potential impacts of the proposed project on agricultural resources was based on a review of field conditions, aerial photographs, and policy guidance from the *Placer County General Plan* (Placer County 2013).

The Important Farmland Map for Placer County, produced by the Department of Conservation Division of Land Resource Protection (DOC 2022b), and Williamson Act Contract Map for Placer County (Placer County 2021) were used to evaluate the agricultural significance of the lands on the project site. Geographic information systems (GIS) data were used to determine the potential acreage of designated farmland affected by implementation of the proposed project.

Appendix G of the CEQA Guidelines focuses the analysis on conversion of agricultural land on Prime Farmland, Farmland of Statewide Importance, or Unique Farmland to nonagricultural uses; therefore, any conversion of these lands to a nonagricultural use would be considered a significant impact under CEQA.

#### *Thresholds of Significance*

Based on Appendix G of the CEQA Guidelines, the proposed project would have a significant impact related to agricultural and forestry resources if it would:

- convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to nonagricultural use;
- conflict with existing zoning for agricultural use or a Williamson Act contract;
- conflict with existing zoning for, or cause rezoning of, forestland (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]);
- result in the loss of forestland or conversion of forestland to nonforest use; or

- involve other changes in the existing environment that, because of their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to nonforest use.

### *Issues Not Discussed Further*

**Conflict with Existing Zoning for Agricultural Use**—The majority of the project site is currently zoned Farm, combining minimum building site of 80 acres (F-B-X 80) in the Placer County Zoning Ordinance. The F zoning designation is intended to provide areas for the conduct of commercial agricultural operations that can also accommodate necessary services to support agricultural uses, together with residential land uses at low population densities. Implementation of the proposed project requires a Conditional Use Permit (CUP). As discussed further in Section 3.11, “Land Use and Planning,” SMUD has been working closely with Placer County during the conceptual design of the project and the preparation of this Draft EIR and has been meeting with the county to discuss the requirements for obtaining a CUP. In addition, throughout project operation, spring sheep grazing would occur at the project site around the PV arrays, and other potential agricultural uses compatible with solar, such as pollinator overwintering storage and irrigated crop production, are being considered for the project. Per Article 17.10 in Chapter 17 of the Placer County Code, grazing is an allowable agricultural use within the F zoning district. With approval of the proposed project, issuance of a CUP, and continuation of agricultural uses, the proposed project would not conflict with zoning for agricultural use. Therefore, no impact would occur, and this issue is not addressed further in this EIR.

**Conflict with Existing Williamson Act Contract**— No lands are under Williamson Act contract on the project site. Therefore, implementing the proposed project would not conflict with an existing Williamson Act contract. Therefore, no impact would occur, and this issue is not addressed further in this EIR.

**Conflict with Existing Zoning for, or Cause Rezoning of, Forest Land, Timberland, or Timberland Zoned Timberland Production**— The project site is not zoned as forestland, timberland, or a Timberland Production Zone. Thus, the proposed project would not conflict with existing zoning for, or cause rezoning of, forestry resources. Therefore, no impact would occur, and this issue is not addressed further in this EIR.

**Result in the Loss of Forest Land or Conversion of Forest Land to Non-Forest Use**— The project site does not contain timberland as defined by Public Resources Code Section 4526 or contain 10 percent native tree cover that would be classified as forestland under Public Resources Code Section 12220(g). Thus, the proposed project would not result in conversion of forest land to non-forest use. Therefore, no impact would occur, and this issue is not addressed further in this EIR.

### *Impact Analysis*

**Impact 3.2-1. 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?**

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The proposed project would construct, operate, and maintain a PV solar power and battery storage facility and interconnection facilities. The existing agricultural uses on the project site include irrigated rice fields and almond orchards. These agricultural activities would be discontinued during operation of the proposed project; however, throughout project operation, spring sheep grazing would occur at the project site around the PV arrays and the existing onsite wells will remain and could provide supplemental water to sheep. Pollinator habitat compatible with sheep grazing would also be established in the PV array area. In addition to these planned agricultural uses, other potential agricultural uses compatible with solar, such as pollinator overwintering storage and irrigated crop production, are being considered for the project. Per Article 17.10, "Farm (F) District," in Chapter 17, "Zoning," of the Placer County Code, grazing is an allowable agricultural use within the F zoning district.

Based on analysis of farmland mapping provided under the FMMP, up to 44 acres of the land designated as Farmland of Statewide Importance and up to 858 acres of land designated Unique Farmland (DOC 2022b) will be converted for the project footprint.

For the FMMP, DOC generally considers PV solar production, with or without compatible agricultural uses incorporated, to be a conversion to urban land use.<sup>1</sup> This conversion of Farmland of Statewide Importance and Unique Farmland would contribute to the incremental decline of Important Farmland in the county, region, and state and result in the conversion of this agricultural land. Post-construction the majority of the site would be vegetated with grazing and pollinator friendly vegetation, with the exception of the footprints for the substation, switching station, BESS yard, the solar panel support posts, the foundations for the inverters, switchgear and transformers and roadways. The total expected permanent disturbance associated with the footprints of these features is 120 acres, and the majority of this acreage is designated as Farmland of Local Importance. DOC estimated that Placer County included 120,332 acres of Important Farmland in 2018, of which 4,193 acres were classified as Farmland of Statewide Importance (4 percent) and 19,342 acres (16 percent) were classified as Unique Farmland (DOC 2018a). A permanent conversion of approximately 903 acres of Important Farmland attributed to the proposed project would account for less than one percent of this total in Placer County. The total conversion of Important Farmland would be small in the context of the county's entire agricultural land base and would not cause a substantial reduction in the county's total agricultural production.

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<sup>1</sup> It should be noted that the area of the project site proposed for the solar PV module arrays would not be a permanent urban use. At the end of the project's life (anticipated to be 30 to 35 years), the project and its assets would be decommissioned; however, SMUD may retain the substation, switching station, and battery storage facilities. The project will prepare a decommissioning and reclamation plan prior to decommissioning that will detail the timeline for removal of the improvements and specific measures to return the site to agricultural capability. Additionally, prior to decommissioning, additional CEQA analysis would be performed.

Appendix G of the CEQA Guidelines considers the conversion of Farmland of Statewide Importance and Unique Farmland to a non-agricultural use to be a significant impact under CEQA.

### *Mitigation Measures*

#### **Mitigation Measure 3.2-1. Preserve Important Farmland**

SMUD shall implement one of the following methods to minimize the loss of Farmland of Statewide Importance and Unique Farmland at a 1:1 ratio (i.e., 1 acre on which easements are acquired to 1 acre of Farmland of Statewide Importance and Unique Farmland removed from agricultural use):

- Acquire agricultural conservation easement(s) that provide in-kind or similar resource value protection in the region, with a strong preference for locating the agricultural conservation easement(s) in Placer County. This can be achieved by the acquisition of conservation easements, farmland deed restriction, or other appropriate farmland conservation mechanism to ensure the preservation of the land in perpetuity.
- Pay in-lieu fees to an established, agreed-upon (by County and SMUD) mitigation program with a presence in Placer County (e.g., Placer Land Trust) to fully fund the acquisition and maintenance of agricultural land or easements.
- Alternatively, this may occur through the payment of fees into the PCCP's in-lieu fee program under a Memorandum of Understanding (MOU) with the PCA prior to issuance of improvement plans. (In-lieu fee payments would also address impacts on special-status species through loss for foraging habitat for burrowing owl and Swainson's hawk, and impacts on sensitive natural communities and wetlands and other waters of the US and state/County, as detailed in Mitigation Measures 3.4-8., 3.4-10 and 3.4-16 in Section 3.4 "Biological Resources" of this EIR).

Payments of in-lieu fees or acquisition of agricultural conservation easements may be spread out in alignment with construction phasing but must occur no later than the start of each new phase. The impact acreage requiring offset shall be based on the most current FMMP at the time of the County's issuance of the Conditional Use Permit.

#### **Significance after Mitigation**

Mitigation Measure 3.2-1 would require SMUD to provide conservation easements or pay in-lieu fees for the conversion of Important Farmland. However, no new farmland would be made available and a net loss of Important Farmland would occur. There is no additional feasible mitigation available that would reduce impacts associated with the permanent conversion of agricultural land, including Farmland of Statewide Importance and Unique Farmland, to a less-than-significant level. This impact would remain **significant and unavoidable**.

**Impact 3.2-2. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?**

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Only portions of Assessor Parcel Numbers 017-090-024, 017-090-056, 017-090-057, and 017-130-015 would be leased for the proposed project. These parcels are actively farmed and designated as Farmland of Statewide Importance and Unique Farmland. None of these parcels are being legally subdivided with parcel fragments remaining. SMUD has coordinated with the landowners and the farmers to develop project boundaries in a way that is compatible with continued farming operations on the remaining fragments of these parcels so that the proposed project would not conflict, hamper, or discourage long-term agricultural uses. The portions of these parcels outside of the project site boundary would not be encroached upon such that the parcels could become fragmented, reduced in size, and irregularly shaped to such a degree that continuing agricultural land uses could be less profitable or otherwise less feasible. Therefore, the project is consistent with the Placer County General Plan policies listed above. In addition, the proposed project would not impede the movement of agricultural equipment. All construction equipment storage, construction areas, and access roads would be sited within the project site and operations would not substantially increase vehicular traffic in areas where agricultural equipment uses local roads. Therefore, the proposed project would not indirectly result in other changes in the physical environment that could result in the conversion of agricultural land, including agricultural land designated as Farmland of Statewide Importance and Unique Farmland, to nonagricultural uses. This impact is considered **less than significant**.

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### 3.3 Air Quality

This section describes existing local and regional air quality conditions; summarizes applicable air quality regulations at the federal, state, and local levels; and analyzes potential short-term and long-term air quality impacts that could result from implementation of the proposed project.

In response to the Notice of Preparation, the Placer County Air Pollution Control District (PCAPCD) recommended that the environmental impact report's (EIR's) analysis of impacts to air quality consider permitting and registration requirements for emissions-generating equipment to be used during both construction and operations, identify project requirements to ensure compliance with District Rule 228, *Fugitive Dust*, and District Rule 304, *Land Development Smoke Management*, and fully analyze any ongoing vegetation management that is required as part of the operational phase of the project.

#### 3.3.1 Regulatory Setting

The project site is within in the Sacramento Valley Air Basin (SVAB), in the southwestern portion of the PCAPCD's jurisdictional boundary. The U.S. Environmental Protection Agency (EPA), California Air Resources Board (CARB), and PCAPCD are responsible for regulating air quality in the vicinity of the project site. Each agency develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, in general, both state and local regulations may be more stringent. The regulatory frameworks for criteria air pollutants, toxic air contaminants (TACs), and other emissions are described below.

##### *Federal*

The primary legislation that governs federal air quality regulations is the Clean Air Act (CAA), enacted in 1970 and amended by Congress most recently in 1990. The CAA delegates primary responsibility for clean air to EPA. EPA develops rules and regulations to preserve and improve air quality and delegates specific responsibilities to state and local agencies.

##### *Criteria Air Pollutants*

Under the CAA, EPA has established the national ambient air quality standards (NAAQS) for seven criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), respirable and fine particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>, respectively), and lead. The purpose of the NAAQS is two-tiered: primarily to protect public health, and secondarily to prevent degradation to the environment (i.e., impairment of visibility, damage to vegetation and property). The current primary and secondary NAAQS are shown in Table 3.3-1<sup>1</sup>. These health-based pollutant standards are reviewed with a legally prescribed frequency and are revised as warranted by new data on health and welfare effects. Each standard is based on a specific averaging time

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<sup>1</sup> Table 3.3-1 also includes the California Ambient Air Quality Standards, described further below.

over which the concentration is measured. Different averaging times are based on protection from short-term, high-dosage effects or longer term, low-dosage effects.

**Table 3.3-1. Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standards <sup>a</sup>	National Standards <sup>b</sup>	
		Concentration <sup>c</sup>	Primary <sup>c,d</sup>	Secondary <sup>c,e</sup>
Ozone <sup>f</sup>	1 hour	0.09 ppm (180 µg/m <sup>3</sup> )	–	Same as primary standard
	8 hours	0.070 ppm (137 µg/m <sup>3</sup> )	0.070 ppm (147 µg/m <sup>3</sup> )	
Respirable particulate matter—10 micrometers or less <sup>g</sup>	24 hours	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	Same as primary standard
	Annual arithmetic mean	20 µg/m <sup>3</sup>	–	
Fine particulate matter—2.5 micrometers or less <sup>g</sup>	24 hours	–	35 µg/m <sup>3</sup>	Same as primary standard
	Annual arithmetic mean	12 µg/m <sup>3</sup>	12 µg/m <sup>3</sup>	15 µg/m
Carbon monoxide	8 hours	9.0 ppm (10 mg/m <sup>3</sup> )	9 ppm (10 mg/m <sup>3</sup> )	None
	1 hour	20 ppm (23 mg/m <sup>3</sup> )	35 ppm (40 mg/m <sup>3</sup> )	
	8 hours (Lake Tahoe)	6 ppm (7 mg/m <sup>3</sup> )	–	–
Nitrogen dioxide <sup>h</sup>	Annual arithmetic mean	0.030 ppm (57 µg/m <sup>3</sup> )	0.053 ppm (100 µg/m <sup>3</sup> )	Same as primary standard
	1 hour	0.18 ppm (339 µg/m <sup>3</sup> )	100 ppb (188 µg/m <sup>3</sup> )	None
Sulfur dioxide <sup>i</sup>	Annual arithmetic Mean	–	0.030 ppm (for certain areas) <sup>i</sup>	–
	24 hours	0.04 ppm (105 µg/m <sup>3</sup> )	0.14 ppm (for certain areas) <sup>i</sup>	–
	3 hours	–	–	0.5 ppm (1,300 µg/m <sup>3</sup> )
	1 hour	0.25 ppm (655 µg/m <sup>3</sup> )	75 ppb (196 µg/m <sup>3</sup> )	–
Lead <sup>j</sup>	30-day average	1.5 µg/m <sup>3</sup>	–	–
	Calendar quarter	–	1.5 µg/m <sup>3</sup> (for certain areas) <sup>i</sup>	Same as primary standard
	Rolling 3-month average	–	0.15 µg/m <sup>3</sup>	
Visibility-reducing particles <sup>k</sup>	8 hours	See footnote k	No national standards	
Sulfates	24 hours	25 µg/m <sup>3</sup>		
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m <sup>3</sup> )		
Vinyl chloride <sup>l</sup>	24 hours	0.01 ppm (26 µg/m <sup>3</sup> )		

Notes: µg/m<sup>3</sup> = micrograms per cubic meter; mg/m<sup>3</sup> = milligrams per cubic meter; ppb = parts per billion; ppm = parts per million; CARB = California Air Resources Board; EPA = U.S. Environmental Protection Agency.

<sup>a</sup>. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and particulate matter (PM<sub>10</sub>, PM<sub>2.5</sub>, and visibility-reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

<sup>b</sup>. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM<sub>10</sub>, the 24-hour is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m<sup>3</sup> is equal to or less than 1. For PM<sub>2.5</sub>, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standards.

<sup>c</sup>. Concentration expressed first in the units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and reference pressure of 760 torr; "ppm" in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

<sup>d</sup>. **National Primary Standards:** The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

<sup>e</sup>. **National Secondary Standards:** Levels of air quality necessary to protect public welfare from any known or anticipated adverse effects of a pollutant.

<sup>f</sup>. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

<sup>g</sup>. On December 14, 2012, the national annual PM<sub>2.5</sub> primary standard was lowered from 15 µg/m<sup>3</sup> to 12.0 µg/m<sup>3</sup>. The existing national 24-hour PM<sub>2.5</sub> standards (primary and secondary) were retained at 35 µg/m<sup>3</sup>, as was the annual secondary standard of 15 µg/m<sup>3</sup>. The existing 24-hour PM<sub>10</sub> standards (primary and secondary) of 150 µg/m<sup>3</sup> also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

<sup>h</sup>. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from 100 ppb to 0.100 ppm.

<sup>i</sup>. On June 2, 2010, a new 1-hour SO<sub>2</sub> standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO<sub>2</sub> national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except



that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. To directly compare the 1-hour national standard to the California standard, the units can be converted to ppm. In this case, the national standard of 75 ppb is identical of 0.075 ppm.

- <sup>j</sup>. CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- <sup>k</sup>. In 1989, CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and the "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

The CAA requires EPA to determine if areas of the country meet the NAAQS for each criteria air pollutant. Areas are designated according to the following basic designation categories:

- **Attainment:** This designation signifies that pollutant concentrations in the area do not exceed the established standard. In most cases, a maintenance plan is required for a region after it has attained an air quality standard and is designated as an attainment or maintenance area after previously being designated as nonattainment. Maintenance plans are designed to ensure continued compliance with the standard.
- **Nonattainment:** This designation indicates that a pollutant concentration has exceeded the established standard. Nonattainment may differ in severity. To identify the severity of the problem and the extent of planning and actions required to meet the standard, nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem (e.g., moderate, serious, severe, extreme).
- **Unclassified:** This designation indicates that insufficient data exist to determine attainment or nonattainment. For regulatory purposes, an unclassified area is generally treated the same as an attainment area.

As shown in Table 3.3-2, the portion of Placer County within the SVAB meets the NAAQS for all criteria air pollutants except ozone and PM<sub>2.5</sub>. The CAA requires each state to prepare an air quality control plan, referred to as a state implementation plan (SIP). The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and to determine whether implementing them will achieve ambient air quality standards. If EPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area.

**Table 3.3-2. Attainment Status for Federal and State Ambient Air Quality Standards**

Pollutant	Federal Standard	State Standard
Ozone <sup>a</sup>	Nonattainment <sup>a</sup>	Nonattainment
Particulate Matter— 10 Micrometers or Less	Attainment	Nonattainment
Particulate Matter— 2.5 Micrometers or Less	Nonattainment	Attainment
Carbon Monoxide	Attainment	Attainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates		Attainment
Visibility-Reducing Particles		Unclassified

Notes:

<sup>a</sup> Air quality meets the federal 1-hour ozone standard (77 Federal Register 64036, October 18, 2012). The U.S. Environmental Protection Agency (EPA) revoked this standard, but some associated requirements still apply.

### Hazardous Air Pollutants / Toxic Air Contaminants

Air quality regulations also focus on hazardous air pollutants (HAPs), referred to at the state regulation level as TACs. These are a set of airborne pollutants that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. HAPs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; or short-term acute effects such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches.

Stationary sources of HAPs include gasoline stations, dry cleaners, and diesel backup generators, among which are subject to permit requirements. On-road motor vehicles and off-road sources, such as construction equipment and trains, are also common sources of HAPs. In terms of health risks, the most volatile contaminants are diesel particulate matter (DPM), benzene, formaldehyde, 1,3-butadiene and acetaldehyde. Gasoline vapors contain several HAPs, including benzene, toluene, and xylenes. Public exposure to HAPs can result from emissions from normal operations, as well as accidental releases.

HAPs can be separated into carcinogens (cancer-causing) and non-carcinogens, based on the nature of the effects associated with exposure to the pollutant. For regulatory purposes, carcinogens are assumed to have no safe threshold below which health impacts would not occur. Non-carcinogens differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. EPA regulates HAPs through statutes and regulations that generally require the use of

the maximum or best available control technology for toxics (MACT and BACT) to limit emissions.

The CAA requires EPA to identify and set national emissions standards for HAPs to protect public health and welfare. Emissions standards are set for what are called “major sources” and “area sources.” Major sources are defined as stationary sources with potential to emit more than 10 tons per year of any HAP or more than 25 tons per year of any combination of HAPs; all other sources are considered area sources. There are two types of emissions standards: those that require application of MACT and BACT, and those that are health-risk based and deemed necessary to address the risks that remain after implementation of MACT or BACT. For area sources, the MACT or BACT standards may be different because of differences in generally available control technology. The CAA also requires EPA to issue vehicle or fuel standards containing reasonable requirements that control toxic emissions of, at a minimum, benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics.

### *State*

CARB is responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA).

### *Criteria Air Pollutants*

The CCAA, adopted in 1988, required CARB to establish California Ambient Air Quality Standard (CAAQS) (as shown above in Table 3.3-1). CARB has also established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particulate matter, in addition to the above-mentioned criteria air pollutants regulated by EPA. The CCAA requires that all air districts in the state endeavor to achieve and maintain the CAAQS by the earliest practicable date. The CCAA specifies that local air districts should focus particular attention on reducing the emissions from transportation and areawide emission sources and provides districts with the authority to regulate indirect sources. CARB also maintains air quality monitoring stations throughout the state in conjunction with air districts. CARB uses the data collected at these stations to classify air basins as being in attainment or nonattainment with respect to each pollutant and to monitor progress in attaining air quality standards.

CARB is the lead agency for developing the SIPs in California. SIPs are not single documents. They are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls. Many of California's SIPs rely on the same core set of control strategies, including emission standards for cars and heavy trucks, fuel regulations, and limits on emissions from consumer products. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB forwards SIP revisions to the EPA for approval and publication in the Federal Register. Most recently, in March 2017, CARB adopted the *2016 State Strategy for the State*

*Implementation Plan* (State SIP Strategy), and in October 2018, adopted the *2018 Updates to the California State Implementation Plan* (2018 SIP Updates), describing the proposed commitment to achieve the reductions necessary from mobile sources, fuels, and consumer products to meet federal ozone and PM<sub>2.5</sub> standards over the next 15 years.

CARB has established emission standards for vehicles sold in California and for various types of equipment. California gasoline specifications are governed by both state and federal agencies, which have imposed numerous requirements on the production and sale of gasoline in California during the past 30 years. In December 2004, CARB adopted a fourth phase of emission standards (Tier 4) in the Clean Air Non-road Diesel Rule that are nearly identical to those finalized by EPA earlier that year. The standards required engine manufacturers to meet after-treatment–based exhaust standards for nitrogen oxides (NO<sub>x</sub>) and PM, starting in 2011, that were more than 90 percent lower than then-current levels, putting emissions from off-road engines virtually on par with those from on-road, heavy-duty diesel engines. CARB has also adopted control measures for DPM and more stringent emissions standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators).

In 2017, Senate Bill (SB) 1 (the Road Repair and Accountability Act of 2017) was passed, which, in addition to funding transportation-related projects, requires the Department of Motor Vehicles to refuse registration or renewal or transfer of registration for certain diesel-fueled vehicles, based on weight and model year, that are subject to specified provisions relating to the reduction of emissions of diesel particulate matter, oxides of nitrogen, and other criteria pollutants from in-use diesel-fueled vehicles. As of January 1, 2020, compliance with the CARB Truck and Bus regulation is now automatically verified by the California DMV as part of the vehicle registration process.

In June 2020, CARB approved the Advanced Clean Trucks regulation, requiring truck manufacturers to transition from diesel-powered trucks and vans to electric zero-emission trucks beginning in 2024 with phasing in of increasingly stringent requirements through 2045. By 2045, under the Advanced Clean Trucks regulation, every new truck sold in California will be zero-emission. This is a key element of CARB's strategy to achieve a transition in California's last mile delivery and local trucks from the use of conventional combustion technologies to zero emission everywhere feasible and near-zero emission powered by clean, low-carbon renewable fuels everywhere else. Promoting the development and use of advanced clean trucks will help CARB achieve its emission reduction strategies as outlined in the SIP, Sustainable Freight Action Plan, SB 350, and Assembly Bill (AB) 32.

### *Toxic Air Contaminants*

As described under the federal regulations above, CARB regulates TACs, of which a subset of the identified substances are the federally identified and regulated HAPs, through statutes and regulations that generally require the use of MACT and BACT.

TACs in California are regulated primarily through the Tanner Air Toxics Act (Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act (Assembly Bill 2588; Chapter 1252, Statutes of 1987). The Air Toxics Hot Spots Information and Assessment Act seeks to identify and evaluate risks from air toxics sources, but does not regulate air toxics emissions. TAC emissions from individual facilities are quantified and prioritized. “High-priority” facilities must perform a health risk assessment and, if specific thresholds are violated, must communicate the results to the public in the form of notices and public meetings. TACs are generally regulated through statutes and rules that require the use of MACT or BACT to limit TAC emissions.

According to the *California Almanac of Emissions and Air Quality* (CARB 2013), most of the estimated health risk from TACs is attributed to relatively few compounds, the most dominant being DPM. In 2000, CARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled vehicles and engines. Additional regulations apply to new trucks and diesel fuel. Subsequent CARB regulations on diesel emissions include the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-road Diesel Vehicle Regulation, and the New Off-road Compression Ignition Diesel Engines and Equipment Program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment.

The *Air Quality and Land Use Handbook: A Community Health Perspective*, published by CARB, provides guidance on land use compatibility with sources of TACs (CARB 2005). The handbook is not a law or adopted policy but offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities.

Since the 2005 publication of the Handbook, CARB also published a Technical Advisory as a supplement to the Handbook to provide information on scientifically based strategies to reduce exposure to traffic emissions near high-volume roadways in order to protect public health (CARB 2017). This Technical Advisory demonstrates that reduced exposure to traffic-related pollution can also be achieved while pursuing infill development that independently provides public health benefits, such as reduce vehicle miles travelled and increased physical activity. Strategies identified to reduce air pollution exposure near roadways in the Technical Advisory include those to reduce traffic emissions, such as incorporation of roundabouts for speed reduction, traffic signal management, and speed limit reductions on high-speed roadways (those greater than 55 miles per hour); strategies that reduce the concentrations of traffic pollution, such as urban design to promote air flow, solid barriers to pollution, and vegetation to reduce pollutant concentrations; and strategies that remove pollution from indoor air such as through high efficiency filtration. This Technical Advisory does not negate the CARB Handbook, but offers multiple variables for consideration when planning development and proximity of receptors.

The State of California has also implemented regulations to reduce DPM emissions. Two such regulations applicable to the proposed project include Title 13, Sections 2485 and 2449 of the California Code of Regulations, which limit idling time to a maximum of 5 minutes for heavy-duty commercial diesel vehicles (defined as diesel vehicles heavier than 10,000 pounds gross vehicle rated weight) and off-road diesel-fueled construction vehicles, respectively. These regulatory measures are driven by the CARB Airborne Toxic Control Measure and subsequent amendments.

### *Local*

### Criteria Air Pollutants

#### **Placer County Air Pollution Control District**

PCAPCD attains and maintains air quality conditions in Placer County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. PCAPCD inspects stationary sources of air pollution, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the CAA, federal Clean Air Act Amendments (CAAA), and CCAA. The clean-air strategy of PCAPCD includes preparing plans and programs for the attainment of ambient air quality standards, adopting and enforcing rules and regulations concerning sources of air pollution, and issuing permits for stationary sources of air pollution. The rules and regulations include procedures and requirements to control the emission of pollutants and to prevent adverse impacts.

All projects within PCAPCD's jurisdictional area are subject to PCAPCD rules and regulations in effect at the time of construction. Specific PCAPCD rules that could be applicable include but are not limited to the following:

- **Rule 202:** Visible Emissions. A person shall not discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade as that designated as number 1 on the Ringelmann Chart, as published by the U.S. Bureau of Mines.
- **Rule 205:** Nuisance. A developer and proposed project cannot emit any quantities of air contaminants or other materials that would cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public; or that would endanger the comfort, repose, health, or safety of any persons or the public; or that would cause or have natural tendency to cause injury or damage to business or property.
- **Rule 217:** Cutback and Emulsified Asphalt Paving Materials. The developer or contractor is required to use asphalt paving materials that comply with the VOC content limits specified in the rule.

- **Rule 218:** Architectural Coatings. The developer or contractor is required to use coatings that comply with the content limits for VOCs specified in the rule.
- **Rule 228:** Fugitive Dust. The developer or contractor is required to control dust emissions from earthmoving activities or any other construction activity to prevent airborne dust from leaving the project site.
- **Rule 304:** Land Development Smoke Management. This rule establishes standards and administrative requirements under which burning may occur to manage the generation of smoke and reduce the emission of particulates and other air contaminants.
- **Rule 501:** General Permit Requirements. To provide an orderly procedure for the review of new sources of air pollution and modification and operation of existing sources through the issuance of permits. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may be required to obtain permit(s) from PCAPCD before equipment operation.

PCAPCD has also produced a guidebook called the *CEQA Air Quality Handbook: Assessing and Mitigating Air Quality Impacts Under CEQA* (PCAPCD CEQA Handbook), which contains guidance for analyzing construction and operational emissions (PCAPCD 2017). The PCAPCD CEQA Handbook also includes a list of analysis expectations and methodologies for CEQA analyses. On October 13, 2016, the PCAPCD Board of Directors adopted the Review of Land Use Projects under CEQA Policy, which includes recommendations for thresholds of significance for criteria air pollutant emissions. In developing the thresholds, PCAPCD took into account health-based air quality standards and the strategies to attain air quality standards, historical CEQA project review data in Placer County, and the geographic and land use features of Placer County.

As part of the Sacramento Federal Nonattainment Area for ozone, and in accordance with requirements under the CAA, PCAPCD worked with the other local air districts within the Sacramento area to develop a regional air quality management plan to describe and demonstrate how Placer County, as well as the Sacramento nonattainment area, is meeting requirements under the federal CAA in demonstrating reasonable further progress and attainment of the NAAQS for ozone (PCAPCD 2019). PCAPCD held a public hearing to consider, and ultimately adopted, the *2017 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* (Ozone Attainment and Progress Plan). Some elements of the Ozone Attainment and Progress Plan were updated in 2018 and included in the 2018 Updates to the California State Implementation Plan, which updated SIP elements for nonattainment areas throughout the state, as needed. These updates were adopted by CARB in October 2018. The Ozone Attainment and Progress Plan is the currently adopted and applicable air quality plan for the region and, therefore, PCAPCD is required to comply with and implement this plan.

Similarly, PCAPCD also adopted the 2013 PM<sub>2.5</sub> Implementation and Maintenance Plan and Redesignation Request for Sacramento PM<sub>2.5</sub> Nonattainment Area (PM<sub>2.5</sub> Maintenance Plan and Redesignation Request) to address how the region attained and would continue to attain the 24-hour PM<sub>2.5</sub> NAAQS. In 2017, EPA found that the area attained the 2006 24-hour PM<sub>2.5</sub> NAAQS by the attainment date of December 31, 2015. The PM<sub>2.5</sub> Maintenance Plan and Redesignation Request will be updated and submitted in the future based on the clean data finding made by the EPA.

In compliance with the requirements set forth in the CCAA, which specifically addressed the non-attainment status for ozone, CO, PM<sub>2.5</sub>, and PM<sub>10</sub>, PCAPCD coordinated with the air quality management districts and air pollution control districts of El Dorado, Sacramento, Solano, Sutter, and Yolo counties to prepare and submit the 1991 Air Quality Attainment Plan (AQAP). The CCAA also requires a triennial assessment of the extent of air quality improvements and emission reductions achieved through the use of control measures. In accordance with this requirement, PCAPCD has prepared several triennial progress reports that build upon the AQAP. The most recently adopted report is the 2018 Triennial Progress Report for the 2015-2017 period.

### **Placer County General Plan**

The following policies from the “Natural Resources” Element of the Placer County General Plan (2013) may be applicable to the project.

**Goal 6.F:** To protect and improve air quality in Placer County.

**Policy 6.F.2.** The County shall develop mitigation measures to minimize stationary source and area source emissions.

**Policy 6.F.3.** The County shall support the Placer County Air Pollution Control District (PCAPCD) in its development of improved ambient air quality monitoring capabilities and the establishment of standards, thresholds, and rules to more adequately address the air quality impacts of new development.

**Policy 6.F.4.** The County shall solicit and consider comments from local and regional agencies on proposed projects that may affect regional air quality.

**Policy 6.F.5.** The County shall encourage project proponents to consult early in the planning process with the County regarding the applicability of Countywide indirect and areawide source programs and transportation control measures (TCM) programs. Project review shall also address energy-efficient building and site designs and proper storage, use, and disposal of hazardous materials.

**Policy 6.F.6.** The County shall require project-level environmental review to include identification of potential air quality impacts and designation of design and other appropriate mitigation measures or offset fees to reduce impacts. The County shall dedicate staff to work with project proponents and other agencies in identifying, ensuring the implementation of, and monitoring the success of mitigation measures.



**Policy 6.F.7.** The County shall encourage development to be located and designed to minimize direct and indirect air pollutants.

**Policy 6.F.8.** The County shall submit development proposals to the PCAPCD for review and comment in compliance with CEQA prior to consideration by the appropriate decision-making body.

**Policy 6.F.9.** In reviewing project applications, the County shall consider alternatives or amendments that reduce emissions of air pollutants.

**Policy 6.F.10.** The County may require new development projects to submit an air quality analysis for review and approval. Based on this analysis, the County shall require appropriate mitigation measures consistent with the PCAPCD's 1991 Air Quality Attainment Plan (or updated edition).

**Policy 6.F.11.** The County shall apply the buffer standards described in Part I of this Policy Document [Placer County General Plan] and meteorological analyses to provide separation between possible emission/nuisance sources (such as industrial and commercial uses) and residential uses.

## **Placer County Code**

Placer County recognizes the public health risk reductions that can be realized by idling limitations for on-road and off-road equipment. The Placer County Code of Regulations includes the article, "Limitation on Engine Idling," in Section 10.14, which limits idling to no more than five minutes by diesel-fueled commercial vehicles over twenty-six thousand pounds gross vehicle weight rating and to all off-road diesel-powered equipment over seventy horsepower rating.

### *Toxic Air Contaminants*

At the local level, air pollution control or management districts may adopt and enforce CARB control measures. Under PCAPCD Rule 501 (General Permit Requirements), Rule 502 (New Source Review), and Rule 507 (Federal Operating Permit), all sources that could emit TACs must obtain permits from PCAPCD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new-source review standards and air toxics control measures. It is important to note that the air quality permitting process applies only to stationary sources; properties may be exposed to elevated levels of TACs from mobile sources (e.g., freeway traffic) that are not subject to this process or to any requirements regarding implementation of BACT for Toxics. Rather, emissions controls on mobile sources are subject to regulations implemented at the federal and state levels.

### *Odors*

Although offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable stress among the public and often generating citizen complaints

to local governments and PCAPCD. PCAPCD Rule 205 (Nuisance) regulates odorous emissions.

### 3.3.2 Environmental Setting

Ambient concentrations of air pollutants are determined by the amount of emissions released by the air pollutants sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources, as discussed separately below.

#### *Climate, Topography, and Meteorology*

The project site is located in the SVAB, which is characterized by cool winters and hot, dry summers tempered by occasional westerly breezes from the Sacramento/San Joaquin Delta. The region has a Mediterranean climate, characterized by hot, dry summers and cool, rainy winters.

In general, the SVAB is relatively flat and bounded by the north Coast Ranges to the west and the northern Sierra Nevada to the east. Air flows into the SVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento–San Joaquin Delta from the San Francisco Bay Area. The inland location and surrounding mountains typically prevent the area from experiencing much of the ocean breeze that moderates the temperatures in coastal regions. The mountains surrounding the Sacramento Valley create a barrier to air flow, which can trap in air pollutants, particularly in the autumn and early winter when large pressure cells lie over the Sacramento Valley and temperatures are low. The lack of surface wind during these periods and reduced vertical flow caused by less surface heating, reduces the influx of outside air and allows air pollutants generated within the SVAB to become concentrated in a stable volume of air. Ground concentrations are the highest when these conditions are combined with smoke from agricultural burning or forest fires or temperature inversions the trap cool air, fog, and pollutants near the ground. Alternatively, winds and unstable atmospheric conditions associated with the passage of winter storms result in periods of low air pollution and excellent visibility.

Characteristic of the winter months in the SVAB are periods of dense and persistent low-level fog, which are most prevalent between storms. This precipitation and fog also tend to reduce or limit some pollutant concentrations. However, between winter storms, high pressure and light winds contribute to low-level temperature inversions and stable atmospheric conditions, resulting in the concentration of air pollutants.

May through October is ozone season in the SVAB and is characterized by poor air movement in the mornings and the arrival of the Delta sea breeze from the southwest in the afternoons. In addition, with the longer daylight hours, a larger amount of sunlight is

available to fuel photochemical reactions between volatile organic compounds (VOC) and NO<sub>x</sub>, which in turn result in ozone formation. Typically, the Delta breeze transports air pollutants northward out of the SVAB. However, during approximately half of the time from July to September, a phenomenon known as the Schultz Eddy prevents this from occurring. The Schultz Eddy phenomenon causes winds on the west side of the SVAB to shift to a northerly wind, blowing air pollutants southward back into the SVAB. This phenomenon exacerbates the concentration of air pollutant emissions in the air basin and can contribute to violations of ambient air quality standards.

### *Criteria Air Pollutants*

There are many pollutants present in the atmosphere, although most are not a significant public health concern in the project region. A brief description of key criteria air pollutants in the SVAB and their health effects is provided below. Criteria air pollutants include ozone, CO, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and lead. However, for the purposes of this analysis, criteria air pollutants of primary concern due to the regional nonattainment status (as shown in Table 3.3-2) include ozone (and ozone precursors) and PM. Criteria air pollutants, their sources, and potential health effects from exposure are summarized below.

**Ozone.** Ozone is the most common component of smog and is the principal pollutant that causes adverse health effects. Ozone is toxic and colorless, and has a pungent odor. In high concentrations, ozone and other photochemical oxidants are directly detrimental to humans by causing respiratory irritation and possible alterations in the functioning of the lungs. Ozone and other oxidants can also enter the leaves of plants and reduce photosynthesis, which is the process that plants use to convert sunlight to energy to live and grow.

Ozone is not emitted directly into the air but is formed through a series of reactions involving ROG and NO<sub>x</sub> in the presence of sunlight. These chemicals are considered to be precursors of ozone, as their reaction leads to its formation. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO<sub>x</sub> includes various combinations of nitrogen and oxygen, including nitric oxide, NO<sub>2</sub>, and others, typically resulting from the combustion of fuels.

Emissions of both ROG and NO<sub>x</sub> are considered critical to ozone formation; therefore, either ROG or NO<sub>x</sub> can limit the rate of ozone production. When the production rate of NO<sub>x</sub> is lower, indicating that NO<sub>x</sub> is scarce, the rate of ozone production is NO<sub>x</sub>-limited. Under these circumstances, ozone levels could be most effectively reduced by lowering current and future NO<sub>x</sub> emissions (from fuel combustion), rather than by lowering ROG emissions. Rural areas tend to be NO<sub>x</sub>-limited, while areas with dense urban populations tend to be ROG-limited. Both ROG and NO<sub>x</sub> reductions provide ozone benefits in the region, but the Sacramento Federal Nonattainment Area, which includes Placer County, exhibits a NO<sub>x</sub>-limited regime; therefore, NO<sub>x</sub> reductions (such as those available through reducing mobile source emissions) are more effective than ROG reductions on a tonnage basis (SMAQMD 2017).

Ozone concentrations reflect an interplay of emissions of ozone precursors, transport, meteorology, and atmospheric chemistry. Meteorology and terrain play a major role in ozone formation. Generally, low wind speeds or stagnant air, coupled with warm temperatures and clear skies provide the optimum conditions for formation. As a result, summer is generally the peak ozone season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of the precursor emissions. Therefore, ozone is a regional pollutant that often affects large areas.

Individuals exercising outdoors, children, and people with lung disease, such as asthma and chronic pulmonary lung disease, are the most susceptible subgroups for ozone effects. Short-term ozone exposure (lasting for a few hours) can result in changes in breathing patterns, reductions in breathing capacity, increased susceptibility to infections, inflammation of lung tissue, and some immunological changes. A correlation has also been reported between elevated ambient ozone levels and increases in daily hospital admission rates and mortality (EPA 2021a). An increased risk of asthma has been found in children who participate in multiple sports and live within communities with high ozone levels.

Emissions of the ozone precursors ROG and NO<sub>x</sub> have decreased in the past several years. According to the most recently published edition of CARB's California Almanac of Emissions and Air Quality, NO<sub>x</sub> and ROG emissions levels in the Sacramento metropolitan area (inclusive of the southern portion of the SVAB, as well as the western portions of El Dorado and Placer counties, within which the project site is located) are projected to continue to decrease through 2035, largely because of more stringent motor vehicle standards and cleaner burning fuels, as well as rules for controlling ROG emissions from industrial coating and solvent operations (CARB 2013).

**Carbon Monoxide.** CO is a colorless and odorless gas that is primarily produced by the incomplete burning of carbon in fuels such as natural gas, gasoline, and wood, and is emitted by a wide variety of combustion sources, including on-road and non-road mobile sources, wood-burning stoves, incinerators, industrial sources, and wildfires. On-road and non-road mobile sources account for approximately 38 percent and 26 percent, respectively, of all CO emissions nationwide (EPA 2021b). Relatively high concentrations are typically found near crowded intersections and along heavily used roadways carrying slow-moving traffic. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (300 to 600 feet) of heavily traveled roadways. Vehicle traffic emissions can cause localized CO impacts, and severe vehicle congestion at major signalized intersections can generate elevated CO levels, called "hot spots," which can be hazardous to human receptors adjacent to the intersections.

Adverse health effects associated with exposure to high CO concentrations, typically only attainable indoors or within similarly enclosed spaces, include dizziness, headaches, and fatigue. CO exposure is especially harmful to unborn babies, infants, elderly people, and people with anemia or with a history of heart or respiratory disease (CARB 2021).

**Nitrogen Dioxide.** NO<sub>2</sub> is one of a group of highly reactive gases known as oxides of nitrogen, or NO<sub>x</sub>. NO<sub>2</sub> is formed when ozone reacts with nitric oxide (i.e., NO) in the atmosphere and is listed as a criteria pollutant because NO<sub>2</sub> is more toxic than nitric oxide. The major human-made sources of NO<sub>2</sub> are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. The combined emissions of nitric oxide and NO<sub>2</sub> are referred to as NO<sub>x</sub> and reported as equivalent NO<sub>2</sub>. Because NO<sub>2</sub> is formed and depleted by reactions associated with ozone, the NO<sub>2</sub> concentration in a geographical area may not be representative of local NO<sub>x</sub> emission sources. NO<sub>x</sub> also reacts with water, oxygen, and other chemicals to form nitric acids, contributing to the formation of acid rain.

Inhalation is the most common route of exposure to NO<sub>2</sub>. Breathing air with a high concentration of NO<sub>2</sub> can lead to respiratory illness. Short-term exposure can aggravate respiratory diseases, particularly asthma, resulting in respiratory symptoms (such as coughing, wheezing, or difficulty breathing), hospital admissions, and visits to emergency rooms. Longer exposures to elevated concentrations of NO<sub>2</sub> may contribute to the development of asthma and potentially increase susceptibility to respiratory infections. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these subgroups (EPA 2021c).

**Sulfur Dioxide.** SO<sub>2</sub> is one component of the larger group of gaseous oxides of sulfur (SO<sub>x</sub>). SO<sub>2</sub> is used as the indicator for the larger group of SO<sub>x</sub>, as it is the component of greatest concern and found in the atmosphere at much higher concentrations than other gaseous SO<sub>x</sub>. SO<sub>2</sub> is typically produced by such stationary sources as coal and oil combustion facilities, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with SO<sub>2</sub> exposure pertain to the upper respiratory tract. On contact with the moist mucous membranes, SO<sub>2</sub> produces sulfurous acid, a direct irritant. Concentration rather than duration of exposure is an important determinant of respiratory effects. Children, the elderly, and those who suffer from asthma are particularly sensitive to effects of SO<sub>2</sub> (EPA 2021d).

SO<sub>2</sub> also reacts with water, oxygen, and other chemicals to form sulfuric acids, contributing to the formation of acid rain. SO<sub>2</sub> emissions that lead to high concentrations of SO<sub>2</sub> in the air generally also lead to the formation of other SO<sub>x</sub>, which can react with other compounds in the atmosphere to form small particles, contributing to particulate matter pollution, which can have health effects of its own.

**Particulate Matter.** Particulate matter refers to a complex mixture of small solid matter and fine droplets (aerosols) made up of several components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The major area-wide sources of PM<sub>2.5</sub> and PM<sub>10</sub> are fugitive dust, especially from roadways, agricultural operations, and construction and demolition. Other sources of PM<sub>10</sub> include crushing or grinding operations. PM<sub>2.5</sub> sources also include all types of combustion, including motor vehicles, power plants, residential wood burning, forest fires, agricultural burning, and some industrial processes. Exhaust emissions from mobile sources

contribute only a very small portion of directly emitted PM<sub>2.5</sub> and PM<sub>10</sub> emissions. However, they are a major source of ROG and NO<sub>x</sub>, which undergo reactions in the atmosphere to form PM, known as secondary particles. These secondary particles make up the majority of PM pollution.

The size of PM is directly linked to its potential for causing health problems. EPA is concerned about particles that are 10 micrometers in diameter or smaller, because these particles generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects, even death. The adverse health effects of PM<sub>10</sub> depend on the specific composition of the particulate matter. For example, health effects may be associated with metals, polycyclic aromatic hydrocarbons, and other toxic substances adsorbed onto fine PM (referred to as the “piggybacking effect”), or with fine dust particles of silica or asbestos. Effects from short- and long-term exposure to elevated concentrations of PM<sub>10</sub> include respiratory symptoms, aggravation of respiratory and cardiovascular diseases, a weakened immune system, and cancer (World Health Organization 2018).

PM<sub>2.5</sub> poses an increased health risk because these very small particles can be inhaled deep in the lungs and may contain substances that are particularly harmful to human health. Direct emissions of PM<sub>2.5</sub> in the Sacramento metropolitan area decreased between 2000 and 2010, but are projected to increase very slightly between 2010 and 2035. Emissions of diesel particulate matter (DPM) decreased from 2000 through 2010 because of reduced exhaust emissions from diesel mobile sources and are anticipated to continue to decline through 2035 (CARB 2013).

**Lead.** Lead is a highly toxic metal that may cause a range of human health effects. Lead is found naturally in the environment and is used in manufactured products. Previously, the lead used in gasoline anti-knock additives represented a major source of lead emissions to the atmosphere. Soon after its inception, EPA began working to reduce lead emissions, issuing the first reduction standards in 1973. Lead emissions decreased substantially after the near elimination of leaded gasoline use. Metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers. Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose “hot spot” problems in some areas. As a result, CARB has identified lead as a TAC.

Fetuses, infants, and children are more sensitive than others to the adverse effects of lead exposure. Exposure to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotients. In adults, increased lead levels are associated with increased blood pressure. Lead poisoning can cause anemia, lethargy, seizures, and death, although it appears that lead does not directly affect the respiratory system.

*Ambient Air Quality*

Concentrations of emissions from criteria air pollutants are used to indicate the quality of the ambient air. Ambient air pollutant concentration monitoring data for the latest three years for which data is available (2018 through 2020) for the criteria pollutants for which the region is in nonattainment are provided in Table 3.3-3 through Table 3.3-6. The data presented is based on monitoring results from the CARB monitoring site nearest the project site, Site 31822, at 151 N Sunrise Avenue in Roseville, approximately 7.5 miles west of the project site.

**Table 3.3-3. Summary of Ozone Monitoring Data Near the Project Site**

Monitoring Metric	2018	2019	2020
Maximum 8-hour average concentration (ppm) (national/state) <sup>a</sup>	0.083 / 0.084	0.076 / 0.074	0.080 / 0.081
Maximum 1-hour concentration (ppm) (state)	0.11	0.089	0.096
Number of days national standard exceeded (8-hr average)	11	1	3
Number of days state standard exceeded (8-hr average/1-hr)	11/4	3/0	4/1

Source: CARB 2022.

Notes: ppm = parts per million

<sup>a</sup>. State and national statistics may differ for the following reasons: State statistics are based on California-approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers. State statistics are based on local conditions while national statistics are based on standard conditions. The State of California generally uses more stringent criteria than the U.S. government for ensuring that data are sufficiently complete for calculating valid annual averages.

**Table 3.3-4. Summary of Nitrogen Dioxide Monitoring Data Near the Project Site**

Monitoring Metric	2018	2019	2020
Maximum 1-hour concentration (ppb)	54	50	41
Number of days 1-hour standard exceeded (state)	0	0	0
Annual average (ppb)	7	6	*

Source: CARB 2022.

Notes: ppb = parts per billion; \* = insufficient data available to determine the value.

*Toxic Air Contaminants*

According to the *California Almanac of Emissions and Air Quality* (CARB 2013), most of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines (i.e., DPM). Other TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

**Table 3.3-5. Summary of Respirable Particulate Matter (10 micrometers in diameter or less) Monitoring Data Near the Project Site**

Monitoring Metric	2018	2019	2020
Maximum 24-hour concentration ( $\mu\text{g}/\text{m}^3$ ) (national/state) <sup>a</sup>	202.2 / 211.3	61.3 / 63.1	251.8 / 244.3
Number of days national standard exceeded (measured/estimated) <sup>b</sup>	2 / 2.0	0 / 0.0	5 / 5.3
Number of days state standard exceeded (measured/estimated) <sup>b</sup>	16 / *	2 / 2.0	36 / 38.0
Annual average (national/state) <sup>a</sup>	22.8 / *	15.1 / 15.4	27.2 / 27.7
3-Year Average (national)	18	18	22

Source: CARB 2022.

Notes:  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter

<sup>a</sup> State and national statistics may differ for the following reasons: State statistics are based on California-approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers. State statistics are based on local conditions while national statistics are based on standard conditions. The State of California generally uses more stringent criteria than the U.S. government for ensuring that data are sufficiently complete for calculating valid annual averages. 2018 and 2020 were among California's worst wildfire seasons, with six of the seven largest wildfires in California's history occurring in 2018 or 2020, and with approximately two million acres burned in 2018 and more than four million acres burned in 2020 (CAL FIRE 2022).

<sup>b</sup> Measured days are those days on which an actual measurement was greater than the level of the state daily standard or the national daily standard. Measurements are typically collected every 6 days. The number of estimated days represents a mathematical estimate of those days on which concentrations would have been greater than the level of the standard, had monitoring occurred on each day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

**Table 3.3-6. Summary of Fine Particulate Matter (2.5 micrometers in diameter or less) Monitoring Data Near the Project Site**

Monitoring Metric	2018	2019	2020
Maximum 24-hour average concentration ( $\mu\text{g}/\text{m}^3$ )	171.8	28.2	121.3
Number of days national standard exceeded (measured/estimated) <sup>a</sup>	3 / 17.3	0 / 0.0	3 / 19.7
Annual average ( $\mu\text{g}/\text{m}^3$ ) (national/state) <sup>b</sup>	11.9 / 12.2	6.5 / 6.5	13.3 / *

Source: CARB 2022.

Notes:  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter

<sup>a</sup> Measured days are those days on which an actual measurement was greater than the level of the state daily standard or the national daily standard. Measurements are typically collected every 6 days. The number of estimated days represents a mathematical estimate of those days on which concentrations would have been greater than the level of the standard, had monitoring occurred on each day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

<sup>b</sup> State and national statistics may differ for the following reasons: State statistics are based on California-approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers. State statistics are based on local conditions while national statistics are based on standard conditions. The State of California generally uses more stringent criteria than the U.S. government for ensuring that data are sufficiently complete for calculating valid annual averages.

DPM differs from other TACs because it is not a single substance, but a complex mixture of hundreds of substances. Although DPM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, type of lubricating oil, and presence or absence



of an emission control system. Unlike the other TACs, no ambient monitoring data are available for DPM because no routine measurement method currently exists. However, emissions of DPM are forecasted to decline; it is estimated that emissions of DPM in 2035 will be less than half those in 2010, further reducing statewide cancer risk and non-cancer health effects (CARB 2013).

Another concern related to air quality is naturally occurring asbestos (NOA). Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. When rock containing asbestos is broken or crushed, such as through construction-related ground disturbance or rock quarrying activities where NOA is present, asbestos fibers may be released and become airborne. Exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest and abdominal cavity), and asbestosis (a non-cancerous lung disease which causes scarring of the lungs). Because asbestos is a known carcinogen, NOA is considered a TAC. NOA is typically associated with fault zones, and areas containing serpentinite or contacts between serpentinite and other types of rocks. According to the California Department of Conservation *Special Report 190: Relative Likelihood for the Presence of Naturally Occurring Asbestos in Placer County, California*, the project site is located within an area categorized as least likely to contain NOA (California Department of Conservation 2006).

### *Sensitive Receptors*

Some land uses are considered more sensitive to air pollution than others, because of the types of population groups or activities involved. Children, pregnant women, the elderly, those with existing health conditions, and athletes or others who engage in frequent exercise are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered sensitive receptors include schools, daycare centers, parks and playgrounds, and medical facilities.

Residential areas are considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to the pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution, even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent as the majority of the workers tend to stay indoors most of the time.

The project site is generally surrounded by agricultural land uses and grassland, with some residential development east of the project site in the city of Roseville. There are a few rural residences in the agricultural lands west of the project site. The nearest sensitive receptor to the project site is a single rural residence on South Brewer Road, opposite the road from a portion of proposed solar panels. There are also a few rural residences along Country Acres Lane, between 0.25 and 0.5 miles west of proposed

solar panels. The residential neighborhoods east of the project site are, at the nearest point, approximately 0.6 mile, or more than 3,000 feet, east of the project site.

### 3.3.3 Environmental Impacts and Mitigation Measures

#### *Methods and Assumptions*

The discussion below presents the methods used for the air quality analysis and how the significance of the proposed project's air quality impacts was determined. Potential air quality impacts associated with short-term construction and long-term operations were evaluated in accordance with PCAPCD-recommended methodologies and with the use of emissions factors and related quantification methodologies from EPA and CARB.

Construction and operational emissions of criteria air pollutants were compared with the applicable thresholds of significance (described below) to determine potential impacts. PCAPCD's significance thresholds serve as a proxy for determining whether the project could violate air quality standards, cause a substantial contribution to an existing or projected air quality violation, and/or conflict with any applicable air quality plan. Please see Appendix A of this EIR for calculation details, assumptions, inputs, and outputs.

Construction activities would generate exhaust emissions from the use of on-site construction equipment and vehicles and from on-road travel by workers, vendors, and haul trucks to and from the project-site throughout the construction period. Earthwork and travel by on-site vehicles on unpaved roadways would also result in the generation of fugitive dust particulate matter (PM<sub>10</sub>). Construction activities are anticipated to occur in phases over approximately two years; all emissions were estimated assuming emissions factors and fleet mix for the earliest possible construction year of 2022. Construction phases reflect each project component being constructed, reflecting the peak level of construction equipment, vehicles and workers that would be required to construct that project component. Typical construction days may not require the peak number of construction equipment, vehicles, and workers, but the analysis considers maximum potential daily emissions. The following summarizes the emissions estimating methodology and calculation inputs for construction-related emissions of criteria air pollutants:

- **Off-road Construction Equipment:** Exhaust emissions from off-road construction equipment were estimated based upon a project-specific equipment inventory of the types and number of construction equipment required for each construction phase and subphase, and the horsepower, load factor, and maximum hours of operation per day for each respective piece of equipment. The horsepower and load factor inputs were based upon default values used by the California Air Pollution Control Officers Association's (CAPCOA's) California Emissions Estimator Model (CalEEMod). Emissions were estimated using equipment-specific emissions factors (in tons per day) for aggregate equipment model years provided in CARB's OFFROAD2021 Emissions Inventory online database; the tons per day emissions rates were converted to grams per

horsepower-hour using the horsepower-hours per year for each equipment type and horsepower provided by the OFFROAD2021 Emissions Inventory.

Fugitive dust would also be generated by earthwork activity conducted using off-road construction activity. Fugitive dust emissions associated with bulldozing, scraping, grading, and trenching, as well as that associated with truck loading and stockpiling during earthwork activity, were estimated using methodology from EPA's AP-42, *Compilation of Air Pollutant Emissions Factors*.

- **On-site Construction Vehicles:** Construction activities would require the use of trucks, vans, and utility terrain vehicles traveling on-site. Exhaust emissions from the operation of these vehicles were estimated based upon a project-specific estimate of the maximum daily number and type of each on-site vehicle and hours per day of operation for each vehicle. In addition, it was estimated vehicles would travel approximately 15 miles per hour on-site when not otherwise stopped and not operating. Total travel distance on-site was estimated based upon the typical travel speed anticipated and the total daily hours of on-site travel by each vehicle. Emissions from the trucks and vans were estimated using emissions factors (grams per mile) from CARB's EMFAC 2021 emissions inventory for on-road vehicles for the aggregate fleet mix, inclusive of running and starting exhaust emissions. Emissions from the utility terrain vehicles were estimated using all-terrain vehicle (ATV) emissions rates (in tons per day) from the "Agricultural –ATVs" category from CARB's OFFROAD2021 Emissions Inventory online database for the aggregate model year; the tons per day emissions rates were converted to grams per horsepower-hour using the horsepower-hours per year provided by the OFFROAD2021 Emissions Inventory.

On-site vehicles would travel throughout the site, primarily on unpaved roadways. Fugitive dust emissions that could result from this activity were estimated using EPA's AP-42 methodology for unpaved roads.

- **On-road Vehicles:** On-road construction sources would include worker vehicles, vendor trucks, and haul trucks. While the number of workers and trucks serving the site would fluctuate throughout the construction period, the maximum daily workers and trucks for each phase and subphase were used to estimate the maximum daily emissions associated with this emissions source. Emissions from on-road vehicles were estimated using emissions factors (grams per mile) from CARB's EMFAC 2021 emissions inventory for on-road vehicles for the aggregate fleet mix, inclusive of running and starting exhaust emissions and brake- and tire-wear. Re-entrained paved roadway dust was estimated for on-road travel using EPA's AP-42 methodology for paved roads. Trip distances were based upon default values used by CalEEMod for projects within Placer County.

As noted above, construction would occur over two years and activities would be phased. Therefore, the maximum daily emissions that could occur at any given time over the construction period were calculated for multiple scenarios to consider potential

emissions that could occur during different overlapping phases and subphases of construction. In this way, the most intensive period of construction and maximum daily emissions were determined.

Following construction, operation of the site would require up to two full-time employees coming to the site daily, as well as additional intermittent site visits by maintenance workers and use of on-site equipment throughout each year. While not typical, a maximum maintenance scenario could include up to six on-site staff and maintenance workers, and use of equipment such as a boomlift, crane, forklift, and loader. To account for operations and maintenance workers needing to travel within the project site, approximately 2.5 miles per trip was assumed to occur on unpaved roadways; this is considered conservative as it assumes all unpaved roads are dirt and accounts for more extensive on-site travel that would not be typical of most workers, who would primarily access the facilities in the southern portion of the project site proximate to the existing, paved Baseline Road. Operational emissions were estimated using CalEEMod (Version 2020.4.0) for a maximum activity day scenario, assuming operations in the year 2024.

The impact analysis does not directly evaluate airborne lead. Neither construction nor future operations would generate lead emissions because of regulations that require unleaded fuel and that prohibit lead in new building materials.

TAC emissions associated with project construction that could affect surrounding areas are evaluated qualitatively. The potential for the solar facility operations to expose surrounding sensitive receptors to TAC emissions that would exceed applicable health standards is also discussed qualitatively.

Lastly, PCAPCD recommends that odor impacts be addressed in a qualitative manner. Such an analysis must determine if the proposed project would result in excessive nuisance odors, as defined under California Code of Regulations, Health and Safety Code Section 41700, Air Quality Public Nuisance.

### *Thresholds of Significance*

An air quality impact would be considered significant if it would exceed any of the thresholds of significance listed below, which are based on Appendix G of the CEQA Guidelines and on PCAPCD's CEQA Handbook (PCAPCD 2017). Based on Appendix G of the CEQA Guidelines, the proposed project would result in a significant impact on air quality if it would:

- conflict with or obstruct implementation of the applicable air quality plan;
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard;
- expose sensitive receptors to substantial pollutant concentrations; or

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

As stated in Appendix G of the CEQA Guidelines, the significance criteria established by the applicable air quality management district may be relied on to make the above determinations. Thus, pursuant to the PCAPCD-recommended thresholds (PCAPCD 2017) for evaluating project-related air quality impacts, the proposed project would result in a significant impact on air quality if it would:

- generate construction-related criteria air pollutant or precursor emissions that exceed the PCAPCD-recommended daily thresholds of 82 pounds per day (lb/day) for ROG, NO<sub>x</sub>, or PM<sub>10</sub>;
- generate long-term regional criteria air pollutant or precursor emissions that exceed the PCAPCD-recommended daily thresholds of 55 lb/day of ROG or NO<sub>x</sub>, or 82 lb/day of PM<sub>10</sub>;
- expose sensitive receptors to substantial pollutant concentrations (including localized CO concentrations and TAC emissions);
- generate emissions of toxic air contaminants or PM<sub>2.5</sub> that would cause an excess cancer risk level of more than 10 in one million or exceed a Hazard Index of 1; or
- result in other emissions (such as those leading to odors) affecting a substantial number of people.

For cumulative impacts, PCAPCD has established that if a project would be significant on the project-level (i.e., exceed any threshold listed above), it would also be considered significant on a cumulative level (PCAPCD 2017).

### *Impact Analysis*

#### **Impact 3.3-1. Conflict with or obstruct implementation of the applicable air quality plan?**

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Air quality plans describe air pollution control strategies to be implemented by a city, county, or regional air district. The primary purpose of an air quality plan is to bring an area that does not attain the NAAQS or CAAQS into compliance with those standards, or to maintain existing compliance with those standards, pursuant to the requirements of the CAA and CCAA.

Construction and operational activities associated with the proposed project would result in emissions of criteria air pollutants and ozone precursors, including ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>, the pollutants for which the project region is designated as nonattainment. PCAPCD has adopted air quality plans pursuant to regulatory requirements under EPA and CARB for the attainment and maintenance of federal and

state ambient air quality standards, as detailed in Section 3.3.1, “Regulatory Setting,” under “Placer County Air Pollution Control District.” The goal of the air quality plans is to reduce criteria air pollutant emissions for which the SVAB is designated as nonattainment in order to achieve NAAQS and CAAQS by the earliest practicable date. As documented in the PCAPCD CEQA Handbook, the PCAPCD has determined that projects whose emissions would be less than the recommended thresholds of significance for criteria air pollutants would not conflict with or obstruct implementation of applicable air quality plans.

Operational activities associated with the proposed project would include up to two on-site employee and intermittent monitoring, maintenance, and repair staff. Pickup trucks and flatbeds, forklifts, and loaders may be used for normal maintenance, with use of such equipment being no more than 12 days per year. Large, heavy-haul, transport equipment would be occasionally used to repair or replace equipment, which would be anticipated to be required less than once per year. As detailed below in Impact 3.3-2, proposed operational activities would not result in the generation of emissions in excess of PCAPCD-recommended thresholds of significance for criteria air pollutants. In addition, the proposed project operations would comply with PCAPCD rules and regulations, including but not limited to Rule 202, Rule 304, and Rule 501, as well as PCAPCD and CARB permitting and registration requirements for the operation of any stationary emissions sources (i.e., emergency generators) or heavy-duty diesel-powered maintenance equipment. Finally, operations would result in the generation of energy from a renewable, carbon-free resource that would support the increasing contribution of clean energy resources to the overall regional power mix and related reduction in criteria air pollutants emissions associated with energy generation. While the project may not result in a direct offset of energy-related emissions and, therefore, such emissions ‘credits’ were not accounted for in the net operational emissions calculations, the project’s operations provide a source of electricity that does not generate criteria air pollutant emissions. Therefore, proposed project operational activities would not conflict with or obstruct implementation of applicable air quality plans.

Construction activities associated with the proposed project would result in a temporary increase in criteria pollutant and ozone precursor emissions in the form of both fugitive dust from ground disturbing activities, including site preparation, grading, and travel on paved and unpaved roadways, and exhaust emissions from the use of construction equipment and operation of worker vehicles and vendor and haul trucks. The proposed project construction-related activities would comply with PCAPCD rules and regulations established, in part, to ensure implementation of and consistency with strategies and actions of the applicable air quality plans, including but not limited to Rule 202, Rule 205, Rule 217, Rule 2018, and Rule 228. However, as detailed below in Impact 3.3-2, proposed construction would result in ground disturbance for the construction of access roadways, facilities, and supporting infrastructure, as well as vehicle and equipment travel and operations on unpaved roadways, resulting in the generation of fugitive dust emissions that could conflict with PCAPCD Rule 228 for the control of fugitive dust emissions. In addition, as explained in Impact 3.3-2 and shown in Table 3.3-7,

emissions generated as a result of construction-related activities could exceed the PCAPCD thresholds of significance for NO<sub>x</sub> and PM<sub>10</sub> (note that the PM<sub>10</sub> emissions exceedance would be a result of fugitive dust generation and not related to exhaust emissions). Potential conflict with PCAPCD Rule 228 for fugitive dust and exceedance of the PCAPCD-established thresholds of significance indicate that the proposed project's construction could result in a potentially significant temporary contribution to regional air pollution and thereby could conflict with air quality plans applicable to the PCAPCD. This impact would be **potentially significant**.

#### *Mitigation Measures*

**Mitigation Measure 3.3-1.** *Implement Mitigation Measures 3.3-2a, 3.3-2b, and 3.3-2c.*

#### *Significance After Mitigation*

Mitigation Measures 3.3.1 would ensure that PCAPCD dust mitigation and control requirements are implemented for compliance with PCAPCD Rule 228. Mitigation Measures 3.3-2a and 3.3-2b would reduce potential construction-related exhaust emissions of NO<sub>x</sub> and PM<sub>10</sub> by at least 20 and 45 percent, respectively, and would ensure additional off-site mitigation through participation in the PCAPCD's offsite mitigation fee program in the case that emissions would still exceed the PCAPCD thresholds. As shown in Table 3.3-9 and further explained in the discussion of Impact 3.3-2, while this mitigation would ensure that the proposed project would comply with all applicable rules and regulations with implementation of Mitigation Measure 3.3-2a and minimize exhaust emissions of NO<sub>x</sub> and PM<sub>10</sub>, fugitive dust emissions could still exceed the PCAPCD maximum daily emissions thresholds, and could, therefore, conflict with air quality plans applicable to the PCAPCD. This impact would be **significant and unavoidable**.

#### **Impact 3.3-2. 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?**

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By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development within the SVAB, and this regional impact is cumulative rather than being attributable to any one source. A project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development projects.

The thresholds developed by the PCAPCD are designed to identify those projects that would result in significant levels of air pollution and to assist the region in attaining the applicable state and federal ambient air quality standards. Projects that would exceed the PCAPCD-recommended thresholds of significance would be considered to potentially contribute a cumulatively considerable net increase of criteria air pollutant emissions to the region.



### Construction

Construction-related emissions are temporary and would cease after the completion of the project's construction phase, but have the potential to adversely affect the region's air quality.

The project's maximum daily pounds per day of emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub> are presented below in Table 3.3-7, and compared to the PCAPCD-recommended thresholds of significance for construction. Although many on-site roads would be gravel, not dirt, and standard operating procedures would include on-site watering to minimize fugitive dust, the emissions shown in Table 3.3-7 present a conservative analysis of emissions for unpaved dirt roadways prior to the application of gravel and/or water to suppress dust. PCAPCD does not have separate thresholds for exhaust PM<sub>10</sub> and fugitive dust PM<sub>10</sub>, but these are shown separately in Table 3.3-7 to make clear that the primary source of PM<sub>10</sub> emissions that would be generated by project construction are fugitive dust, not exhaust diesel particulate matter; total PM<sub>10</sub> emissions (the sum of exhaust and fugitive dust PM<sub>10</sub>) are compared to the PCAPCD threshold. It is important to note that daily emissions would fluctuate throughout the duration of the project's construction phase; while it is not likely that multiple phases of construction would all be active at the peak intensity of equipment and vehicle use, the emissions presented below represent a conservative estimate of the maximum construction intensity of multiple overlapping construction phases. Detailed emissions calculations, assumptions, inputs, and outputs are available in Appendix A of this EIR.

**Table 3.3-7. Summary of Maximum Daily Construction-Related Emissions of Criteria Air Pollutants and Precursors (pounds per day)**

Emissions Source	ROG	NO <sub>x</sub>	PM <sub>10</sub> (Exhaust)	PM <sub>10</sub> (Fugitive Dust)	PM <sub>10</sub> (Total)
Off-road Equipment	28	219	12	187	195
On-site Vehicles	16	17	2	2,004	2,005
On-road Vehicles	2	7	0.1	5	5
<b>Total Maximum Daily Emissions <sup>a</sup></b>	<b>46</b>	<b>243</b>	<b>13</b>	<b>2,196</b>	<b>2,205</b>
PCAPCD Threshold of Significance	82	82	N/A	N/A	82
Threshold Exceeded?	No	Yes	N/A	N/A	Yes

Notes: ROG = reactive organic gases; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = respirable particulate matter; PCAPCD = Placer County Air Pollution Control District; N/A = not applicable.

<sup>a</sup>. Maximum daily emissions were identified by based on calculations to occur during the overlap of peak activity during the Material Delivery & Procurement, Mobilization, Solar Construction (Civil and Mechanical Engineering subphases); Storage Construction, and the 230kV Transmission Line Gen-Tie to Switchyard phases of construction.

Source: Modeled by AECOM in 2022, see Appendix A for detailed construction assumptions and calculations.

As shown in Table 3.3-7, the project's maximum daily construction emissions would exceed the PCAPCD's recommended thresholds for NO<sub>x</sub>, an ozone precursor, and PM<sub>10</sub>. This level of emissions would result in a potentially significant impact due to the region's non-attainment status for ozone and PM<sub>10</sub>. The PCAPCD thresholds of

significance are considered the allowable amount of emissions each project can generate without resulting in a cumulatively considerable net increase of criteria air pollutants and precursor emissions. Consequently, because construction of the proposed project could generate construction-related emissions that exceed the PCAPCD-recommended thresholds, this impact for the construction phase of the proposed project would be **potentially significant**.

### Operations

Operational emissions would result from daily routine and intermittent repair activities at the site, including up to two full-time daily workers supporting routine on-site operations, meteorological station cleaning, inverter checks and maintenance, environmental checks, substation maintenance, panel washing, and other maintenance activities. Operational emissions sources would include vehicles for operations and maintenance worker trips to and from the site, off-road equipment to support maintenance activities, and potential temporary use of an emergency generator. Operational activities could begin as early as 2024 and would typically be limited to a few daily worker trips, but could include days of concurrent maintenance activities, in which maximum daily emissions would be greater than usual. For the purposes of estimating the maximum daily emissions, it was assumed that up to three concurrent operations and maintenance activities and supporting equipment could be required on a single day; these maximum daily operational emissions (in pounds per day) are presented in Table 3.3-8 for ROG, NO<sub>x</sub>, and PM<sub>10</sub>.

**Table 3.3-8. Summary of Maximum Daily Operational Emissions of Criteria Air Pollutants and Precursors (pounds per day)**

Emissions Source	ROG	NO <sub>x</sub>	PM <sub>10</sub> (Exhaust)	PM <sub>10</sub> (Fugitive Dust)	PM <sub>10</sub> (Total)
Off-road Equipment	0.60	6.33	0.27	0.00	0.27
On-road Vehicles (on- and off-site activity)	0.04	0.45	0.004	12.19	12.19
Emergency Generator	0.04	0.23	0.02	0.00	0.02
<b>Total Maximum Daily Emissions <sup>a</sup></b>	<b>0.68</b>	<b>7.01</b>	<b>0.30</b>	<b>12.19</b>	<b>12.49</b>
PCAPCD Threshold of Significance	55	55	N/A	N/A	82
Threshold Exceeded?	No	No	N/A	N/A	No

Source: Modeled by AECOM in 2022, see Appendix A for detailed construction assumptions and calculations.

Notes: ROG = reactive organic gases; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = respirable particulate matter; PCAPCD = Placer County Air Pollution Control District; N/A = not applicable.

As shown in Table 3.3-8, maximum daily operational emissions would not exceed the PCAPCD-recommended thresholds of significance. Therefore, long-term operations and maintenance of the proposed project would not contribute a cumulatively considerable net increase of criteria air pollutants and precursor emissions and this impact for project operations would be **less than significant**.

*Mitigation Measures***Mitigation Measure 3.3-2a. Implement Fugitive Dust Control Measures**

In order to minimize fugitive dust generation from earthwork and on-site travel on unpaved roadways, the applicant shall submit a Dust Control Plan to the Placer County Air Pollution Control District (PCAPCD). The Dust Control Plan shall be submitted to the PCAPCD a minimum of 21 days before construction activity is scheduled to commence. The Dust Control Plan can be submitted online via the fill-in form: <http://www.placerair.org/dustcontrolrequirements/dustcontrolform>.

In addition, the applicant shall include as a condition of the construction bidding, incorporation of dust control measures that shall include, at a minimum, the below requirements of Rule PCAPCD Rule 228, Section 400, and any additional measures identified as part of the Dust Control Plan. All dust control measures shall be shown on grading and improvement plans, to be initiated at the start and maintained throughout the duration of construction.

- Dry mechanical sweeping is prohibited. Watering of a construction site shall be carried out to mitigate visible emissions. (Based on PCAPCD Rule 228, Section 301.)
- The contractor shall apply water or use methods to control dust impacts offsite. Construction vehicles leaving the site shall be cleaned to prevent dust, silt, mud, and dirt from being released or tracked off-site. (Based on PCAPCD Rule 228, Section 304.)
- During construction activity, traffic speeds on all unpaved surfaces shall be limited to 15 miles per hour or less unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment traveling more than 15 miles per hour from emitting dust or visible emissions from crossing the project boundary line. (Based on PCAPCD Rule 228, Section 401.2.)
- Storage piles and disturbed areas not subject to vehicular traffic must be stabilized by being kept wet, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile. (Based on PCAPCD Rule 228, Section 401.3.)
- The contractor shall suspend all grading operations when fugitive dust exceeds the APCD Rule 228 (Fugitive Dust) limitations. Visible emissions of fugitive dust shall not exceed 40% opacity, nor go beyond the property boundary at any time. Lime or other drying agents utilized to dry out wet grading areas shall not exceed APCD Rule 228 limitations. (Based on PCAPCD Rule 228, Sections 302 & 401.4.)

- The prime contractor shall be responsible for keeping adjacent public thoroughfares clean by keeping dust, silt, mud, dirt, and debris from being released or tracked offsite. Wet broom or other methods can be deployed as control and as approved by the individual jurisdiction. (Based on PCAPCD Rule 228, Section 401.5.)
- The contractor shall suspend all grading operations when wind speeds (including instantaneous gusts) are high enough to result in dust emissions crossing the boundary line, despite the application of dust mitigation measures. (Based on PCAPCD Rule 228, Section 401.6.)
- The contractor shall prohibit trucks from transporting excavated material off-site unless the trucks are maintained such that no spillage can occur from holes or other openings in cargo compartments, and loads are either covered with tarps or wetted and loaded such that the material does not touch the front, back, or sides of the cargo compartment at any point less than six inches from the top and that no point of the load extends above the top of the cargo compartment. (Based on PCAPCD Rule 228, Section 401.7)
- To minimize wind-driven dust during construction, the prime contractor shall apply methods such as surface stabilization, the establishment of a vegetative cover, paving (or use of another method to control dust as approved by Placer County). (Based on APCD Rule 228 / section 402)

### **Mitigation Measure 3.3-2b. Reduce Exhaust-related Emissions During Construction**

Prior to the approval of grading or improvement plans, whichever would occur first, the construction contractor shall submit a Construction Emissions Control Plan to the Placer County Air Pollution Control District and SMUD, and provide written evidence to SMUD that the plan has been submitted to and approved by PCAPCD. The applicant shall not initiate any on-site construction activity until PCAPCD has approved the Construction Emissions Control Plan.

The Construction Emissions Control Plan shall include the following:

- The contractor shall submit to the PCAPCD a comprehensive equipment inventory (e.g., make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower or greater) that will be used in an aggregate of 40 or more hours. If any new equipment is added after submission of the inventory, the contractor shall notify the PCAPCD before the new equipment being utilized. At least three business days before the use of subject heavy-duty off-road equipment, the project representative shall provide the PCAPCD with the anticipated construction timeline including start date, name, and phone number of the property owner, project manager, and on-site foreman.

- With submittal of the equipment inventory, the contractor shall provide a written calculation to the PCAPCD for approval demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project-wide fleet-average of 20 percent Nitrogen Oxides (NO<sub>x</sub>) reduction and 45 percent particulate reduction compared with the statewide fleet averages. Acceptable options for reducing emissions may include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and other options as they become available. The emissions reductions shall be calculated using the Sacramento Metropolitan Air Quality Management District's Construction Mitigation Calculator to identify the equipment fleet and measures that achieve the required reductions; this tool is currently available on the Sacramento Metropolitan Air Quality Management District's website at the following link: <http://www.airquality.org/businesses/ceqa-land-use-planning/mitigation> (click on the current "Construction Mitigation Tool" spreadsheet under Step 1)
- If any new equipment is added after the submission and approval of the inventory, the construction contractor shall update the inventory and provide to the PCAPCD and SMUD prior to the use of such equipment, demonstrating that the 20-percent NO<sub>x</sub> reduction performance standard is still met.
- The approved equipment inventory and a note regarding update requirements, as detailed above, shall be included as an attached form to the Grading and Improvement Plans.
- Include the following standard notes on Grading and Improvement Plans:
  - Construction equipment exhaust emissions shall not exceed the APCD Rule 202 Visible Emissions limitations. Operators of vehicles and equipment found to exceed opacity limits are to be immediately notified by the APCD to cease operations, and the equipment must be repaired within 72 hours.
  - The contractor shall not discharge into the atmosphere volatile organic compounds caused by the use or manufacture of Cutback or Emulsified asphalts for paving, road construction or road maintenance unless such manufacture or use complies with the provisions of Rule 217 Cutback and Emulsified Asphalt Paving Materials.
  - During construction, open burning of removed vegetation is only allowed under APCD Rule 304 Land Development Smoke Management. (Based on APCD Rule 304)
  - Any device or process that discharges 2 pounds per day or more of air contaminants into the atmosphere, as defined by Health and Safety Code

Section 39013, may require an APCD permit. Developers/contractors should contact the APCD before construction and obtain any necessary permits before the issuance of a Building Permit. (APCD Rule 501)

- The contractor shall utilize existing power sources (e.g., power poles) or clean fuel (e.g., gasoline, biodiesel, natural gas) generators rather than temporary diesel power generators.
- The contractor shall minimize idling time to a maximum of 5 minutes for all diesel-powered equipment. (Placer County Code Chapter 10, Article 10.14).
- Idling of construction-related equipment and construction-related vehicles shall be limited to 2 minutes within 1,000 feet of any sensitive receptor (i.e., house, hospital, or school), allowing for the same exceptions identified in Placer County Code Chapter 12, Article 10.14.

### **Mitigation Measure 3.3-2c. Off-site Mitigation**

If, based upon the incorporation of all on-site measures described above in Mitigation Measures 3.3.1 and 3.3.2, NO<sub>x</sub> or PM emissions still do not meet the daily PCAPCD thresholds, the project shall participate in the PCAPCD's Offsite Mitigation Program by paying to PCAPCD a mitigation fee for construction activities, to be determined at the time of construction based on the submitted equipment inventory and emissions calculations for the purposes of mitigating NO<sub>x</sub> and PM<sub>10</sub> emissions, such that emissions are reduced to a less-than-significant level. The fee calculation to mitigate daily emissions shall be based on the PCAPCD-determined cost to reduce emissions and the project's contribution of pollutants to be less than the PCAPCD threshold of 82 pounds per day for NO<sub>x</sub>. The fee shall be submitted for approval by PCAPCD as the total required to achieve emissions reductions that would reduce total emissions to a less-than-significant level after all other mitigation measures are implemented. The fee shall be calculated and approved by PCAPCD.

### *Significance after Mitigation*

Project construction activities would result in NO<sub>x</sub> and PM<sub>10</sub> emissions that would exceed PCAPCD-recommended thresholds of significance. Mitigation Measure 3.3-2a includes fugitive dust control measures, compliant with PCAPCD Rule 228, to reduce the generation of on-site fugitive dust during earthwork and travel on unpaved roadways; fugitive dust emissions reductions measures are estimated have a control efficiency of 84 percent (WRAP 2006). Mitigation Measure 3.3-2b requires a 20 percent NO<sub>x</sub> and 45 percent PM<sub>10</sub> (exhaust) emissions reduction. Mitigation emissions estimates are shown in Table 3.3-9, based on implementation of Mitigation Measures 3.3-2a and 3.3-2b and the associated percent reductions achieved through each respective mitigation measure. Additional reductions may be achieved depending on the

daily construction activity levels, including number of on-site vehicles, specific construction equipment fleet mix, and type of fuel used emissions, primarily from off-road equipment exhaust sources.

As shown in Table 3.3-9, Mitigation Measures 3.3-2a and 3.3-2b would reduce NO<sub>x</sub> and PM<sub>10</sub> emissions associated with project construction. However, even with inclusion of these mitigation measures, emissions of NO<sub>x</sub> and PM<sub>10</sub> would still exceed PCAPCD's thresholds of significance. Mitigation Measure 3.3-2c would require participation in the PCAPCD's offsite mitigation fee program and ensure that NO<sub>x</sub> emissions would be offset to a level that would not exceed the PCAPCD threshold of significance for NO<sub>x</sub>. However, using the conservative methods of analysis described in this section, PM<sub>10</sub> fugitive dust emissions could still result in an exceedance of the PCAPCD threshold of significance for PM<sub>10</sub> and could contribute a cumulatively considerable net increase of PM<sub>10</sub> emissions to the region, a criteria air pollutant for which the region is in non-attainment. Therefore, this impact for construction would be **significant and unavoidable**.

### Impact 3.3-3. Expose sensitive receptors to substantial pollutant concentrations?

The project site is located west of the city of Roseville, surrounded primarily by agricultural land uses and grassland. As detailed in Section 3.3.2, "Environmental Setting," under "Sensitive Receptors," the nearest sensitive receptors include a single rural residence opposite the road from proposed solar panels at the far west side of the project site off of South Brewer Road, and few rural residences approximately 0.25 mile west of the project site. There are also residential neighborhoods within the city of Roseville to the east of the project site, but these neighborhoods are more than 0.6 mile (or more than 3,000 feet) from the western perimeter of the project site.

**Table 3.3-9. Summary of Mitigated Maximum Daily Construction-Related Emissions of Criteria Air Pollutants and Precursors (pounds per day)**

Emissions Source	ROG	NO <sub>x</sub>	PM <sub>10</sub> (Exhaust)	PM <sub>10</sub> (Fugitive Dust)	PM <sub>10</sub> (Total)
Off-road Equipment <sup>a</sup>	28	175	12	67	75
On-site Vehicles <sup>b</sup>	10	11	1	183	184
On-road Vehicles	2	7	0.1	5	5
<b>Total Mitigated Maximum Daily Emissions <sup>c</sup></b>	<b>40</b>	<b>193</b>	<b>12</b>	<b>255</b>	<b>264</b>
PCAPCD Threshold of Significance	82	82	N/A	N/A	82
Threshold Exceeded?	No	Yes	N/A	N/A	Yes

Source: Modeled by AECOM in 2022, see Appendix A for detailed construction assumptions and calculations.

Notes: ROG = reactive organic gases; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = respirable particulate matter; PCAPCD = Placer County Air Pollution Control District; N/A = not applicable. Maximum daily emissions for PM<sub>10</sub> (Exhaust) and PM<sub>10</sub> (Fugitive Dust) would occur during different phases of the construction work. Therefore, the Maximum PM<sub>10</sub> (Total) represents that maximum daily PM<sub>10</sub> Total emissions that would occur during construction, but is not the sum of the PM<sub>10</sub> (Exhaust) and PM<sub>10</sub> (Fugitive Dust) Emissions presented in this table.

<sup>a</sup> Mitigation applicable to off-road equipment includes fugitive dust reductions achieved through Mitigation Measure 3.3-2a for earthwork, and NO<sub>x</sub> and exhaust PM<sub>10</sub> emissions reductions achieved through Mitigation Measure 3.3-2b.



- <sup>b</sup> Mitigation applicable to on-site vehicles includes fugitive dust reductions achieved through Mitigation Measure 3.3-2a for on-site unpaved roadways.
- <sup>c</sup> Maximum daily emissions for all criteria pollutants except PM<sub>10</sub> (Fugitive Dust) were identified by based on calculations to occur during the overlap of peak activity during the Material Delivery & Procurement, Mobilization, Solar Construction (Civil and Mechanical Engineering subphases); Storage Construction, and the 230kV Transmission Line Gen-Tie to Switchyard phases of construction. Peak PM<sub>10</sub> (Fugitive Dust) would occur during the overlap of peak activity during the Solar Construction (Civil and Mechanical Engineering subphases); Storage Construction, Substation Construction, and Switchyard Construction phases of construction.

### Localized CO Emissions

CO concentration is a direct function of vehicle idling time, and thus, traffic flow conditions. Under stagnant meteorological conditions, CO concentrations near congested roadways and/or intersections may reach unhealthy levels that adversely affect nearby sensitive land uses.

Proposed project activities are analyzed here consistent with the PCAPCD-recommended screening methodology to analyze the potential for construction-related vehicle trips to result in a CO hotspot. Maximum daily mobile-source emissions from construction-related vehicle trips would be less than 60 pounds per day and from operational vehicle trips would be less than one pound per day. This would not exceed the PCAPCD screening level of 550 pounds per day. Therefore, the proposed project would not exceed the PCAPCD screening-level criteria and would not violate air quality standards for CO. Therefore, this impact related to localized emissions of CO would be **less than significant**.

### Operational TAC Emissions

As described above in Impact 3.3-2, operational activities would include up to two full-time staff people driving to and from the site daily, and only intermittent maintenance and repair staff and equipment use. Emissions modeling of the most intensive operations and maintenance scenario, assuming several operational and maintenance activities were to occur simultaneously, which is not likely, resulted in estimated operational emissions that would be less than one pound per day exhaust PM<sub>10</sub>. The majority of these emissions would be generated by vehicle travel occurring off-site from trips to and from the project site, and the use of equipment throughout the project site, not proximate to the project site perimeter and nearby residences. An emergency generator may be installed at the proposed substation for project operations. However, any emergency generators would be required to comply with PCAPCD permitting regulations for stationary sources, use would be limited to backup requirements and would not be a permanent source of new on-site emissions, and the siting would be more than 0.5 mile northeast from the nearest residence near the intersection of Country Acres Lane and Baseline Road. These operational emissions would not be considered a substantial source of TACs and this impact related to operational TAC emissions would be **less than significant**.

### Construction-related TAC Emissions

Construction of the proposed project would generate emissions of TACs from a variety of sources, including the use of off-road construction equipment, on-site generators, and on-road vehicles. These activities may expose nearby receptors to TACs, including residents east and west of the project site. The greatest potential for TAC emissions during construction would be related to DPM emissions associated with operation of heavy-duty construction equipment. More than 90 percent of DPM is less than 1 micrometer in diameter, and thus is a subset of PM<sub>2.5</sub> (CARB 2021). Therefore, exhaust PM<sub>10</sub> is conservatively used as the upper limit for DPM emissions associated with construction of the proposed project.

The nearest sensitive receptors include a single rural residence opposite the road from proposed solar panel construction in the northeast of the project site along South Brewer Road, as well as additional residences at least 0.25 mile (or 1,300) feet from the project site boundary. Health risk is a function of the concentration of contaminants in the environment and the duration of exposure to those contaminants. The risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period of time. Health effects from TACs are often described in terms of individual cancer risk, which is based on a 30-year lifetime exposure to TACs (OEHHA 2015). Construction activities would be temporary, modeled as approximately two years to complete all phases. Construction of a single solar zone may take approximately one year. As described in the approach to analysis, construction of this project component would take place concurrently with other construction activities throughout the project site, but such activities would be geographically dispersed throughout the project site. Moreover, even construction activities for a single solar zone would be dispersed throughout that zone. The zone adjacent to the nearest sensitive receptor is approximately 59 acres in area and construction equipment and vehicle use would occur throughout the area, not concentrated near the residence on the opposite side of the road; emissions-generating equipment use would only occur for approximately two to three months within 1,000 feet of the nearest sensitive receptor. Exposure of three months would be less than 1 percent of the total exposure period used for typical health risk calculations (i.e., 30 years). In addition, concentrations of mobile-source DPM emissions are typically reduced by approximately 60 percent at a distance of around 300 feet (100 meters) (Zhu and Hinds 2002). Construction would vary in activity and equipment intensity over that time, and would take place throughout the approximately 1,170-acre project site, thereby limiting the amount of time that emitting equipment would be along the project site perimeters, closest to off-site residences. Even during the most intensive construction periods, maximum daily emissions of exhaust PM<sub>10</sub> would be about 12 pounds per day, and this accounts for emissions from overlapping phases (i.e., construction of various components throughout the entire project site), not concentrated at a single location. As noted above, concentrations of mobile-source DPM emissions reduce substantially within several feet of the emissions source. Furthermore, the level of peak emissions (i.e., approximately 12 pounds per day of exhaust PM<sub>10</sub>) accounts for peak construction activity that may occur intermittently but would not occur throughout the entire construction duration, as well as accounts for

emissions generated by equipment and vehicles that would serve the entire project site and would not be concentrated proximate to a single sensitive receptor. As discussed above, under Impact 3.3-2, Mitigation Measure 3.3-2b would require off-road equipment used within the County to achieve lower than State-average emissions of NO<sub>x</sub> and PM. Thus, on-site emissions of exhaust PM would be reduced, which would result in a proportional reduction in DPM emissions and exposure of nearby residences to DPM. Project construction would also be required to comply with all applicable PCAPCD rules and regulations, including idling restrictions. Due to the intermittent and temporary nature of construction activities at any given location and the dispersive properties of TACs, temporary construction activities would not expose sensitive receptors to DPM emission levels that would result in a health hazard. As a result, this impact would be **less than significant**.

#### Criteria Air Pollutant Emissions

Criteria pollutants can be classified as either regional or localized pollutants. Regional pollutants can be transported over long distances and affect ambient air quality far from the emissions source. Localized pollutants affect ambient air quality near the emissions source. Ozone is considered a regional criteria pollutant, whereas CO, NO<sub>2</sub>, SO<sub>2</sub>, and lead are localized pollutants. PM can be both a local and a regional pollutant, depending on its composition.

As detailed in Section 3.3.2 above, exposure to criteria air pollutants can result in adverse health effects. The proposed project would primarily generate criteria air pollutant emissions during the construction phase, and the primary pollutants of concern would be ozone precursors (ROG and NO<sub>x</sub>) and PM. Adverse health effects induced by regional criteria pollutant emissions generated by the proposed project (ozone precursors and PM) are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, the number and character of exposed individuals [e.g., age, gender]). For these reasons, ozone precursors (ROG and NO<sub>x</sub>) contribute to the formation of ground-borne ozone on a regional scale, where emissions of ROG and NO<sub>x</sub> generated in one area may not equate to a specific ozone concentration in that same area. Similarly, some types of particulate pollutant may be transported over long distances or formed through atmospheric reactions. As such, the magnitude and locations of specific health effects from exposure to increased ozone or regional PM concentrations are the product of emissions generated by numerous sources throughout a region, as opposed to a single individual project.

Existing models have limited sensitivity to small changes in regional criteria pollutant concentrations, and as such, translating project-generated regional criteria pollutants to specific health effects would not produce meaningful results. In other words, minor increases in regional air pollution from project-generated ROG and NO<sub>x</sub> would have nominal or negligible impacts on human health. Currently, PCAPCD, CARB, and EPA have not approved a quantitative method to meaningfully and consistently translate the mass emissions of criteria air pollutants from a project to quantified health effects. As

explained in the amicus brief filed by the South Coast Air Quality Management District (SCAQMD) in the *Sierra Club v. County of Fresno* (2014) 26 Cal.App.4th 704, it “takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels” (SCAQMD 2015).

In 2020, SMAQMD published Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District (SMAQMD 2020), which provides a screening level analysis estimating the health effects of criteria air pollutants and their precursors, as well as provides guidance for conducting a health effects analysis of a project that satisfies the requirements of the *Sierra Club v. County of Fresno*, 2018, 6 Cal. 5th 502 case ruling regarding the proposed Friant Ranch Project. The Guidance was prepared by conducting regional photochemical modeling and relies on the EPA’s Benefits Mapping and Analysis Program to assess health impacts from ozone and PM<sub>2.5</sub>. Analysis was conducted to estimate the level of health effects for a proposed project that has emissions at the maximum SMAQMD-recommended thresholds of significance using 41 hypothetical project locations, as well as a screening model conducted to estimate potential health effects for strategic areas where development is anticipated to cause exceedance of thresholds of significance. The results were used to develop two screening tools intended to support individual projects in analyzing health risks from criteria pollutants: the Minor Project Health screening Tool for projects with criteria pollutant emissions below SMAQMD’s adopted thresholds of significance, and the Strategic Area Project Health Screening Tool for projects with emissions between two and six times the SMAQMD threshold levels.

The modeling results support a conclusion that any one proposed project in the Sacramento Federal Nonattainment Area (SFNA), which is inclusive of the proposed project site, with emissions at or below the maximum SMAQMD thresholds of significance levels for criteria air pollutants does not on its own lead to sizeable health effects. The findings of the SMAQMD screening modeling indicate that the mean health incidence for a project emitting at the threshold of significance levels at all 41 representative locations was less than 3 per year for mortality and less than 1.5 per year for other health outcomes evaluated. At the strategic area locations, as expected, mean health incidences are higher than the Minor Projects Health Effects Screening Tool. The maximum reported mortality rate is 22 incidences per year and all other health outcomes evaluated are under 9 per year from a project emitting 656 pounds/day of each NO<sub>x</sub>, ROG, and PM<sub>2.5</sub> at the downtown Sacramento location. While this tool was developed with discussion of emissions levels as they relate to the SMAQMD thresholds of significance, the findings are still relevant for projects within the portion of the PCAPCD within the SFNA, including the proposed project location.

As shown in Table 3.3-7, construction-related emissions associated with the proposed project would exceed the PCAPCD thresholds of significance for NO<sub>x</sub> and PM<sub>10</sub>. For illustrative purposes for this impact discussion, the SMAQMD Strategic Area Project Health Screening Tool was used to evaluate the potential regional effect of the proposed project construction-related emissions on regional health. Proposed project operational emissions would be minimal, and therefore the construction-related

emissions demonstrate a worst-case scenario. The evaluation assumed the maximum daily emissions of ROG, NO<sub>x</sub>, and PM<sub>2.5</sub>. Table 3.3-7 does not include PM<sub>2.5</sub> because it is not a criteria pollutant for which PCAPCD has established thresholds; however, PM<sub>2.5</sub> exhaust emissions were assumed to be equal to PM<sub>10</sub> exhaust emissions and fugitive dust PM<sub>2.5</sub> was assumed to be approximately 25 percent of the PM<sub>10</sub> fugitive dust emissions, based upon the relative emissions rates of PM<sub>10</sub> and PM<sub>2.5</sub> from construction-related generation of fugitive dust, as calculated using methodology consistency with AP-24 and shown in Appendix A of this EIR. The screening tool estimates that a project at the strategic growth area location of West Roseville, approximately two miles east of the proposed project site, emitting 48 pounds per day of ROG, 246 pounds per day of NO<sub>x</sub>, and 656 pounds per day of PM<sub>2.5</sub>, could result in an estimate of 11 premature deaths per year or a 0.024-percent increase from background health incidences across the five-air-district region due to the increase in PM<sub>2.5</sub> from the proposed project, and 0.14 premature deaths per year or a 0.00047-percent increase from background health incidences across the five-air-district region due to an increase in ozone that could result from the proposed project's emissions of ozone precursors. These outcomes would be reduced with implementation of Mitigation Measures 3.3-2a through 3.3-2c to reduce the project's construction-related emissions of criteria air pollutants. In addition, the tool's outputs are based on the simulation of a full year of exposure at the maximum daily exposure, which is not a realistic scenario because construction emissions would vary over time as equipment and vehicle requirements would increase and decrease with each phase.

As discussed above, the nature of criteria pollutants is such that the emissions from an individual project cannot be directly identified as responsible for health impacts within any specific geographic location. As a result, attributing health risks at any specific geographic location to a single proposed project is not feasible. Nonetheless, the results of the Strategic Area Project Health Screening Tool have been presented for informational purposes. The modeling results support a conclusion that the proposed project construction does not, on its own, lead to sizeable regional health effects from the emissions of criteria air pollutants and precursors.

#### *Mitigation Measures*

No Mitigation Required

#### **Impact 3.3-4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?**

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Sources that may emit odors during construction activities include exhaust from diesel construction equipment and heavy-duty trucks, which could be considered offensive to some individuals. Odors from these sources would be localized and generally confined to the immediate area surrounding the project site. The project would use typical construction techniques, and the odors would be typical of most construction sites and temporary in nature. Project operation would also not add any new sources of odors. Typical types of operations that emit objectionable odors include large large-scale

facilities such as rendering plants, composting facilities, composting facilities, wastewater treatments. The land uses associated with the project are utility-related, and would not include the use of large generators of other odor emissions. As a result, the project would not create objectionable odors affecting a substantial number of people.

*Mitigation Measures*

No mitigation is required.

### 3.4 Biological Resources

This section addresses impacts on biological resources known from or with potential to occur in the project area. The analysis includes a description of the existing environmental conditions at the time of the NOP, the methods used for site and impact assessment, the impacts associated with implementing the proposed project, and mitigation measures proposed to reduce potentially significant impacts, where necessary. This section also includes a brief overview of the federal, State, and local laws and regulations pertaining to the protection of biological resources in Placer County.

The biological resources information presented in this section is based on information gathered from biological resources databases, including the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDDB), Biogeographic Information and Observation System (BIOS), and the California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants (Appendix BR-1); aerial photography interpretation; an official species list obtained from the U.S. Fish and Wildlife Service Information, Planning, and Conservation System (IPaC) (USFWS 2022) (Appendix BR-1); the Western Placer County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) under the Placer County Conservation Program (PCCP) (PCCP 2020); and the results of technical studies conducted for the project:

- Aquatic Resources Delineation Report prepared by AECOM dated March 2022 (Appendix BR-2)
- Giant garter snake (*Thamnophis gigas*) Habitat Assessment on the SMUD Country Acres Solar Project, Placer County, California prepared by Eric C. Hansen Consulting Environmental Biologist dated March 2022 (Appendix BR-3)

Comments received in response to the NOP were reviewed during preparation of the EIR. The Placer County Conservation Authority (PCA) provided a comment letter noting that SMUD is not a Permittee under the HCP/NCCP and as such, SMUD's activities are not covered by the HCP/NCCP and the project cannot receive coverage under the incidental take permits or programmatic wetland permits normally afforded to activities covered under the HCP/PCCP. The letter also stated that any part of the project subject to the permitting authority of the County (e.g., grading, building, or other permits) is also precluded from receiving coverage pursuant to HCP/NCCP Section 2.7 (Activities Not Covered). However, since the project is located within the PCCP Plan Area, the DEIR must address the Project's consistency with the HCP/NCCP, including impacts to species covered under the HCP/PCCP (Covered Species) and their habitat including wetlands, hydrology, habitat connectivity, stream system protection, water quality, species movement and hazards, and mitigation consistent with the HCP/NCCP's landscape scale Conservation Strategy. Additional coordination with the PCA was conducted during the preparation of this draft EIR. The California Department of Fish and Wildlife also provided a comment letter during the scoping process and SMUD is actively coordinating with the resource agencies.



SMUD has reviewed and considered information provided in all scoping comments received during preparation of this section. In addition, SMUD worked closely with the County in the preparation of this Draft EIR.

### 3.4.1 Regulatory Setting

#### 3.4.1.1 *Federal*

##### *Endangered Species Act, 16 U.S.C. Section 1531 et seq*

Pursuant to the ESA (16 United States Code [U.S.C.] Section 1531 et seq.), U.S. Fish and Wildlife Service (USFWS) has regulatory authority over species listed or proposed for listing as endangered or threatened. USFWS and the National Marine Fisheries Service have authority over projects that may result in take of a species listed as threatened or endangered under ESA (i.e., a federally listed species). In general, persons subject to ESA (including private parties) are prohibited from “taking” endangered or threatened fish and wildlife species on private property, and from “taking” endangered or threatened plants in areas under federal jurisdiction or in violation of state law.

Under Section 9 of the ESA, the definition of “take” is to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” USFWS has also interpreted the definition of “harm” to include significant habitat modification that could result in take.

The take prohibition of ESA Section 9 applies only to listed species of fish and wildlife. Section 9(a)(2)(B) describes federal protection for endangered plants. In general, ESA does not protect listed plants located on nonfederal land (i.e., areas not under federal jurisdiction), unless such species are already protected by state law.

Section 7 of the ESA outlines procedures for federal interagency cooperation to protect and conserve federally listed species. Section 7(a)(2) requires federal agencies to consult with USFWS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroying or adversely modifying designated critical habitat.

For projects where federal action is not involved and take of a listed species may occur, a project proponent may seek an incidental take permit under section 10(a) of the ESA. Section 10(a) of ESA allows USFWS to permit the incidental take of listed species if such take is accompanied by a habitat conservation plan that ensures minimization and mitigation of impacts associated with the take.

Clean Water Act, 33 U.S.C. Section 1251 et seq.

**Section 404 Permit Program**

Section 404 of the Federal Clean Water Act (CWA) requires a project applicant to obtain a permit from the U.S. Army Corps of Engineers (USACE) before engaging in any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands. Fill material is material placed in waters of the United States where the material has the effect of replacing any portion of a water of the United States with dry land or changing the bottom elevation of any portion of a water of the United States. Waters of the United States include navigable waters of the United States; interstate waters; all other waters where the use, degradation, or destruction of the waters could affect interstate or foreign commerce; tributaries to any of these waters, and wetlands adjacent to these waters. Wetlands are defined as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Potentially jurisdictional wetlands must meet three wetland delineation criteria: hydrophytic vegetation, hydric soil types, and wetland hydrology. Wetlands that meet the delineation criteria may be jurisdictional under Section 404 of CWA pending USACE and U.S. Environmental Protection Agency (EPA) review.

As part of the review of a project, USACE must ensure compliance with applicable federal laws, including EPA's Section 404(b)(1) Guidelines. USACE regulations require that impacts to waters of the United States are avoided and minimized to the maximum extent practicable, and that unavoidable impacts are compensated (33 Code of Federal Regulations [CFR] 320.4[r]).

In 2008, USACE and EPA issued regulations governing compensatory mitigation for activities authorized by permits issued by USACE (33 CFR 332). The rule establishes a preference for the use of mitigation banks because they provide established wetland habitats that have already met success criteria thereby reducing some of the risks and uncertainties associated with compensatory mitigation involving creation of new wetlands that cannot yet demonstrate functionality at the time of project implementation. The rule also establishes a preference for providing compensatory mitigation within the affected watershed. Ideally, compensatory mitigation would take place at a mitigation bank or in-lieu fee program within the same watershed as the waters to be replaced. If mitigation banks and in-lieu fee programs are not available within the affected watershed, then permittee-responsible compensatory mitigation involving creation or restoration within the affected watershed may be preferable to using a mitigation bank or in-lieu fee program outside the affected watershed.

**Section 401 Water Quality Certification**

Under Section 401 of the CWA, an applicant for a Section 404 permit must obtain a certificate from the appropriate state agency stating that the intended dredging or filling activity is consistent with the state's water quality standards and criteria. In California,

the authority to grant water quality certification is delegated by the State Water Resources Control Board to the nine Regional Water Quality Control Boards (RWQCBs).

*Migratory Bird Treaty Act, 16 U.S.C. Section 703, et seq.*

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. Section 703, et seq.), first enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA provides that it shall be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. This prohibition includes both direct and indirect acts, although harassment and habitat modification are not included unless they result in direct loss of birds, nests, or eggs. The current list of species protected by the MBTA can be found in Title 50 of the CFR, Section 10.13 (50 CFR 10.13). The list includes nearly all birds native to the United States.

*Bald and Golden Eagle Protection Act*

The Bald and Golden Eagle Protection Act (BGEPA) prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” bald or golden eagles, including their parts (including feathers), nests, or eggs. The BGEPA provides criminal penalties for persons who “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof.” The Act defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.”

“Disturb” means: “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle’s return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

**3.4.1.2 State**

*California Endangered Species Act, California Fish and Game Code Section 2050, et seq.*

California Endangered Species Act (CESA) directs state agencies not to approve projects that would jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of a species. Furthermore, CESA states that reasonable and

prudent alternatives shall be developed by the California Department of Fish and Wildlife (CDFW), together with the project proponent and any state lead agency, consistent with conserving the species, while at the same time maintaining the project purpose to the greatest extent possible. Under CESA, project-related impacts of the authorized take must be minimized and fully mitigated, and adequate funding to implement those mitigation measures and monitor compliance with and the effectiveness of the measures must be ensured. Standard CESA issuance requirements can include land acquisition, permanent protection and management, and/or funding in perpetuity of compensatory lands.

A “take” of a species, under CESA, is defined as an activity that would directly or indirectly kill an individual of a species. The CESA definition of take does not include “harm” or “harass” as is included in the federal act. As a result, the threshold for a take under CESA may be higher than under ESA because habitat modification is not necessarily considered take under CESA. The take of State-listed species incidental to otherwise lawful activities requires a permit, pursuant to Section 2081(b) of CESA. The State has the authority to issue an incidental take permit under California Fish and Game Code Section 2081, or to coordinate with USFWS during the Section 10(a) process to make the federal permit consistent with CESA.

As under federal law, listed plants have considerably less protection than fish and wildlife under California State law. The California Native Plant Protection Act (California Fish and Game Code Section 19000 et seq.) allows landowners to take listed plant species from, among other places, a canal, lateral ditch, building site, or road, or other right-of-way, provided that the owner first notifies CDFW and gives the agency at least 10 days to come and retrieve (and presumably replant) the plants before they are plowed under or otherwise destroyed.

#### Section 1602 of the California Fish and Game Code

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by CDFW under Section 1602 of the California Fish and Game Code. Under Section 1602, it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by CDFW, or use any material from the streambeds, without first notifying CDFW of such activity and obtaining a final agreement authorizing such activity.

“Stream” is defined as a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish or other aquatic life. CDFW’s jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife. A CDFW streambed alteration agreement must be obtained for any project that would result in an impact on a river, stream, or lake.

Porter-Cologne Water Quality Control Act, California Water Code Section 13000, et seq.

The Porter-Cologne Act (California Water Code Section 13000, *et seq.*) requires that each of the state's nine RWQCBs prepare and periodically update basin plans for water quality control. Each basin plan sets forth water quality standards for surface water and groundwater and actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. The RWQCB's jurisdiction includes federally protected waters, as well as areas that meet the definition of "waters of the state." Waters of the state is defined as any surface water or groundwater, including saline waters, within the boundaries of the state. The RWQCB has the discretion to take jurisdiction over areas not federally regulated under Section 401 provided they meet the definition of waters of the state. Mitigation requiring no net loss of wetlands functions and values of waters of the state is typically required by the RWQCB.

Fully Protected Species, California Fish and Game Code Sections 3511, 4700, 5050, and 5515

Four sections of the California Fish and Game Code (Fish and Game Code Sections 3511, 4700, 5050, and 5515) list 37 fully protected species. These statutes prohibit take or possession at any time of fully protected species. CDFW is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by those species. CDFW has informed nonfederal agencies and private parties that they must avoid take of any fully protected species in carrying out projects.

Protection of Bird Nests and Raptors, California Fish and Game Code Section 3503

Section 3503 of the Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 of the California Fish and Game Code states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including their nests or eggs. Typical violations include destruction of active nests because of tree removal and failure of nesting attempts, resulting in loss of eggs and/or young. These violations can be caused by disturbance of nesting pairs by nearby human activity.

**3.4.1.3 Local**

Western Placer County Habitat Conservation Plan and Natural Community Conservation Plan (PCCP)

The PCCP includes the Western Placer County Habitat Conservation Plan (HCP)/Natural Community Conservation Plan (NCCP), which fulfills the requirements of the federal Endangered Species Act and the California Natural Community Conservation Planning Act. The PCCP also includes the Western Placer County Aquatic Resources Program (CARP) and the Western Placer County In-Lieu Fee Program, which fulfill certain requirements of section 404 of the Clean Water Act,

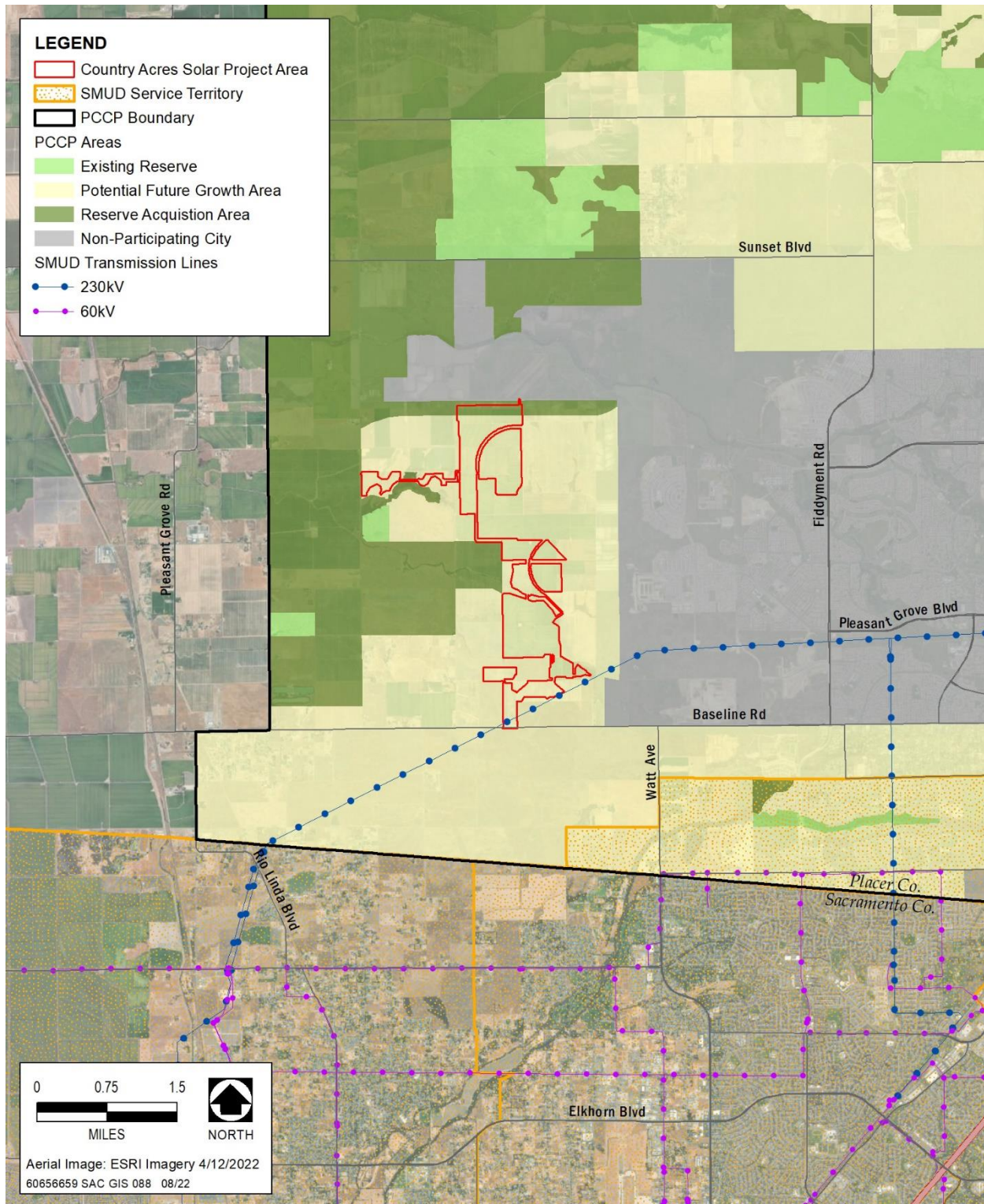
Section 1602 of the California Fish and Game Code, and the Porter-Cologne Water Quality Control Act.

PCCP Permittees include Placer County, the City of Lincoln, the South Placer Regional Transportation Authority, and the Placer County Water Agency. The PCCP is administered and implemented by the PCA. In addition to the Permittees, other parties may elect to seek coverage under the PCCP as “Participating Special Entities.” The PCCP describes how to avoid, minimize, and mitigate effects on endangered and threatened species and other covered species by addressing the permitting requirements relevant to these species for activities conducted in the Plan Area by the Permittees. Covered Activities include urban growth and a variety of road, water, and other needed infrastructure construction and maintenance activities. The PCCP also describes the responsibilities associated with operating and maintaining habitat reserves that will be created to mitigate anticipated effects resulting from growth and development activities.

The PCCP addresses 14 Covered Species and includes conservation measures to protect them. Covered Species include: Swainson’s hawk (*Buteo swainsoni*), California black rail (*Laterallus jamaicensis coturniculus*), western burrowing owl (*Athene cunicularia*), tricolored blackbird (*Agelaius tricolor*), giant garter snake (*Thamnophis gigas*), western pond turtle (*Emys marmorata*), foothill yellow-legged frog (*Rana boylei*), California red-legged frog (*Rana draytonii*), Central Valley Steelhead-Distinct Population Segment (*Oncorhynchus mykiss irideus*), Central Valley fall/late fall-run Chinook Salmon Evolutionary Significant Unit (*Oncorhynchus tshawytscha*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool fairy shrimp (*Branchinecta lynchi*), and vernal pool tadpole shrimp (*Lepidurus packardii*). The PCCP does not cover any plant species.

Most of the project area is in the Valley Potential Future Growth Area (PFG) of the PCCP which has been identified as the area where most of the future urban and suburban growth will occur in the Plan Area (Exhibit 3.4-1). The Valley PFG comprises 46,769 acres made up by the City of Lincoln and a portion of the adjacent Lincoln Sphere of Influence (SOI) and unincorporated county area adjacent to the City of Roseville. The Valley PFG is intended to be as inclusive as possible to accommodate as many ground-disturbing activities associated with growth as possible. It includes rural and urban land uses and the use, construction, demolition, rehabilitation, maintenance, and abandonment of typical public facilities, consistent with the implementation of local general plans, community plans, area plans (collectively referred to as general plans), specific plans, and local, state, and federal laws. However, municipal power generation is specifically excluded from coverage by the PCCP and thus excludes SMUD activities for power generation and transmission, including municipal wind and large-scale solar. 1,112.02 acres of the project area overlap with the PFG.





**Exhibit 3.4-1. PCCP Planning Area in the Vicinity of the Project Area**



The northern boundary of the project area also overlaps a small portion of the Reserve Acquisition Area (RAA) of the PCCP (Exhibit 3.4-1). The RAA is designated in the PCCP as the area where a connected Reserve System could eventually be assembled; however, the ultimate Reserve System depends upon property owners' willingness to sell property or conservation easements, and the ability of such properties to meet PCCP mitigation and conservation requirements. 57.79 acres of the project site overlap with the RAA.

#### Western Placer County Aquatic Resources Program

The Western Placer County Aquatic Resources Program (CARP) fulfills the requirements of the federal Clean Water Act and analogous state laws and regulations to protect streams, wetlands, and other water resources. The CARP is a component of the PCCP.

#### In-Lieu Fee Program

The In-Lieu Fee Program is part of the PCCP under which compensatory mitigation requirements under Section 404 of the CWA can be fulfilled by payment of a fee. The In-Lieu Fee Program provides wetland mitigation "credits" that can be used to fulfill CWA Section 404 compensatory mitigation requirements. The In-Lieu Fee Program provides compensatory mitigation for impacts on aquatic resources only for projects and activities that are covered under the PCCP.

#### Placer County General Plan

Section 1 (Land Use) of the Placer County General Plan includes the following policies relevant to the protection of open space, habitat, and wildlife resources, and that are applicable to the proposed project.

**Goal 1.I** To establish and maintain interconnected greenbelts and open spaces for the protection of native vegetation and wildlife and for the community's enjoyment.

**Policy 1.I.1.** The County shall require that significant natural, open space, and cultural resources be identified in advance of development and incorporated into site-specific development project design. The Planned Residential Developments (PDs) and the Commercial Planned Development (CPD) provisions of the Zoning Ordinance can be used to allow flexibility for this integration with valuable site features.

**Policy 1.I.2.** The County shall require that development be planned and designed to avoid areas rich in wildlife or of a fragile ecological nature (e.g., areas of rare or endangered plant species, riparian areas). Alternatively, where avoidance is infeasible or where equal or greater ecological benefits can be obtained through off-site mitigation, the County shall allow project proponents to contribute to off-site mitigation efforts in lieu of on-site mitigation.

Section 6 (Natural Resources) of the Placer County General Plan includes the following policies relevant to the protection of biological resources—such as water resources, wetland and riparian areas, fish and wildlife habitat, and vegetation—and that are applicable to the proposed project.

**Goal 6.A** To protect and enhance the natural qualities of Placer County's rivers, streams, creeks and groundwater.

**Policy 6.A.1.** The County shall require the provision of sensitive habitat buffers which shall, at a minimum, be measured as follows: 100 feet from the centerline of perennial streams, 50 feet from centerline of intermittent streams, and 50 feet from the edge of sensitive habitats to be protected, including riparian zones, wetlands, old growth woodlands, and the habitat of special status, threatened or endangered species (see discussion of sensitive habitat buffers in Part I of this Policy Document). Based on more detailed information supplied as a part of the review for a specific project or input from state or federal regulatory agency, the County may determine that such setbacks are not applicable in a particular instance or should be modified based on the new information provided. The County may, however, allow exceptions, such as in the following cases:

1. Reasonable use of the property would otherwise be denied;
2. The location is necessary to avoid or mitigate hazards to the public;
3. The location is necessary for the repair of roads, bridges, trails, or similar infrastructure; or,
4. The location is necessary for the construction of new roads, bridges, trails, or similar infrastructure where the County determines there is no feasible alternative and the project has minimized environmental impacts through project design and infrastructure placement.

**Policy 6.A.2.** The County shall require all development in the 100-year floodplain to comply with the provisions of the *Placer County Flood Damage Prevention Ordinance*.

**Policy 6.A.3.** The County shall require development projects proposing to encroach into a stream zone or stream setback to do one or more of the following, in descending order of desirability:

- a) Avoid the disturbance of riparian vegetation;
- b) Replace all functions of the existing riparian vegetation (on-site, in-kind);
- c) Restore another section of stream (in-kind); and/or
- d) Pay a mitigation fee for in-kind restoration elsewhere (e.g., mitigation banks).

**Policy 6.A.4.** Where stream protection is required or proposed, the County should require public and private development to:

- a) Preserve stream zones and stream setback areas through easements or dedications. Parcel lines (in the case of a subdivision) or easements (in the case of a subdivision or other development) shall be located to optimize resource protection. If a stream is proposed to be included within an open space parcel or easement, allowed uses and maintenance responsibilities within that parcel or easement should be clearly defined and conditioned prior to map or project approval;
- b) Designate such easement or dedication areas (as described in a. above) as open space;
- c) Protect stream zones and their habitat value by actions such as: 1) providing an adequate stream setback, 2) maintaining creek corridors in an essentially natural state, 3) employing stream restoration techniques where restoration is needed to achieve a natural stream zone, 4) utilizing riparian vegetation within stream zones, and where possible, within stream setback areas, 5) prohibiting the planting of invasive, non-native plants (such as *Vinca major* and eucalyptus) within stream zones or stream setbacks, and 6) avoiding tree removal within stream zones;
- d) Provide recreation and public access near streams consistent with other General Plan policies;
- e) Use design, construction, and maintenance techniques that ensure development near a creek will not cause or worsen natural hazards (such as erosion, sedimentation, flooding, or water pollution) and will include erosion and sediment control practices such as: 1) turbidity screens and other management practices, which shall be used as necessary to minimize siltation, sedimentation, and erosion, and shall be left in place until disturbed areas; and/or are stabilized with permanent vegetation that will prevent the transport of sediment off site; and 2) temporary vegetation sufficient to stabilize disturbed areas.
- f) Provide for long-term stream zone maintenance by providing a guaranteed financial commitment to the County which accounts for all anticipated maintenance activities.

**Policy 6.A.5.** The County shall continue to require the use of feasible and practical best management practices (BMPs) to protect streams from the adverse effects of construction activities and urban runoff and to encourage the use of BMPs for agricultural activities.

**Policy 6.A.6.** The County shall require development projects to comply with the municipal and construction stormwater permit requirements of the Federal Clean

Water Act National Pollutant Discharge Elimination System (NPDES) Phase I and II programs and the State General Municipal and Construction permits. Municipal requirements affecting project design and construction practices are enacted through the County's Stormwater Quality Ordinance. Separate construction permits may be required by and obtained through the State Water Resources Control Board.

**Policy 6.A.7.** All new development and redevelopment projects shall be designed so as to minimize the introduction of pollutants into stormwater runoff, to the maximum extent practicable, as well as minimize the amount of runoff through the incorporation of appropriate Best Management Practices.

**Policy 6.A.8.** The County shall support implementation of Low Impact Development site design and Watershed Process Management requirements for new and redevelopment projects in accordance with the NPDES Phase I and II programs, and applicable NPDES permits.

**Policy 6.A.10.** The County shall discourage grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of creeks and damage to riparian habitat.

**Policy 6.A.11.** Where the stream zone has previously been modified by channelization, fill, or other human activity, the County shall require project proponents to restore such areas by means of landscaping, revegetation, or similar stabilization techniques as a part of development activities.

**Policy 6.A.15.** The County shall encourage the protection of floodplain lands and, where appropriate, acquire public easements for purposes of flood protection, public safety, wildlife preservation, groundwater recharge, access and recreation.

**Goal 6.B** To protect wetland communities and related riparian areas throughout Placer County as valuable resources.

**Policy 6.B.1.** The County shall support the "no net loss" policy for wetland areas regulated by the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the California Department of Fish and Wildlife. Coordination with these agencies at all levels of project review shall continue to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed.

**6.B.2.** The County shall require new development to mitigate wetland loss in both federal jurisdictional and non-jurisdictional wetlands to achieve "no net loss" through any combination of the following, in descending order of desirability: (1) avoidance; (2) where avoidance is not possible, minimization of impacts on the resource; or (3) compensation, including use of a mitigation and conservation banking program that provides the opportunity to mitigate impacts to special status, threatened, and endangered species and/or the habitat which supports these species in wetland and riparian areas. Non-jurisdictional wetlands may include riparian areas that are not federal "waters of the United States" as defined by the Clean Water Act.

**Policy 6.B.3.** The County shall discourage direct runoff of pollutants and siltation into wetland areas from outfalls serving nearby urban development. Development shall be designed in such a manner that pollutants and siltation will not significantly adversely affect the value or function of wetlands.

**Policy 6.B.4.** The County shall strive to identify and conserve remaining upland habitat areas adjacent to wetlands and riparian areas that are critical to the survival and nesting of wetland and riparian species.

**Policy 6.B.5.** The County shall require development that may affect a wetland to employ avoidance, minimization, and/or compensatory mitigation techniques. In evaluating the level of compensation to be required with respect to any given project, (a) on-site mitigation shall be preferred to off-site, and in-kind mitigation shall be preferred to out-of-kind; (b) functional replacement ratios may vary to the extent necessary to incorporate a margin of safety reflecting the expected degree of success associated with the mitigation plan; and (c) acreage replacement ratios may vary depending on the relative functions and values of those wetlands being lost and those being supplied, including compensation for temporal losses. The County shall continue to implement and refine criteria for determining when an alteration to a wetland is considered a less-than significant impact under CEQA.

**Goal 6.C** To protect, restore, and enhance habitats that support fish and wildlife species so as to maintain populations at viable levels.

**Policy 6.C.1.** The County shall identify and protect significant ecological resource areas and other unique wildlife habitats critical to protecting and sustaining wildlife populations. Significant ecological resource areas include the following:

- a) Wetland areas including vernal pools.
- b) Stream zones.
- c) Any habitat for special status, threatened, or endangered animals or plants.
- d) Critical deer winter ranges (winter and summer), migratory routes and fawning habitat.
- e) Large areas of non-fragmented natural habitat, including blue oak woodlands, valley foothill and montane riparian, valley oak woodlands, annual grasslands, vernal pool/grassland complexes habitat.
- f) Identifiable wildlife movement zones, including but not limited to, non-fragmented stream environment zones, avian and mammalian migratory routes, and known concentration areas of waterfowl within the Pacific Flyway.

- g) Important spawning and rearing areas for anadromous fish.

**Policy 6.C.2.** The County shall require development in areas known to have particular value for wildlife to be carefully planned and, where possible, located so that the reasonable value of the habitat for wildlife is maintained.

**Policy 6.C.3.** The County shall encourage the control of residual pesticides to prevent potential damage to water quality, vegetation, fish, and wildlife.

**Policy 6.C.11.** Prior to approval of discretionary development permits involving parcels within a significant ecological resource area, the County requires, as part of the environmental review process, a biotic resources evaluation of the sites by a wildlife biologist, the evaluation of which is based upon field reconnaissance performed at the appropriate time of year to determine the presence or absence of special status, threatened, or endangered species of plants or animals. Such evaluation will consider the potential for significant impact on these resources and will identify feasible measures to mitigate such impacts or indicate why mitigation is not feasible. In approving any such discretionary development permit, the decision-making body shall determine the feasibility of the identified mitigation measures.

Significant ecological resource areas shall, at a minimum, include the following:

- a. Wetland areas including vernal pools.
- b. Stream zones.
- c. Any habitat for special status, threatened or endangered animals or plants.
- d. Critical deer winter ranges (winter and summer), migratory routes and fawning habitat.
- e. Large areas of non-fragmented natural habitat, including blue oak woodlands, valley foothill and montane riparian, valley oak woodlands, annual grasslands, vernal pool/grassland complexes habitat.
- f. Identifiable wildlife movement zones, including but not limited to, non-fragmented stream environment zones, avian and mammalian migratory routes, and known concentration areas of waterfowl within the Pacific Flyway.
- g. Important spawning and rearing areas for anadromous fish.

**Goal 6.D** To preserve and protect the valuable vegetation resources of Placer County.

**Policy 6.D.2.** The County shall require developers to use native and compatible non-native species, especially drought-resistant species, to the extent possible in fulfilling landscaping requirements imposed as conditions of discretionary permits or for project mitigation.

**Policy 6.D.3.** The County shall support the preservation of outstanding areas of natural vegetation, including, but not limited to, oak woodlands, riparian areas, and vernal pools.

**Policy 6.D.5.** The County shall establish procedures for identifying and preserving special status, threatened, and endangered plant species that may be adversely affected by public or private development projects.

**Policy 6.D.14.** The County shall require that new development avoid ecologically-fragile areas (e.g., areas of special status, threatened, or endangered species of plants, and riparian areas). Where feasible, these areas should be protected through public or private acquisition of fee title or conservation easements to ensure protection.

**Goal 6.E** To preserve and enhance open space lands to maintain the natural resources of the County.

**Policy 6.E.2.** The County shall require that new development be designed and constructed to preserve the following types of areas and features as open space to the maximum extent feasible:

- a. High erosion hazard areas;
- b. Scenic and trail corridors;
- c. Streams, riparian vegetation;
- d. Wetlands;
- e. Significant stands of vegetation;
- f. Wildlife corridors; and
- g. Any areas of special ecological significance.

**Goal 7.A** To provide for the long-term conservation and use of agriculturally-designated lands.

*Placer County Stormwater Quality Ordinance*

Article 8.28 (Stormwater Quality) of the Placer County code prohibits any person to make or cause to be made any illicit discharge into the storm drain system and requires that any person subject to any individual and/or industrial NPDES stormwater discharge permit comply with all provisions of such permit and any regulations or ordinances promulgated thereto, including requirements of the grading and erosion prevention ordinance of Placer County (Article 15.48), discussed below. Furthermore, this ordinance requires that any person engaging in activities that may result in pollutants



entering the storm drain system to implement best management practices and, where applicable, strategies of the West Placer and East Placer Storm Water Quality Design Manuals to the maximum extent practicable to prevent and reduce such pollutants.

Placer County Grading and Erosion Prevention Ordinance

Article 15.48 (Grading, Erosion and Sediment Control) of Placer County code prohibits any grading to be carried out in such a manner that quantities of dirt, soil, rock, debris, or other material substantially more than natural levels are washed, eroded, or otherwise moved from the site, except as specifically provided for by a permit. This ordinance further prohibits any grading which may obstruct, impede, or interfere with the natural flow of stormwaters, in such manner as to cause flooding where it would not otherwise occur, aggravate any existing flooding condition, or cause accelerated erosion.

Placer County Tree Protection and Preservation

Article 19.50 (Woodland Conservation) of Placer County code prohibits any person, firm, corporation, or county agency from conducting any development activities within the protected zone of any protected tree on public or private land, or to harm, destroy, kill or remove any protected tree unless authorized by a tree permit or as permitted pursuant to approval of a discretionary project.

Trees are defined in this ordinance as any tall woody plant native to California, with a single main stem or trunk at least six inches diameter at breast (standard) height (dbh) (i.e., 54 inches above the ground surface), or a multiple trunk with an aggregate of at least ten (10) inches dbh. For all oak species (*Quercus* sp.) the woody plant is considered a tree when the single main stem is five inches dbh or larger. Foothill pines are exempt, and certain plants which are more commonly found as “brush,” such as manzanita, are not considered to be a tree regardless of size. “Protected tree” means any tree, as defined, including a landmark tree, for which a tree permit is required prior to any removal or development activity being conducted within the protected zone. “Landmark tree” means a tree or grove of trees designated by resolution of the board of supervisors to be of historical or cultural value, an outstanding specimen, an unusual species and/or of significant community benefit. A tree that is not native to California may be designated as a landmark tree.

Furthermore, the approval of a tree permit or discretionary approval for any development activity within a riparian zone cannot occur until environmental impacts within the riparian zone are identified, an environmental determination is made, and the mitigation measures identified. Additionally, no development activity may be permitted until any Lake and Streambed Alteration Agreement or other mitigation measures required by the California Department of Fish and Wildlife have been completed.

Except for developed, single-family residential lots that cannot be subdivided, the removal of more than fifty (50) percent of existing native trees, measuring six inches or greater in dbh, shall be subject to the issuance of a tree permit. Failure to obtain a

permit prior to the removal of more than fifty (50) percent of the existing native trees in these areas may result in the denial or deferral of any application for development of that property for a period of up to ten (10) years. When the tree is an oak species (*Quercus* sp.), the standard applies to all trees measured at five inches dbh or greater.

### 3.4.2 Environmental Setting

The project area is located within the Central California Valley Northern Terraces ecoregion of California, which is defined by gently sloping terraces and alluvial fans (Griffith et al. 2016). The region features rolling grasslands used mostly for dryland range and pasture, interspersed with vernal pools in some areas, and tends to lack the extent of oak woodlands present in upslope regions. The project area consists of previously-leveled fields surrounded by berms and access roads that are either in rice or almond production, or consist of patches of annual grassland used in the past for grazing and hay production.

The project region is defined by a “Mediterranean” climate (Mediterranean California subregion of the Arid West Region), which is characterized by relatively warm, wet winters and dry summers with most of the precipitation falling between November and April (Environmental Laboratory 2010). Rainfall averages approximately 18.15 inches annually, with most of the precipitation occurring from December to March (WRCC 2021). Site hydrology consists of combination of natural, direct seasonal precipitation in the winter/early spring and agricultural irrigation practices during the late spring and summer. This includes the deliberate flooding of fields for rice production and drip irrigation of almond orchards. Rice fields are also often flooded in late fall, after the harvest, to promote decomposition and provide habitat for migratory waterfowl and shorebirds that overwinter in the Central Valley. The project area overlaps portions of the Curry Creek and Upper Steelhead Creek watersheds, and the Pleasant Grove Creek watershed immediately to the north, which flow west and south toward the Sacramento River (see Exhibit 3.10-1. Watersheds in Section 3.10. Hydrology and Water Quality). One named drainage (Curry Creek) and several unnamed drainages, all of which have been channelized through the site, traverse the project area flowing generally from east to west.

Surrounding land uses include additional rice fields and almond orchards, irrigated pastures grazed by cattle, urban development in the City of Roseville, and open space areas that support seasonal wetlands, riparian habitat, and annual grassland vegetation. Much of the region is privately owned and developed for agricultural, industrial, residential, and transportation uses.

The biological study area for this draft EIR encompasses the locations of all project components and options under evaluation, as well as adjacent lands that were surveyed by AECOM biologists as part of this evaluation. To support a conservative approach to project planning and environmental review, biological surveys were conducted within the entire approximately 1,180-acre project area, defined as including all proposed solar panel installation areas, substation, switchyard, and battery storage facility, plus a 200-

foot-wide survey buffer centered on linear project elements (i.e., the electrical collection line). Biological resources studies conducted within the project area included surveys for vegetation types; wetlands and other waters of the U.S. and state; a habitat assessments for wildlife; an evaluation of potential for special-status species to occur onsite, and protocol level special-status plant surveys.

#### 3.4.2.1 *Topography and Soils*

Site topography is generally flat (0–5%), with elevations ranging from approximately 58 feet to 100 feet above mean sea level (MSL). According to Natural Resources Conservation Service (NRCS) Soil Survey of Placer County, California (NRCS 2021), the soils within the biological study area belong to five soil series: Alamo-Fiddymment complex, 0 to 5 percent slopes; Cometa-Fiddymment complex, 1 to 5 percent slopes; Fiddymment loam, 1 to 8 percent slopes; Fiddymment-Kasenberg loams, 2 to 9 percent slopes; San Joaquin-Cometa sandy loams, 1 to 5 percent slopes; and Xerofluvents, hardpan substratum. A complete description of soils on the project area and a map of their locations is available in the Aquatic Resources Delineation Report (AECOM 2022) (Appendix BR-2).

Alamo soils are poorly drained with a strongly cemented duripan, while the other soils on site are moderately to well-drained (NRCS 2021). Alamo soils are sticky and blocky in structure, with neutral pH; and Fiddymment and Cometa soils are slightly acidic, friable sandy loams (NRCS 2021).

#### 3.4.2.2 *Vegetation Communities/Habitat Types*

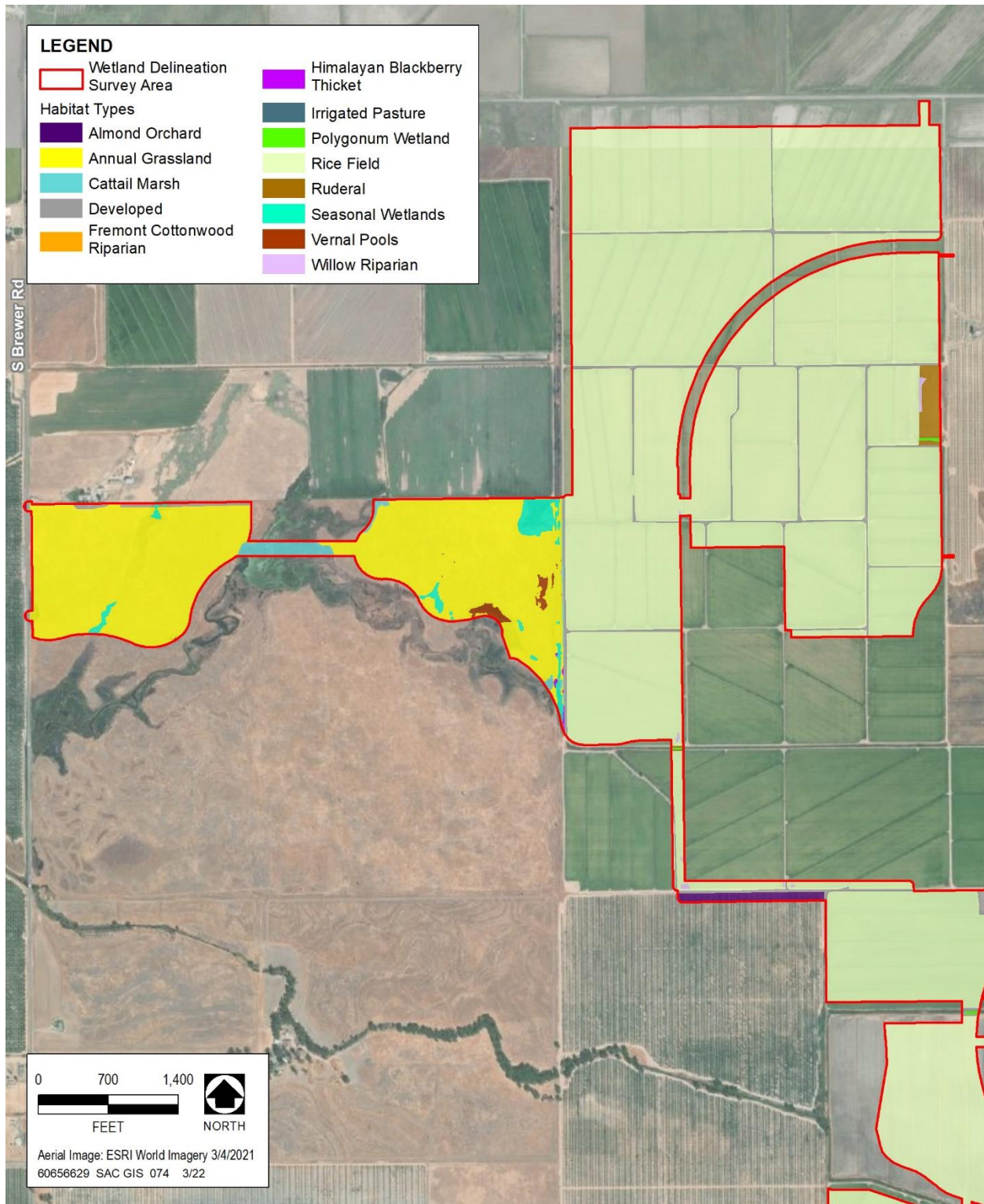
Vegetation communities/habitat types in the biological study area are described below, as documented by AECOM biologists during field survey efforts in conducted on April 7<sup>th</sup> – April 9<sup>th</sup>, April 16<sup>th</sup>, April 22<sup>nd</sup>, April 23<sup>rd</sup>, April 26<sup>th</sup>, April 27<sup>th</sup>, April 30<sup>th</sup>, July 14<sup>th</sup>, August 16<sup>th</sup>, August 18<sup>th</sup>, and August 31<sup>st</sup>, 2021 by AECOM and Bargas biologists. In addition, Eric C. Hansen, Consulting Environmental Biologist, conducted a *Giant Garter Snake* (*Thamnophis gigas*) *Habitat Assessment on the SMUD Country Acres Solar Project, Placer County, California* in May and August 2021 (Hansen 2022). A map of their location and extent in the study area is shown in Exhibit 3.4-1 below.

A map of vegetation communities/habitat type locations and extents in the project area, is shown in Exhibit 3.4-2 and Exhibit 3.4-3 below.

The Manual of California Vegetation was used to describe vegetation communities to the alliance level when possible (CNPS 2021); however, some communities such as rice fields and irrigated pasture do not conform to Manual of California Vegetation (MCV) alliance types. All vascular plant species observed during the field surveys, along with their wetland indicator status are listed in the Aquatic Resources Delineation Report (AECOM 2022) (Appendix BR-2). Table 3.4-1 below lists the vegetation communities as well as several non-vegetated land cover types mapped within the study area, cross referenced to habitat classifications in the PCCP.

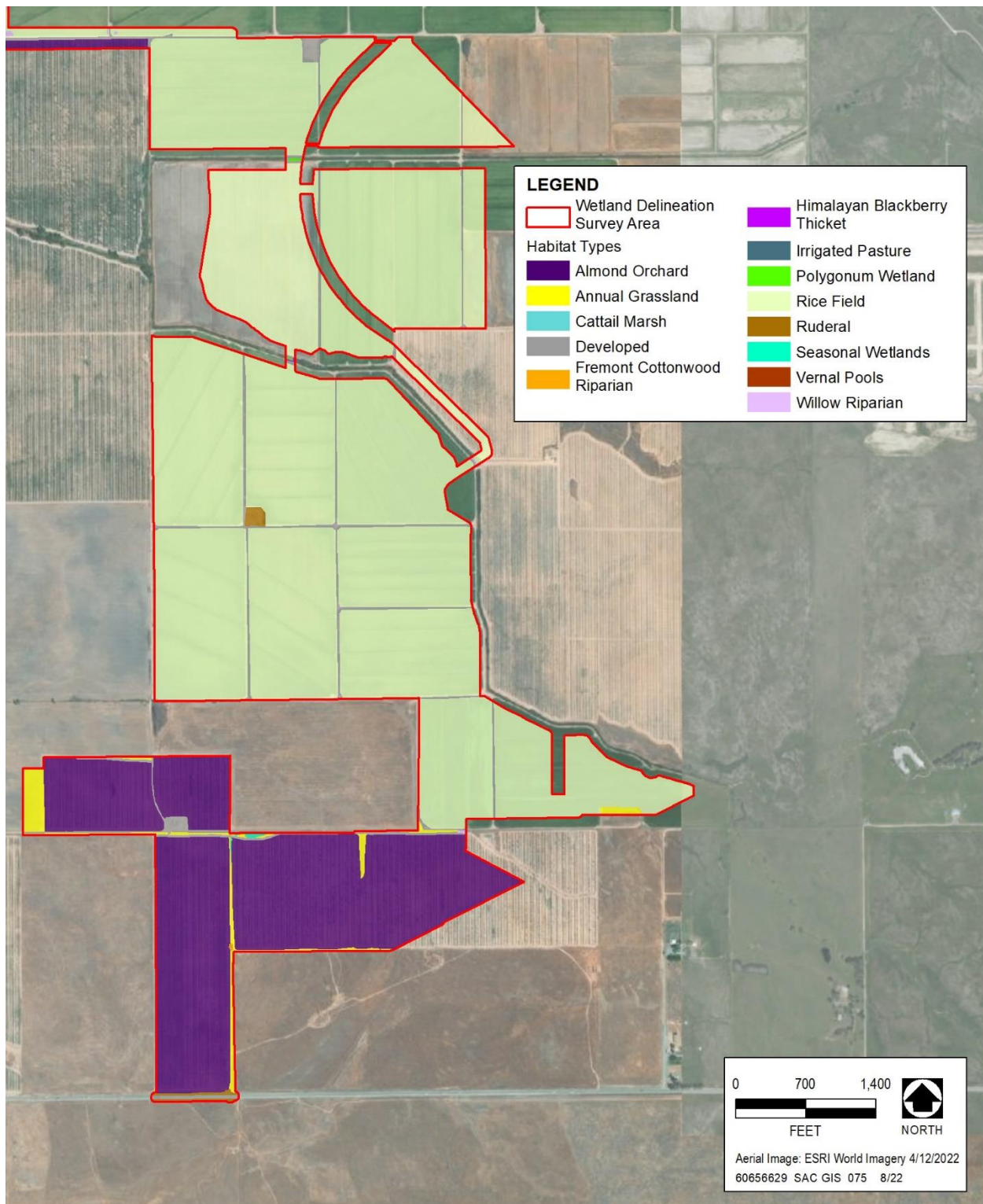
Habitat for common and special status wildlife includes annual grassland habitat, ruderal vegetation, vernal pools, seasonal and perennial wetlands, and irrigated fields within and surrounding the project area. Orchards also provide some habitat functions for wildlife. The vegetation communities in the project area provide important foraging habitat for migratory bird species, raptors, and based on CNDDDB data (CDFW 2021, Appendix BR-1), tricolored blackbird. Riparian and emergent marsh vegetation within and surrounding the project area provide suitable cover, nesting, and foraging habitat for numerous birds. A pair of red-tailed hawks were observed nesting in a large oak at the Curry Creek Confluence with rice drainages onsite on April 16, 2021. Common wildlife species and their sign observed during field surveys include mourning dove (*Zenaida macroura*), American robin (*Turdus migratorius*), Eurasian pheasant (*Phasianus colchicus*), western meadowlark (*Sturnella neglecta*), red-winged

blackbird (*Agelaius phoeniceus*), turkey vulture (*Cathartes aura*), western kingbird (*Tyrannus verticalis*), brewers blackbird (*Euphagus cyanocephalus*), common raven (*Corvus corax*), American bittern (*Botaurus lentiginosus*), northern mockingbird (*Mimus polyglottos*), multiple small – medium sized burrows, and notable badger (*Taxidea taxus*) sign.



**Exhibit 3.4-2. Vegetation Communities/Habitat Types in the Project Area**





**Exhibit 3.4-3. Vegetation Communities/Habitat Types in the Project Area**

Annual grassland habitat within the study area may act as suitable cover for ground nesting birds as well as potentially suitable foraging habitat for multiple predatory bird species. While both agricultural rice fields and annual grassland serve as habitat for a wide variety of wildlife present within the biological study area, almond orchards are less habitable to wildlife and are more like developed lands due to ongoing heavy disturbance throughout the year for pruning, harvesting, mowing, and spraying of herbicides and pesticides.

Aquatic vegetation communities include cattail (*Typha* sp.) marsh, seasonal wetland, vernal pools, and smartweed (*Polygonum* sp.) patches. Riparian vegetation communities in the biological study area comprise small and discontinuous patches of Himalayan blackberry (*Rubus armeniacus*) and sandbar willow (*Salix exigua*) thickets. Most wetlands and riparian areas in the biological study area occur along ditches and drainages and are influenced by artificial hydrology related to rice field management. Wetlands, along with patches of riparian shrubs and trees scattered throughout the biological study area, offer suitable nesting and foraging habitat for migratory waterfowl as well as other wildlife.

Table 3.4-1 summarizes the vegetation communities as well as several non-vegetated land cover types mapped within the biological study area. The PCCP defines land cover types and constituent habitats as part of their conservation development strategy (PCCP 2020). Table 3.4-1 includes a cross-walk to PCCP nomenclature for each vegetation community/land cover type mapped in the project area.

**Table 3.4-1. Vegetation Communities/Habitat Types Mapped in the Biological Study Area for the SMUD Country Acres Solar Project**

<b>Vegetation Community/ Land Cover Type</b>	<b>Cross-Walk to PCCP Land Cover Type(s)</b>	<b>Acres</b>
Almond Orchard	Orchard	139.4
Annual Grassland	Grassland	117.4
Cattail Marsh	Marsh Complex	4.2
Developed	Barren/Industrial and Road	31.6
Fremont Cottonwood Riparian	Riverine/Riparian Complex	0.1
Himalayan Blackberry Thicket	Riverine/Riparian Complex	0.2
Irrigated Pasture	Grassland	0.03
Polygonum Patches	Riverine/Riparian Complex	0.3
Rice Field	Rice	872.8
Ruderal	Grassland	6.5
Seasonal Wetland	Aquatic/Wetland Complex	5.3
Vernal Pool	Vernal Pool Complex	1.5
Sandbar Willow Riparian	Riverine/Riparian Complex	0.6
	<b>TOTAL</b>	<b>1,179.93</b>

PCCP = Placer County Conservation Program; AECOM 2022



#### 3.4.2.3 *Agricultural and Upland Communities*

Agricultural and upland communities account for the majority of the study area and comprise rice fields, almond orchards, irrigated pasture, annual grassland, developed, and ruderal areas. Most of these vegetation communities are inherently disturbed and experience historic and consistent human influence. Although both agricultural rice fields and annual grassland are heavily disturbed community types, they both function as habitat for a wide variety of wildlife present within the study area, as discussed below.

#### 3.4.2.4 *Rice Field*

Most of the study area consists of active-production rice fields amidst a network of ditches and canals, all of which are surrounded by adjacent access roads. Multiple pump stations are located throughout the project area to pull water from several channelized drainages and associated network of connected canals that traverse the site. During the growing season, excess irrigation water flows through the site and into channelized drainages located in the west-central portion of the study area, which continue to flow to the west to return excess irrigation water to surface waters (i.e., Curry Creek) and out of the study area. Fields are drained at the end of the growing season and allowed to dry prior to fall harvest. Water is pumped into rice fields again in late fall and winter to facilitate straw decomposition and provide waterfowl habitat (Shaffer 2001). Rice fields provide habitat for migrating waterfowl, shorebirds, and other wildlife when fields are flooded. Rice fields may provide habitat for giant garter snake (*Thamnophis gigas*) in the Central Valley as an artificial proxy for historic Central Valley wetlands. However, giant garter snake have never been observed in Placer County and a project specific assessment (Hansen 2022) which takes into account the results of field surveys, trapping and rigorous, published models (i.e., best available data) indicate presence is highly unlikely.

#### 3.4.2.5 *Almond Orchard*

After rice fields, almond orchard is the most prevalent land cover type in the study area. Portions of the northeastern and eastern boundaries of the study area overlap with almond orchards, and the southern extent of the study area consists entirely of almond orchards. All almond orchards in and adjacent to the study area are newly planted. These orchards consist of rows of planted almond trees that are less than 10 feet in height and are highly disturbed by regular human disturbance, including pruning of trees, mowing of vegetation between rows, harvesting of fruit, application of drip irrigation throughout the summer growing season, and pesticide/herbicide application activities. Ruderal (i.e., weedy) vegetation is common throughout the almond orchards and is dominated by field bindweed (*Convolvulus arvensis*) intermixed with curly dock (*Rumex crispus*). Almond orchards provide habitat for a variety of common and special-status wildlife species.

#### 3.4.2.6 *Annual Grassland*

The annual grassland vegetation community in the project area can be best described as an *Avena* (*barbata*, *fatua*) Herbaceous Semi-Natural Alliance, according to the Manual of California Vegetation (CNPS 2021). This vegetation alliance typically is dominated by nonnative wild oats (*Avena barbata* and/or *Avena fatua*). Grasslands in the study area have been disturbed by past and ongoing human activities including grazing, hay production, disking and grading. Small patches of highly disturbed annual grassland are present in the central and southern extents of the project area, surrounded by rice fields and almond orchards, that are regularly disturbed by vehicle traffic and shallow disking.

In the project area, grassland vegetation cover is dominated by nonnative annual grasses consisting of wild oats, medusahead (*Elymus caput-medusae*), ripgut brome (*Bromus diandrus*), softchess brome (*Bromus hordeaceus*), and brome fescue (*Festuca bromoides*), as well as a mixture of native and nonnative herbs, including miniature lupine (*Lupinus bicolor*), wild radish (*Raphanus sativus*), filaree (*Erodium botrys*), and narrow tarplant (*Holocarpha virgata*).

Annual grassland habitat within the study area may act as suitable cover for ground nesting birds as well as potentially suitable foraging habitat for multiple predatory bird species.

#### 3.4.2.7 *Irrigated Pasture*

Irrigated pastures border the north and west of the project area. These pastures are grazed by cattle herds year-round and, based on a review of aerial imagery, appear to receive supplemental irrigation during the dry season (typically May through September) to provide permanent green pasture forage for resident livestock. The pastures appear to be irrigated by overland surface flow, with water pumped from a network of surface canals and ditches and then allowed to sheet across the landscape from north to south toward annual grasslands in the study area, with excess field runoff captured in a ditch along the northwest side of the study area that connects to a perennial emergent marsh that is adjacent to a perennial creek drainage that flows off-site to the west and south. Vegetation in the irrigated pasture community is similar to that of the annual grassland, described above.

#### 3.4.2.8 *Developed*

Developed areas include graveled and compacted dirt roadways that border rice fields and orchards, as well as apiaries (bee boxes) situated along the edges of almond orchards. These developed areas are highly disturbed and devoid of vegetation.

#### 3.4.2.9 *Ruderal*

Ruderal vegetation is present throughout the study area in locations that have been previously filled and graded, such as along roads, parking areas, fence lines, and in

equipment staging and storage areas; and in between rows of planted almond trees in orchards. This vegetation community can be best described as a *Brassica nigra*–*Raphanus* (spp.) Herbaceous Semi-Natural Alliance, (CNPS 2022). According to the Manual of California Vegetation this vegetation alliance typically is dominated by mustards (*Brassica*, *Hirschfeldia*) or other ruderal forbs. In the study area, ruderal areas consist of sparse herbaceous cover, dominated by yellow star thistle (*Centaurea solstitialis*), field mustard (*Hirschfeldia incana*), and field bindweed.

#### 3.4.2.10 Wetland Vegetation Communities

Wetland habitats are present within the study area and include cattail marsh, seasonal wetlands, vernal pools, and polygonum patches. The location and extent of these habitats is shown in the Aquatic Resources Delineation Report (AECOM 2022) in Appendix BR-2 of this Draft EIR and their acreages in the project area as classified in the assessment is summarized in Table 3.4-2 below. The Aquatic Resources Delineation Report has not been verified by the USACE; coordination with the USACE regarding the jurisdictional status of aquatic resources is currently ongoing. A verified Aquatic Resources delineation report will be used as the baseline for project permitting.

Wetland habitat in the project region is important to the continued survival of special-status species including vernal pool fairy shrimp (*Branchinecta lynchi*) and western spadefoot (*Spea hammondi*) that may also occur in vernal pools and seasonal wetlands in the study area. Wetlands also offer suitable nesting and foraging habitat for migratory waterfowl as well as other wildlife in the Central Valley.

#### 3.4.2.11 Cattail Marsh

A total of 4.2 acres of cattail marsh vegetation is present in the study area where shallow water is present for long periods of time, such as in the center of agricultural canals and channelized drainages that border rice fields, as well as in the floodplains of natural creek drainages. The cattail marsh vegetation community can be best described as a *Typha* (*angustifolia*, *domingensis*, *latifolia*) Herbaceous Alliance, according to the Manual of California Vegetation (CNPS 2021). This vegetation alliance is dominated by one or more species of cattails (i.e., narrow leaf cattail [*Typha angustifolia*], southern cattail [*Typha domingensis*], and/or broadleaf cattail [*Typha latifolia*]) in the herbaceous layer with common wetland plants, including sedges (*Cyperus* spp.) and rushes (*Juncus* spp.). Emergent trees may also be present at low cover, including willows (*Salix* spp.). In the study area, the cattail marsh vegetation community is dominated by broadleaf cattail with spikerush (*Eleocharis macrostachya*), iris-leaved rush (*Juncus xiphioides*), hyssop loosestrife (*Lythrum hyssopifolium*), soft rush (*Juncus effusus*), tall flatsedge (*Cyperus eragrostis*), barnyard grass (*Echinochloa crus-galli*), rabbitsfoot grass (*Polypogon monspeliensis*), and smartweed (*Persicaria* sp.).

#### 3.4.2.12 Seasonal Wetland

A total of 5.3 acres of seasonal wetlands are present in the project area. Seasonal wetlands support annual and perennial native and nonnative wetland plant species. This

habitat type typically resembles a wetland community during the wet season and for a few weeks following the end of the wet season, drying up rapidly with the onset of summer. Seasonal wetlands form in seasonally flooded or saturated soils in depressions in ruderal or grassland areas, and, in the western portion of the study area, at the edges of (i.e., adjacent to) ditches and drainages. The seasonal wetland vegetation community conforms to a combination of the *Eleocharis macrostachya* Herbaceous Alliance and the *Lolium perenne* [*Festuca perennis*] Herbaceous Semi-Natural Alliance, both of which are associated with areas that are flooded for part of the growing season with fresh water (CNPS 2022). In these vegetation communities, pale spikerush (*Eleocharis macrostachya*) and/or Italian rye grass (*Festuca perennis*) are dominant or co-dominant in the vegetative layer and contribute 30 percent or more relative cover.

Dominant plant species in seasonal wetlands in the study area include Italian ryegrass, spikerush, tall flatsedge, willow herb, hyssop loosestrife, curly dock, prickly lettuce, hawkbit, seaside barley (*Hordeum marinum*), Mediterranean beard grass (*Polypogon maritimus*), and popcornflower (*Plagiobothrys stipitatus*).

#### 3.4.2.13 Vernal Pools

A total of 1.5 acres of vernal pools are present in the project area. Vernal pools are a type of seasonal wetland that support low-growing, herbaceous plant communities dominated by annual plants, and are typically characterized by a high percentage of native plant species, many of which may be endemic (restricted) to vernal pools. The vernal pool vegetation communities in the study area conform to the *Lasthenia glaberrima* Herbaceous Alliance and the *Lasthenia fremontii*-*Downingia (bicornuta)* Herbaceous Alliance (CNPS 2022). The smooth goldfields (*Lasthenia glaberrima*) alliance is associated with vernal pool bottoms and vernal marsh, where soils have long periods of inundation, while the Fremont's goldfields (*Lasthenia fremontii*) alliance is associated with shallow vernal pool bottoms or edges (CNPS 2022). Both communities are found on hardpan geomorphic surfaces or volcanic substrates, and the smooth goldfields alliance is also associated with claypan vernal pool habitat (CNPS 2022).

Vernal pools in the study area were either dominated by smooth goldfields or Fremont's goldfields. Other species commonly associated with vernal pools and observed in association with goldfields in vernal pools in the study area include coyote thistle (*Eryngium vaseyi*), vernal pool buttercup (*Ranunculus bonariensis* var. *trisepalus*), vernal-pool Indian-paintbrush (*Castilleja campestris*), annual hairgrass (*Deschampsia danthanioides*), dwarf woolly marbles (*Psilocarphus brevissimus*), Oregon woolly marbles (*Psilocarphus oregonus*), white-flower pincushion-plant (*Navarretia leucocephala*), double-horn calico-flower (*Downingia bicornuta*), bractless hedge-hyssop (*Gratiola ebracteata*), water-starwort (*Callitriche* sp.), toad rush (*Juncus bufonius*), and water pygmyweed (*Crassula aquatica*).

#### 3.4.2.14 *Polygonum Patches*

Continuous patches of smartweed (*Polygonum lapathifolium* [= *Persicaria lapathifolia*]) were common throughout the study area in the centers of ditches, canals, and channelized creeks in open areas with no tree or shrub canopy. This habitat type occupies 0.3 acre. This vegetation community can be best described as the *Polygonum lapathifolium*-*Xanthium strumarium* Herbaceous Alliance – Smartweed-cocklebur patches (CNPS 2022). According to the Manual of California Vegetation, this vegetation alliance typically is dominated by smartweed and/or cocklebur or other knotweed species that are dominant or co-dominant in the herbaceous layer and are often associated with disturbed stream terraces on clay-rich or silty soils. In the study area, the polygonum wetlands consisted of monoculture patches of smartweed growing below the ordinary high water mark in the centers and along the lower banks of channelized ditches and streams.

#### 3.4.2.15 *Riparian Vegetation Communities*

Riparian habitat is present in several locations within the biological study area and accounts for 0.9 acres. These riparian communities include Fremont cottonwood riparian (0.1 acre), Himalayan blackberry thicket (0.2 acre), and sandbar willow riparian (0.6 acres). Riparian vegetation communities in the biological study area comprise small and discontinuous patches along ditches and drainages. Typically, however, they are more structurally diverse in plant and animal biomass than adjacent upland areas. Riparian areas supply food, cover, and water for a large diversity of animals, and serve as migration routes and connectors between habitats for a variety of wildlife. These communities provide suitable cover, foraging, and nesting habitat for a variety of avian species as well as a critical migration corridor amidst extensive disturbed and agricultural land.

#### 3.4.2.16 *Fremont Cottonwood Riparian*

Small, discontinuous patches of small- to medium-sized Fremont cottonwood (*Populus fremontii*) trees occur along the banks of agricultural canals and ditches in the study area, forming a patchy riparian tree canopy along canal banks with sandbar willow and an intermittent shrub layer of Himalayan blackberry and poison oak.

#### 3.4.2.17 *Sandbar Willow Riparian*

Small, discontinuous patches of sandbar willow riparian scrub are common throughout the study area along ditches, canals, and drainages. This vegetation community type is best described as the *Salix exigua* Shrubland Alliance, where sandbar willow is dominant or co-dominant in the shrub canopy with Himalayan blackberry (CNPS 2022). Emergent trees, including black willow and Fremont cottonwood, are also present at low relative cover.

### 3.4.2.18 *Himalayan Blackberry Thicket*

Dense thickets of Himalayan blackberry (*Rubus armeniacus*) are present throughout the study area, typically along the banks of ditches, canals, and channelized streams with some thickets also occurring as isolated patches along fence lines in grassland habitat. This vegetation community is most like the Himalayan blackberry-rattle box-edible fig riparian scrub vegetation alliance (CNPS 2022). For the most part, the Himalayan blackberry thickets in the study area form large monoculture stands. However, in some areas, Himalayan blackberry is co-dominant with poison oak (*Toxicodendron diversilobum*) and sweet briar (*Rosa rubiginosa*).

### 3.4.2.19 Waters of the United States and Waters of the State

Aquatic resources in the biological study area were delineated by AECOM in 2021. The Aquatic Resources Delineation Report is included in Appendix BR-2 of this Draft EIR and includes detailed mapping of all aquatic features, along with detailed justification of the preliminary determination as jurisdictional under Section 404 of the Federal Clean Water Act (CWA) or as Waters of the State under the Porter Cologne Act (AECOM 2022). It should be noted that the Aquatic Resources Delineation has not been verified by the USACE and coordination with the USACE and RWQCB is ongoing. Based on the Aquatic Resources Delineation Report (Appendix BR-2), the project area contains 9.339 acres of CWA 404 potentially jurisdictional features (wetlands [8.601 acres] and other waters [0.738 acre]) (Table 3.4-2), and 1.899 acres of Porter-Cologne potentially jurisdictional features (AECOM 2022) (Table 3.4-3). The remainder of the project area is made up of highly disturbed agricultural and upland habitat as described above. The project area also contains 872.4 acres of rice fields, which the Aquatic Resources Report currently describes as “prior converted croplands” as determined by the Natural Resources Conservation Service (NRCS)(AECOM 2022, Appendix BR-2). Preliminary coordination with the regulatory agencies has indicated that the site may not meet Prior Converted Cropland criteria. Therefore, the current delineation and report may not be adequate to determine the jurisdictional status of the rice fields. Staff from Region 9 of the Environmental Protection Agency have advised that the rice fields should be considered and additional data is currently being analyzed. The additional data, therefore, may change the data provided in Tables 3.4-2 and 3.4-3 below.

**Table 3.4-2. Clean Water Act 404 Potentially Jurisdictional Features**

<b>Wetlands and Other Waters of the United States</b>	<b>Acres</b>
Tributaries (drainages)	0.738
Adjacent Seasonal Wetlands	3.64
Seasonal Wetland Swales	0.659
Cattail Marsh (PEM)	3.464
Vernal Pool	0.838
<b>Total Section 404 Potentially Jurisdictional Features</b>	<b>9.339</b>

Source: Data compiled by AECOM in 2021

**Table 3.4-3. Porter-Cologne Potentially Jurisdictional Features**

<b>Isolated Wetlands and Other Waters, and Uplands</b>	<b>Acres</b>
Seasonal Wetlands	1.012
Vernal Pools	0.640
Drainage Ditches	0.247
<b>Total Porter-Cologne Potentially Jurisdictional Features</b>	<b>1.899</b>

#### *3.4.2.20 Special-Status Species*

For the purpose of this analysis, special-status species are plants and animals that fall within any of the following categories:

- Species that are listed under the federal ESA and/or CESA as rare, threatened, or endangered
- Species considered as candidates and proposed for federal or state listing as threatened or endangered
- Wildlife designated by CDFW as fully protected and/or species of special concern
- Plants ranked by CDFW to be rare, threatened, or endangered in California
- Plants ranked by the California Native Plant Society (CNPS) as one of California Rare Plant Ranks (CRPRs):
  - List 1A—Plants presumed to be extinct in California
  - List 1B—Plant species considered rare, threatened, or endangered in California and elsewhere
  - List 2—Plant species considered rare, threatened, or endangered in California but more common elsewhere
  - List 3—Plants about which more information is needed (a review list)
  - List 4—plants of limited distribution (a watch list)
- Each CRPR category may include an extension indicating the level of endangerment in California:
  - 1—Seriously endangered in California (more than 80 percent of occurrences are threatened and/or high degree and immediacy of threat)
  - 2—Fairly endangered in California (20–80 percent of occurrences are threatened)
  - 3—Not very endangered in California



A list of special-status species known from or with potential to occur in the project area was compiled using information provided in the USFWS IPaC resource list for Placer County (USFWS 2022), and a search of the CDFW CNDDDB database and CNPS Online Inventory of Rare and Endangered Plants for the following local U.S. Geological Survey (USGS) quadrangles (USGS 2018a-i): Pleasant Grove, Citrus Heights, Roseville, Lincoln, Taylor Monument, Rio Linda, Verona, Nicolaus, and Sheridan (CNPS 2022). These resources are provided in Appendix BR-1 of this draft EIR.

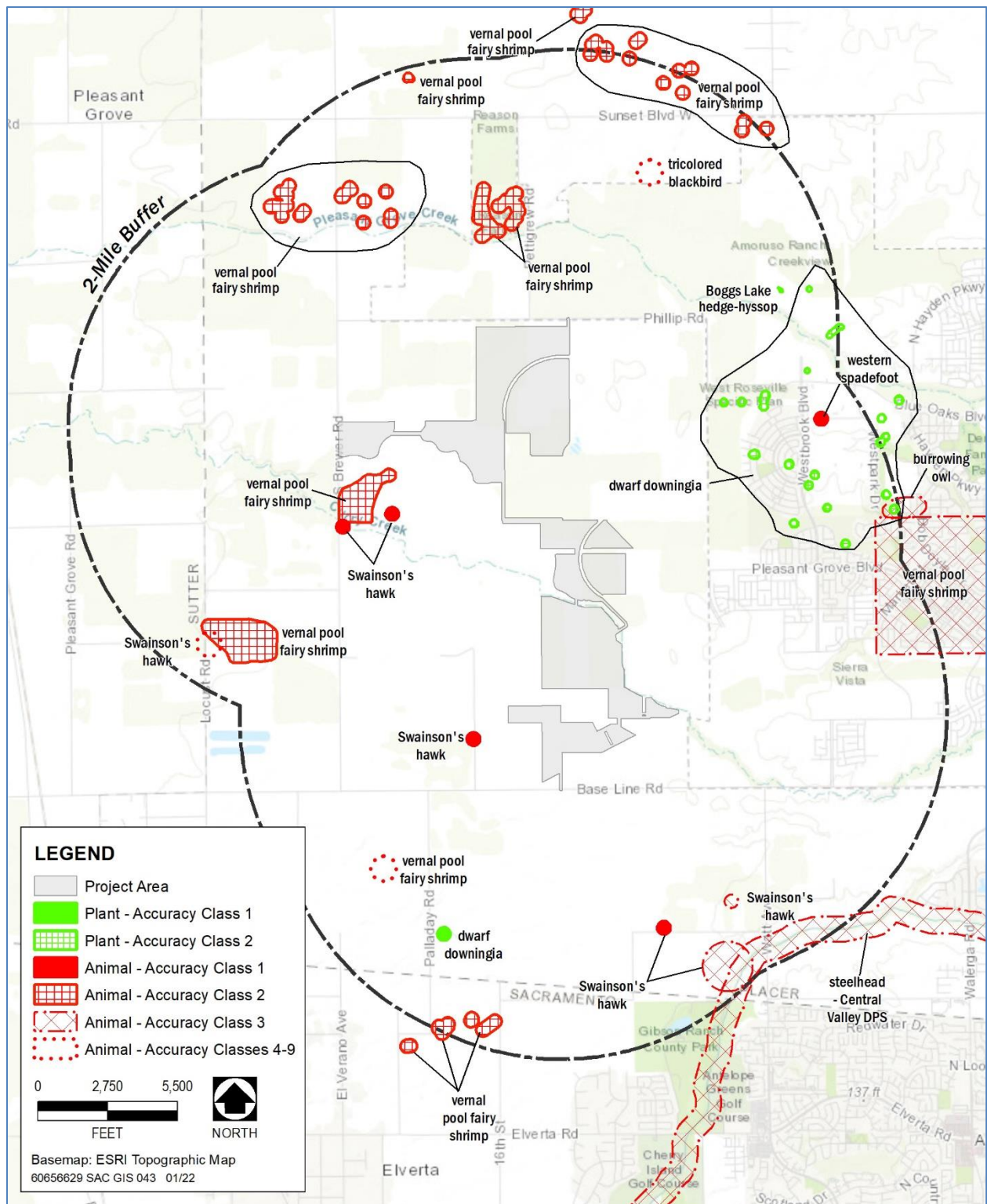
Records of special status species within two miles of the study area as reported in the CNDDDB are shown in Exhibit 3.4-4.

#### *3.4.2.21 Special-Status Plants*

Database searches initially identified 13 special-status plant species occurring in the project region. Of these, six special-status plant species have the potential to occur within the project area based on the presence of suitable habitat (Table 3.4-4). A brief description of these six species is provided below. The remaining seven species have no potential to occur within the biological study area because they are restricted to elevations or habitats (e.g., serpentinite, chaparral) that are not present in the biological study area; therefore, these species are not addressed in this EIR. Information on all 13 special-status plant species originally identified in database searches, along with detailed information on the habitat requirements and potential for occurrence is included in Table BR-1a in Appendix BR-1.

The 10% designs for the project were developed to completely avoid all vernal pools and seasonal wetlands and a 250-foot buffer around these resources. Thus, plant species that only occur in vernal pools, such as *legenera* and *pincushion navarretia* will not be impacted by the proposed project.

Protocol level surveys for plant species with potential to occur in habitats in the project impact area (such as mesic areas in grasslands and, ditches and canals) were conducted by AECOM biologists on May 5 and 6, 2022. No special-status plants were documented. Thus, special-status plants are absent from the project area at this time.



**Exhibit 3.4-4. CNDDDB records of special-status species within 2 miles of the SMUD Country Acres Project Area**

**Table 3.4-4. Special Status Plants with Potential to Occur in the SMUD Country Acres Solar Project Area**

Scientific Name	Common Name	Regulatory Status	Habitat Description and Blooming Period
<i>Downingia pusilla</i>	dwarf downingia	California Rare Plant Rank 2B.2	Inhabits vernal pools and mesic sites in valley and foothill grassland at elevations from 5 feet to 1,460 feet above mean sea level (amsl). Blooms March through May. Targeted during 2022 focused surveys; not documented in project area.
<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	California Endangered; California Rare Plant Rank 1B.2	Found on clay soils along lake margins, vernal pools, and other mud and shallow water sites at elevations from 35 to 7,790 feet amsl. Blooms from April through August. Suitable habitat only occurs in areas that will not be impacted by project construction.
<i>Juncus leiostermus</i> var. <i>ahartii</i>	Ahart's dwarf rush	California Rare Plant Rank 1B.2	Inhabits mesic sites in valley and foothill grasslands at elevations from 100 to 750 feet amsl. Blooms from March through May. Suitable habitat only occurs in areas that will not be impacted by project construction.
<i>Legenere limosa</i>	legenere	California Rare Plant Rank 1B.1	Found in vernal pools at elevations from 5 to 2,885 feet amsl. Blooms from April through June. Suitable habitat only occurs in areas that will not be impacted by project construction.
<i>Navarretia myersii</i> ssp. <i>myersii</i>	pincushion navarretia	California Rare Plant Rank 1B.1	Found in vernal pools at elevations from 65 to 1,085 feet amsl. Blooms from April through May. Suitable habitat only occurs in areas that will not be impacted by project construction.
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	California Rare Plant Rank 1B.2	Inhabits shallow freshwater marshes and swamps, as well as drainage ditches and canals, at elevations from 0 to 2,135 amsl. Blooms from May through October. Targeted during 2022 focused surveys; not documented in project area.

**Notes:**

amsl = above mean sea level

**California Rare Plant Rank Categories:**

- 1B = Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under the federal Endangered Species Act or California Endangered Species Act)
- 2B = Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under the federal Endangered Species Act or California Endangered Species Act).

**California Rare Plant Rank Threat Rank Extensions:**

- .1 = Seriously endangered in California (>80% of occurrences are threatened and/or high degree and immediacy of threat)
- .2 = Fairly endangered in California (20% to 80% of occurrences are threatened)

**Boggs Lake hedge-hyssop**

Boggs Lake hedge-hyssop (*Gratiola heterosepala*) is listed as endangered (CDFW 2022) under the CESA and is a California rare plant rank 1B.2 plant (CNPS 2022) and California endemic. This species generally grows in mud and very shallow water, such as the edges of vernal pools. A CNDDDB search identified a single occurrence of Boggs Lake hedge-hyssop within a 2-mile buffer of the project area, the occurrence is located approximately 1.5 miles due east of the easternmost boundary of the project area. This species occurs in vernal pool habitat that will be avoided by project construction.

**Dwarf Downingia**

Dwarf downingia (*Downingia pusilla*) is a California rare plant rank 2B.2 plant (CNPS 2022). This dicot is endemic to California and is also found elsewhere in North America. This species generally occurs in wetlands, irrigation ditches, and vernal pools in California's central valley. There were eight occurrences of dwarf downingia identified by CNDDDB within a 2-mile buffer of the project area. The closest occurrences were recorded just over a mile east of the project area. This species was not observed by AECOM biologists during 2021 field surveys; however, there is suitable habitat present within the study area and potential to occur is possible. A focused special-status plant survey for dwarf downingia was conducted by AECOM botanists on May 5 and 6, 2022. The survey covered all suitable habitat (mesic areas in grasslands) that could be affected by the project (i.e., are located in the project "footprint" that would be altered during construction. The survey was conducted during the blooming period of the species according to an approved agency protocol (CDFW 2018). Dwarf downingia was not observed and therefore is assumed to be absent from the project impact footprint at this time.

**Ahart's Dwarf Rush**

Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*) is a California rare plant rank 1B.2 plant (CNPS 2022) and is endemic to California. It is found in mesic sites in grasslands, typically along the margins or vernal pools, swales, and gopher mounds. This species occurs in vernal pool habitat that will be avoided by project construction.

**Legenere**

Legenere (*Legenere limosa*) is a California rare plant rank 1B.1 plant (CNPS 2022). It is an annual herb that grows in well-developed vernal pools and playa lakes, as well as along the seasonally fluctuating margins of small lakes, ponds, stock ponds, and basins within seasonal drainages. This species occurs in vernal pool habitat that will be avoided by project construction.

**Pincushion Navarretia**

Pincushion navarretia (*Navarretia myersii* ssp. *myersii*) is a California rare plant rank 1B.1 plant (CNPS 2022). It is an annual herb that is only found in vernal pools, particularly in pools that are smaller or shallower that do not remain inundated for long

periods of time, as well as along the margins of deeper pools. This species occurs in vernal pool habitat that will be avoided by project construction.

### **Sanford's Arrowhead**

Sanford's arrowhead (*Sagittaria sanfordii*) is a California rare plant rank 1B.2 plant (CNPS 2022). It is a perennial rhizomatous emergent herb that is associated with freshwater wetland hydrology. It is found in a variety of emergent wetlands as well as the margins of rivers, streams, ponds, reservoirs, irrigation and drainage canals and ditches, and stock-ponds.

A focused special-status plant survey for Sanford's arrowhead was conducted by AECOM botanists on May 5 and 6, 2022. The survey covered all suitable habitat (drainage ditches, canals) that could be affected by the project (i.e., are located in the project "footprint" that would be altered during construction). The survey was conducted during the blooming period of the species according to an approved agency protocol (CDFW 2018). Sanford's arrowhead was not observed and therefore is assumed to be absent from the project impact footprint at this time.

#### **3.4.2.22 Special-Status Wildlife**

Database searches initially identified thirty-two special-status wildlife species occurring in the project vicinity. Of these, fifteen have potential to occur in the project area and are summarized in Table 3.4-5. and briefly described below. Information on all 32 special-status wildlife species originally identified in database searches, along with detailed information on the habitat requirements and potential for occurrence is included in Table BR-1b in Appendix BR-1. Protocol level surveys for select special-status wildlife are currently being conducted, as required by the specific mitigation measures listed below. Special-status wildlife species detected incidentally during initial field surveys in the project area include Swainson's hawk (*Buteo swainsoni*), state listed as threatened; white-tailed kite, a CDFW Fully Protected species; loggerhead shrike (*Lanius ludovicianus*), American badger (sign; *Taxidea taxus*), and northern harrier (*Circus hudsonius*), which are CDFW Species of Special Concern.

As part of the biological surveys, the project area was searched for the presence of elderberry shrubs and none were found. Therefore, there is no suitable habitat for the Federally-listed as threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) and the taxon is not addressed in this EIR.

The remaining sixteen species evaluated for their potential to occur in the project area either have no potential to occur or are unlikely to occur within the biological study area due to a lack of suitable habitat (e.g., ponds, lakes, rivers, rocky streams, brackish marsh, forest) and/or because they are restricted to ranges that are not present in the biological study area; they are not addressed in detail in this EIR, but information about them, including reasoning for their elimination from further analysis is included in Table BR-1b in Appendix BR-1.

**Table 3.4-5. Special Status Wildlife with Potential to Occur in the SMUD Country Acres Solar Project Area**

Scientific Name	Common Name	Regulatory Status	Habitat Description
<i>Agelaius tricolor</i>	tricolored blackbird	Listed as threatened under the CESA; CDFW Species of Special Concern; PCCP Covered Species	Forages in agricultural lands and grasslands; nests in marshes, riparian scrub, and other areas that support cattails or dense thickets of shrubs or herbs. Requires open water and protected nesting substrate, such as flooded, spiny, or thorny vegetation.
<i>Athene cunicularia</i>	western burrowing owl	CDFW Species of Special Concern; PCCP Covered Species	Nests and forages in grasslands, agricultural lands, open shrublands, and open woodlands with existing ground squirrel burrows or friable soils. Suitable burrow sites vegetated by short, herbaceous vegetation with only sparse cover of shrubs or taller herbs.
<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	Listed as threatened under the FESA; PCCP Covered Species	Inhabits vernal pools and other seasonal wetlands in valley and foothill grasslands. Tends to occur in smaller wetland features that are less than 0.05 acre in size.
<i>Buteo swainsoni</i>	Swainson's hawk	Listed as threatened under the CESA; PCCP Covered Species	Forages in grasslands, irrigated pastures, and agricultural lands; nests in riparian and isolated trees.
<i>Circus hudsonius</i>	northern harrier	CDFW Species of Special Concern	Uses a variety of open grassland, wetland, and agricultural habitats. Breeding habitats include marshy meadows, wet and lightly grazed pastures, and freshwater and brackish marshes; and dry upland habitats, such as grassland, cropland, drained marshland, and shrub-steppe in cold deserts.
<i>Elanus leucurus</i>	white-tailed kite	CDFW Fully Protected	Found in open grasslands with dispersed trees for nesting and perching. Frequently found along tree-lined river valleys with contiguous open areas.
<i>Emys marmorata</i>	western pond turtle	CDFW Species of Special Concern; PCCP Covered Species	Forages in ponds, marshes, slow-moving streams, sloughs, and irrigation/drainage ditches; nests in nearby uplands with low, sparse vegetation.
<i>Lanius ludovicianus</i>	loggerhead shrike	CDFW Species of Special Concern	Forages in grasslands and agricultural fields, and nests in scattered shrubs and trees.

Scientific Name	Common Name	Regulatory Status	Habitat Description
<i>Laterallus jamaicensis coturniculus</i>	California black rail	Listed as threatened under the CESA; Fully Protected; PCCP Covered Species	Nests in shallow freshwater marshes, wet meadows, or flooded grassy areas vegetated by fine stemmed emergent plants; characterized by water depths of approximately one inch that do not fluctuate seasonally; locally occupied sites in the Sierra foothills are typically small, densely vegetated, and fed by irrigation water; habitat size varies from less than 0.25 acre to over 30 acres
<i>Lasiurus blossevillii</i>	western red bat	CDFW Species of Special Concern	Solitary foliage-roosting bat associated with riparian habitat (particularly willows, cottonwoods, sycamore, and eucalyptus). Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas.
<i>Lepidurus packardii</i>	vernal pool tadpole shrimp	Listed as endangered under the FESA; PCCP Covered Species	Inhabits vernal pools and other seasonal wetlands in valley and foothill grasslands that pond for sufficient duration to allow the species to complete its life cycle. Typically found in pools ranging in size from 0.1 acre to 80 acres.
<i>Melospiza melodia mailliardi</i>	song sparrow "Modesto" population	CDFW Species of Special Concern	Found in willow thickets and oak riparian vegetation with understory of blackberry, ruderal areas along levees and irrigation canals, and cattail and tule marshes.
<i>Spea hammondi</i>	western spadefoot	CDFW Species of Special Concern	Inhabits open areas with gravelly, friable, or sandy soils in washes and vernal pools in the vicinity of grasslands, oak woodlands, coastal sage scrub, and/or chaparral. Breeds in ephemeral wetlands such as vernal pools and stock ponds.
<i>Thamnophis gigas</i>	giant garter snake	Listed as threatened under FESA and CESA; PCCP Covered Species	Inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley
<i>Taxidea taxus</i>	American badger	CDFW Species of Special Concern	Found in drier open stages of most shrub, forest, and herbaceous habitats with friable soils; generally associated with treeless regions, prairies, parklands, and desert areas. Needs open, uncultivated land.

Notes: CDFW = California Department of Fish and Wildlife; CESA = California Endangered Species Act; FESA = Federal Endangered Species Act



**American Badger**

The study area is in the range of the American badger and the species likely occur on site, particularly in open grassland areas. American badger are known to inhabit a variety of open habitats, including grasslands, shrublands, savannas, and meadows where there is friable soil that allows for digging dens and foraging for prey species that are comprised primarily of small fossorial mammals (such as gophers and ground squirrels). Biologists observed numerous small mammal burrows throughout the study area, and found clear sign of badger foraging (e.g., distinctive claw marks in partially dug holes) in the relatively undisturbed grasslands in the northwestern portion of the study area.

**3.4.2.23 Special Status Birds**

The presence of numerous shrubs and trees within riparian areas as well as rice fields, agricultural land, annual grassland, and marsh habitat provide suitable nesting substrate and foraging habitat for migratory birds. Section 3503 of the California Fish and Game Code states that it is unlawful to take possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 of the California Fish and Game Code (CFGF) specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including their nests or eggs. Violations of these codes can include destruction of active nests resulting from the removal of vegetation in which the nests are located. Violation of Section 3503.5 could also include failure of active raptor nests resulting from disturbance of nesting pairs by nearby project construction. Raptors, migratory birds, and other avian species are also protected by the federal Migratory Bird Treaty Act (MBTA) which prohibits the intentional killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of Interior.

A total of eight special-status bird species are either known to occur or have the potential to occur in the project area and are discussed in more detail below. The remaining 10 species have no potential or are not likely to occur in the study area due to a lack of suitable habitat or because the study area is outside of the species' current range.

**California Black Rail**

California black rail is State-listed as a threatened species and is designated as fully protected in the CFGF. This species typically is associated with coastal salt marshes, but it has been found inhabiting shallow freshwater marshes throughout the Sierra Nevada foothill region of Yuba, Butte, San Joaquin, Placer, and Nevada counties, almost all below 1,155 feet (PCCP 2020). In inland areas, black rails occur in shallow freshwater marshes, wet meadows, or flooded grassy areas vegetated by fine-stemmed emergent plants with water depths of about 1 inch that do not fluctuate seasonally (Yuba County 2011).

Marshes occupied in the Sierra Nevada foothills are typically small, gently sloped sites between 100 to 2,600 feet in elevation; the size of occupied sites ranges from less than 0.25 acre to more than 30 acres (Richmond et al. 2008), although occupied sites are significantly larger (median size of 1.6 acres) than unoccupied sites (median size of 0.4 acre) in the region (Richmond et al. 2010). Occupied marshes are typically densely vegetated by a variety of emergent plant species, including cattails (*Typha* spp.), rushes (*Juncus* spp.), tule (*Scirpus acutus*), grasses such as dallisgrass (*Paspalum dilatatum*) and cut-grass (*Leersia oryzoides*), fringed willowherb (*Epilobium ciliatum*), and pale spikerush (*Eleocharis macrostachya*) (Richmond et al. 2008). In an extensive survey of freshwater emergent wetlands across Butte, Nevada, and Yuba counties from 2002 to 2008, Richmond et al. (2010) also found that black rails were associated consistently with densely vegetated emergent wetlands where irrigation water, or other flowing water, was the primary water source and had low occurrence in fringe wetlands (adjacent to lakes or ponds) and wetlands fed by seasonal (i.e., rainfall) water sources.

Black rails have not been recorded within 2 miles of the project area, but juncus and cattail marshes in the study area could potentially provide nesting habitat for this species.

### **Loggerhead Shrike**

The loggerhead shrike (*Lanius ludovicianus*) is a California Species of Special Concern. This species is a resident and winter visitor in the lowlands and foothills throughout California, including within and surrounding the project area. Loggerhead shrike tends to occur in open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Shrikes require tall trees or shrubs for nesting; open areas such as annual grasslands for hunting; and sharp, thorny, or multi-stemmed plants or barbed wire fences on which to impale prey.

The project area provides suitable foraging and nesting habitat for loggerhead shrike. This species breeds from March through August. A single loggerhead shrike was observed within the study area during field surveys conducted on April 16, 2021.

### **Northern Harrier**

The northern harrier (*Circus hudsonius*) is a California Species of Special Concern. This species forages and breeds in a variety of lowland terrestrial and aquatic habitats including marshes, wet meadows, annual grasslands, irrigated pastures, and croplands. Northern harrier breeds from April to September, with peak breeding activity from June through July. Northern harriers are ground nesters, preferring dense patches of tall, undisturbed vegetation. Rodents, particularly California voles, are a main staple of their diet, and these species can be found in large numbers near wet habitats (Shuford and Gardali 2008).

The project area provides suitable foraging and potential marginal nesting habitat for this raptor. The California Natural Diversity Database shows multiple occurrences of northern harrier (CDFW 2021) within a 2-mile buffer of the project area and one

individual was observed within the study area by AECOM biologists during field surveys on April 7, 2021.

### **Western Burrowing Owl**

The western burrowing owl (*Athene cunicularia*) is a California Species of Special Concern. Burrowing owls occur in dry, open habitats, such as annual grasslands, ruderal, and native grassland prairie with low-growing or no vegetation present, where it occupies underground burrows, typically abandoned California ground squirrel burrows. This species can also occur in open areas of farmland, levee banks, and other disturbed or managed habitats where burrows or burrow-like refuges are present, such as small-diameter pipes, rock piles with voids, or similar hollow spaces. The primary characteristics of suitable habitat for this species are burrows or burrow surrogates for roosting and nesting, and relatively short vegetation with only sparse shrubs. This species breeds from March to August (CDFG 2012).

Essential habitat for burrowing owls includes the presence of burrows, burrow surrogates, and/or the presence of fossorial mammal dens (CDFG 2012). The study area contains a significant acreage of ruderal and annual grassland as suitable foraging habitat. Field surveys identified multiple small-medium sized burrows within the project area that could act as suitable nesting habitat. No western burrowing owls or sign of activity was observed within the study area during field surveys, however, CNDDDB data shows one occurrence of burrowing owl within a 2-mile buffer of the study area (CDFW 2021). Because the study area contains some suitable burrow sites, suitable foraging habitat, and a historical observation of the species, potential to occur within the study area is possible.

### **Swainson's Hawk**

The Swainson's hawk (*Buteo swainsoni*) is listed as threatened under the California Endangered Species Act (CESA). This species breeds in the western United States and Canada, and winters in South America. In California, the Swainson's hawk prefers to occupy and breed in desert, grassland, and agricultural habitats, typically arriving to its nesting territories by early April. The species is adapted for aerial foraging and will spend a large amount of their time soaring and flying over open habitats. Swainson's hawks are known to travel long distances to find habitat that offers abundant prey.

During field surveys conducted by AECOM biologists, Swainson's hawks were observed within the study area on April 7 (single individual observed in the morning, soaring overhead), April 23 (three Swainson's hawks soaring and calling; two landed in black willow along a creek to the southeast of project), and July 15, 2021 (pair soaring over site and grasslands adjacent to the project). Additionally, a CNDDDB search identified six occurrences of Swainson's hawk nests identified from surveys conducted in 2001, 2003 and 2009 within a 2-mile buffer of the study area, three of which are adjacent to the study area (CDFW 2021).

The study area contains suitable foraging and nesting habitat, and it is possible that the species may nest within or adjacent to the study area.

**White-tailed Kite**

The white-tailed kite (*Elanus leucurus*) is a California Fully Protected species. It is commonly found in lowland valley and coastal areas throughout California. Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code describe protection of fully protected species. These statutes prohibit take or possession of fully protected species and no statutes authorize incidental take of fully protected species.

White-tailed kite forages in open grasslands, meadows, wetlands, and agricultural areas and feeds primarily on small rodents and other mammals. White-tailed kites hunt over lightly grazed or ungrazed fields that may support larger prey populations than more heavily grazed areas. Kites typically nest in the upper third of trees that may be 10–160 feet tall. These can be open-country trees growing in isolation, or at the edge of or within a forest, usually near open foraging spaces. White-tailed kites breed from February to October, with peak from May to August. The species was observed within the study area by AECOM biologists on April 26, 2021, hovering (kiting) over rice fields.

The project area provides suitable foraging and nesting habitat for white-tailed kite. There is potential for the species to occur within the study area.

**Tricolored Blackbird**

The tricolored blackbird (*Agelaius tricolor*) is listed as threatened under the CESA. The tricolored blackbird is a highly colonial bird. The colonies require open water, open foraging habitat, and suitable nesting habitat to breed successfully. Tricolored blackbird nesting habitat typically includes dense thickets of vegetation such as cattails, tules, blackberry, or wild rose surrounded by foraging habitats that may include semi-natural grasslands, agricultural croplands, or alkali scrub habitats, and a nearby source of freshwater. Tricolored blackbirds breed from mid-April through late July, although active breeding in the Sacramento Valley in October and November has been documented. During the nonbreeding season, tricolored blackbirds often form mixed-species flocks with other blackbird species such as red-winged blackbirds, Brewer's blackbirds, brown-headed cowbirds, and European starlings.

During the breeding season, tricolored blackbirds exhibit itinerant breeding whereby individuals often move after their first nesting attempts and breed again at a different geographical location. In the northern Central Valley and northeastern California, individuals move after first nesting attempts, both successful and unsuccessful (Beedy et al. 2020). Nesting survey protocol for this species should therefore include repeated surveys at intervals throughout the nesting season (Beedy pers. comm. 2022a).

Tricolored blackbird requirements for breeding sites are (1) a protected nesting substrate in flooded, spiny or thorny vegetation (e.g., cattail marshes or blackberry thickets); (2) an open accessible source of water for drinking and bathing; and (3) suitable foraging habitat that provides insect prey (Meese and Beedy 2015). Irrigated pastures, dairies and feedlots are often important elements of tricolored blackbird preferred breeding habitats in the Sierra Nevada foothills and Central Valley (Beedy et al. 2020). A successful tricolored blackbird nesting colony typically requires high quality

foraging habitat within “commuting” range, approximately 3 miles of the nest site (Beedy pers. comm 2022b, Beedy et al. 2020). The project site provides patches of nesting habitat in the form of blackberry thickets and cattail marshes, and marginal foraging habitat in annual grassland. Rice fields, particularly those that are not treated with pesticides, can provide foraging habitat for tricolored blackbirds at certain times of the year (Beedy pers. comm 2022b).

Tricolored blackbird was not observed by AECOM biologists during field surveys; there is one 2011 record of a nesting colony within a 2-mile buffer of the study area (CDFW 2021). The colony attempted nesting again in April 2014 but the colony was abandoned later in the nesting season (CDFW 2021). Tricolored blackbird surveys were conducted in western Placer County from April 15 – 17, 2022 and again on May 14, 2022 as part of the Statewide Tricolored Blackbird Survey, which is typically conducted every three years (<https://tricolor.ice.ucdavis.edu/news/2022-statewide-survey>). The surveyors visited sites that had supported tricolored blackbird colonies in western Placer County in the past for which suitable tricolored blackbird habitat was still present. The surveyors found four active colonies in western Placer County (Beedy pers. comm. 2022b) all of which were northwest of and more than five miles from the project site.

The study area contains suitable nesting vegetation structure (i.e., blackberry thickets and emergent marsh) and foraging habitat for tricolored blackbird.

### **Song Sparrow “Modesto” Population**

The song sparrow “Modesto” population (*Melospiza melodia mailliardi*) is a California Species of Special Concern. Suitable habitat for this species includes riparian willow thickets, ruderal areas along levees and irrigation canals, and cattail and tule marshes. The species breeds starting in April until early August. Song sparrows (*Melospiza melodia*) range from southern Alaska across central and southern Canada south through the United States into northern (locally to central) Mexico and Baja California; sparrows occupy a large part of northern range in summer only, much of mid-central and southern portion in winter only (Arcese et al. 2020). In California, the species is resident in much of the state except for the higher mountains and most of the southeastern deserts away from the Salton Sink and Colorado River valley (Arcese et al. 2020). Of the 24 subspecies currently recognized, 9 occur in California (Arcese et al. 2020). The Modesto song sparrow is endemic to California, where it resides only in the north-central portion of the Central Valley (Arcese et al. 2020). Highest densities occur in the Butte Sink area of the Sacramento Valley and in the Sacramento–San Joaquin River Delta (Shuford and Gardali 2008).

There are three CNDDDB occurrences of song sparrow “Modesto” population in the Lincoln, Rio Linda, and Taylor Monument 7.5-minute quadrangles. No occurrences were recorded within a 2-mile buffer of the project area. There is suitable foraging and nesting habitat within the study area.

#### 3.4.2.24 *Special Status Amphibians and Reptiles*

A total of five species of amphibians and reptiles were evaluated for their potential to occur in the project area; of these, only two species were considered to potentially occur in the study area and are discussed in more detail below.

##### **Western Spadefoot**

The western spadefoot (*Spea hammondi*) is a California species of special concern and a candidate for federal listing. The western spadefoot is restricted to California, from the Central Valley south to San Diego and northwestern Baja California, Mexico, at lower elevations. The western spadefoot spends most of its time underground in burrows but requires water for breeding. They prefer open areas with gravelly, friable, or sandy soils in washes and vernal pools in the vicinity of grasslands, oak woodlands, coastal sage scrub, and chaparral. They breed in ephemeral wetlands such as vernal pools and stock ponds, but occasionally breed in intermittent streams where larvae develop in isolated areas of the stream as it dries. Water temperatures in breeding pools must be between 9° C (48 Fahrenheit [°F]) and 30° Celsius (86° F) for reproduction and not contain exotic species such as American bullfrogs (*Rana catesbeianus*) or crayfish (*Order Decapoda*). Breeding pools are typically 18–24 in (20–60 cm) deep and hold water long enough for eggs to hatch and tadpoles to transform (approx. 30 days), completing their life cycle in 4–11 weeks. This species relies on the presence of vernal pool habitat to reproduce in the California Central Valley. There is suitable vernal pool habitat in the study area.

There was one CNDDDB occurrence of western spadefoot identified within a 2-mile buffer of the study area to the east of Westbrook Boulevard in Roseville. Records for Western spadefoot are sparse in Placer County with only five occurrences (PCCP 2020). This species was not observed by AECOM biologists during field surveys; however, potentially suitable habitat (vernal pools and seasonal wetlands) is present in the study area and the potential for this species to occur cannot be ruled out.

##### **Giant Garter Snake**

The giant garter snake (*Thamnophis gigas*) is both federally and state threatened. This species inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley. Most of the snake's natural habitat has been lost, which is why the species commonly inhabits agricultural rice-fields and seasonally flooded agricultural areas. Giant garter snakes are dormant during the winter, so they inhabit small mammal burrows and other soil crevices above flood elevations during this inactive period. The snakes typically select burrows with sunny exposure along south and west facing slopes (Hansen et al. 2017).

Because of the direct loss of natural habitat, the giant garter snake relies heavily on rice fields in the Sacramento Valley, but also uses managed marsh areas in Federal National Wildlife Refuges and State Wildlife Areas. There have been only a few recent sightings of giant garter snakes in the San Joaquin Valley. Giant garter snakes are typically absent from larger rivers due to the lack of suitable habitat and emergent

vegetative cover, and from wetlands with sand, gravel, or rock substrates. Riparian (river bank) woodlands typically do not provide suitable habitat because of excessive shade, lack of basking sites, and absence of prey populations. The major rivers have been highly channelized, removing oxbows and backwater areas that at one time likely provided suitable habitat (Hansen et al. 2017).

Due to the loss of natural marshes and other wetland habitats in the Central Valley, the giant garter snake now relies heavily on rice fields in the Sacramento Valley and also uses managed marsh areas in Federal National Wildlife Refuges and State Wildlife Areas. However, based on the giant garter snake habitat assessment surveys conducted by giant garter snake expert Eric C. Hansen on May 5, 2021 and August 8, 2021 (Hansen 2022 - Appendix BR-3) giant garter snake are highly unlikely to occur in rice fields, seasonal wetlands or drainages in the project area. This conclusion is based on Mr. Hansen's site-specific assessment of the potential habitat at the project area and the distance from habitats where giant garter snake presence has been verified. The project area is beyond the easterly limit of the giant garter snake range based on known locality records and published giant garter snake occupancy data (Hansen 2022). Furthermore, other potential habitats for giant garter snake in the project area – which include the channelized portion of Curry Creek, roadside drainages, and irrigation channels – are not suitable for the species due to a lack of continuous aquatic connectivity and distance from perennial aquatic habitat (Hansen 2022). Based on Mr. Hansen's analysis of known locality records and published giant garter snake occupancy data and his site assessments, the probability of giant garter snake occurring at the site is very low.

The project area is within Placer HCP/NCCP modeled habitat for giant garter snake because all flooded rice fields below 100 feet in elevation in the PCCP Plan area are automatically categorized as suitable aquatic habitat for giant garter snake (PCCP 2020). However, as described above and as discussed in detail in Mr. Hansen's analysis (Hansen 2022) these rice fields are highly unlikely to support giant garter snake because the project area is beyond the easterly limit of known giant garter snake occupancy. There are no known occurrence records within 3.13 miles of the project site, despite extensive trapping efforts conducted since 2001 to search for giant garter snakes east of the Natomas East Main Drainage Canal.

### **Western Pond Turtle**

Western pond turtles (*Emys marmorata*) use aquatic habitats, including wetlands, stock ponds, lacustrine, riverine, riparian, and canals for cover, foraging, and other functions. Western pond turtles also use adjacent upland habitats for nesting, dispersal, and aestivation, typically within 100 to 200 feet of aquatic habitat. The many drainages and canals in the study area provide marginally suitable habitat for western pond turtle.

#### **3.4.2.25 Special Status Invertebrates**

The vernal pools in the study area could provide suitable habitat for two special status species of crustaceans, discussed below. The remaining five species of special-status



invertebrates evaluated for their potential to occur have no potential or are not likely to occur in the study area due to a lack of suitable habitat or because the study area is outside of the species' current range.

### **Vernal Pool Fairy Shrimp**

Vernal pool fairy shrimp (*Branchinecta lynchi*) is a federally threatened and state listed species protected throughout their entire range. Vernal pool fairy shrimp are endemic to California and Oregon where they inhabit seasonal wetland depressions, stagnant ditches, and vernal pools that fill with water during winter rains and dry up in spring and summer. Most pools in any vernal pool complex are not inhabited by the species at one given time. Different pools within or between complexes may provide habitat for the fairy shrimp in alternative years, as climatic conditions vary. The project area contains approximately 1.478 acres of vernal pool habitat. In 2005, USFWS finalized its "Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon" (USFWS 2005) which addressed 33 plant and animal species of interest that are endemic to vernal pools.

A CNDDDB search showed 10 occurrences of vernal pool fairy shrimp within a 2-mile buffer of the study area. The presence of suitable habitat onsite (vernal pools) makes potential for occurrence possible in the project area. However, all vernal pools and a 250-foot buffer around them will be avoided by project construction.

### **Vernal Pool Tadpole Shrimp**

Vernal pool tadpole shrimp (*Lepidurus packardii*) are listed as endangered under the federal Endangered Species Act. Typical habitat for vernal pool tadpole shrimp includes vernal pools, seasonally ponded areas within vernal swales, rock outcrop ephemeral pools, playas, and alkali flats. They are most often associated with deeper pools with a large surface area that pond long enough to allow the shrimp to complete their life cycle. Although most vernal pools in the study area are small and shallow and would only be marginally suitable, there are a few larger vernal pools and seasonal wetlands in the northwestern portion of the study area that may provide suitable habitat for the species. However, all vernal pools and a 250-foot buffer around them will be avoided by project construction.

#### **3.4.2.26 U.S. Fish and Wildlife Service Critical Habitat and Essential Fish Habitat**

No designated critical habitat overlaps with the project area (Exhibit 3.4-5). While designated essential fish habitat for Chinook salmon overlaps with the project area, high- quality freshwater spawning and rearing habitat and conditions, and migration corridors from and back to the Pacific Ocean (58 Federal Register [FR] 33212 and 70 FR 52629) necessary for spawning, feeding, and growth to maturity are absent. Therefore, there would be no impact on essential fish habitat.

Designated critical habitat for vernal pool fairy shrimp (*Branchinecta lynchi*) is present approximately 8 miles to the northeast of the project area (USFWS 2006), but does not overlap. The primary constituent elements of critical habitat for vernal pool fairy shrimp

are vernal pool wetlands and swales, hydroperiods of adequate length in pools, detrital food, and shelter.

#### 3.4.2.27 *Waters of the United States and Waters of the State*

An aquatic resources delineation survey was conducted by AECOM for the project area in the spring and summer of 2021 (Appendix BR-2). The survey included delineation of wetlands and other waters of the United States subject to U.S. Army Corps of Engineers (USACE) and Central Valley Regional Water Quality Control Board (RWQCB) jurisdiction under Section 404 of the federal CWA, and under the Porter Cologne Act and mapping of drainages that may be subject to CDFW jurisdiction. Appendix BR-2 provides details regarding the mapping and wetland delineation methodology, maps, and descriptions of each wetland and drainage type. The wetland delineation and mapping of the ordinary high-water mark of drainages were conducted according to the methods identified in the USACE wetlands delineation manual (Environmental Laboratory 1987) and the revised procedures in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0) (USACE 2010); 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 Field Manual* (Environmental Laboratory 2008) and the USACE Regulatory Guidance Letter No. 05-05, which provides further guidance on OHWM identification (USACE 2005). The wetland delineation and drainage mapping have not been verified by USACE and coordination with the USACE and RWQCB is currently ongoing.

All potentially jurisdictional waters were mapped within the project area. Potentially isolated wetlands, which are not subject to USACE jurisdiction under Section 404 of the Clean Water Act but may be considered waters of the state under the Porter-Cologne Act, would be subject to regulation by the Central Valley RWQCB. Streams (drainages) and associated riparian habitat are subject to regulation by CDFW under Section 1602 of the California Fish and Game Code. Furthermore, aquatic resources are subject to the standards and provisions of the *Placer County General Plan* (General Plan) Natural Resources Section as detailed above, and Placer County Code Article 8 (Stormwater Quality) and Article 15 (Flood Damage Prevention; Grading and Erosion Control).





**Exhibit 3.4-5. Critical Habitat in the Project Area**



#### 3.4.2.28 *Riparian Habitat and Sensitive Natural Communities*

California natural communities are organized by CDFW and partner organizations, such as CNPS, based on vegetation type classification, and are ranked using the same system to assign global and state rarity ranks for plant and animal species in the CNDDDB. Natural communities that are ranked S1–S3 are considered sensitive natural communities by CDFW, to be addressed in the environmental review processes. Placer County also has specific Goals related to wetlands, wildlife habitats, and valuable vegetation resources, as outlined above.

Of the vegetation communities mapped in the project area, those categorized as sensitive natural communities include cattail marsh, Fremont cottonwood riparian, seasonal wetland, vernal pool, and sandbar willow riparian (CDFW 2021). Sensitive natural communities do not imply regulatory jurisdictional determinations under Section 404 of the federal CWA, Section 10 of the Rivers and Harbors Act, or Section 1600 of the California Fish and Game Code (Lake and Streambed Alteration Program); such determinations usually require mapping boundaries based on other factors, such as limits of hydrologic influence.

Similarly, terms such as “riparian” in the community type name and description may inform but do not imply or assert regulatory jurisdiction or the lack thereof. Instead, riparian habitat is defined separately in the context of Section 1600 of the California Fish and Game Code. According to guidance provided in *A Field Guide to Lake and Streambed Alteration Agreements: Section 1600 Fish and Game Code*, the outer edge of riparian vegetation is a reasonable and identifiable boundary for the lateral extent of a stream, the protection of which should result in preserving the fish and wildlife at risk within a stream or drainage, and therefore may constitute the limits of CDFW jurisdiction along waterways. Because CDFW takes jurisdiction over riparian habitat pursuant to Section 1600 of the California Fish and Game Code, riparian habitats are defined as any habitat where herbaceous plants, shrub/scrubs, and/or trees of varying densities are growing along waterways. As a result, riparian habitat within the project area includes several mapped sensitive natural communities as well as other, non-sensitive vegetation communities that overlap waterways and may be subject to regulation by CDFW under Section 1602 of the California Fish and Game Code.

Furthermore, the Placer County General Plan (Policy 6.A.1) requires the use of buffer zones to minimize conflicts between potentially incompatible land uses, including sensitive habitat buffers. This policy prohibits grading, or the removal of natural vegetation, in these buffers any closer than 50 feet to the top of a stream bank or to the outermost extent of riparian vegetation, wetland, or other identified sensitive habitat, whichever is greater. In accordance with the General Plan, sensitive habitat buffers are measured as follows:

- 100 feet from the centerline of perennial streams,
- 50 feet from centerline of intermittent streams, and

- 50 feet from the edge of the sensitive habitats to be protected.

Based on more detailed information supplied as a part of the review for a specific project or input from state or federal regulatory agency, the County may determine that such setbacks are not applicable in a particular instance or should be modified based on the new information provided. Other County policies outlined above also provide specific guidance on preservation of natural resources and were considered in the mapping and avoidance of impacts to these resources in support of the project.

#### 3.4.2.29 *Connectivity and Migration Corridors*

The Central Valley of California is the most important waterfowl wintering area in the Pacific Flyway, supporting 60 percent of the total duck and goose population and 20 percent of all North American wintering waterfowl, with rice fields providing particularly important foraging and migratory stopover points for large numbers of resident and migratory avian species in the state (Shaffer 2001). Large concentrations (more than 10,000 individuals) of northern pintails congregate in flooded rice fields prior to spring migration (PCCP 2020). During the winter months, especially after the hunting season, large flocks of waterfowl forage in flooded rice fields. In recent years, the rice industry has embraced post-harvest management of rice fields for their unique qualities as a waterfowl habitat (Shaffer 2001). The Western Placer County HCP/NCCP categorizes rice fields as a semi-natural community that covers approximately 20 percent of the lowland (valley) regions of western Placer County, at approximately 19,500 acres, and about 8 percent of the larger western Placer County region (PCCP 2020). Most of the project area is comprised of rice fields. During biological surveys in the spring of 2021, large flocks of white-faced ibis (*Plegadis chihi*) and Canada goose (*Branta canadensis*), as well as many individual egrets and herons were observed foraging in rice fields.

The channelized drainages that cross the project area connect natural riparian drainages to the east and west of the project area and may function as wildlife movement corridors through a landscape otherwise developed and used for active-production rice fields and almond orchards. The relatively undisturbed grassland habitats along the project area edges, particularly in the northwestern portion of the project area, may also provide landscape connections for terrestrial species.

#### 3.4.2.30 *Important Bird Areas and Flyways*

The project area is situated approximately 10 miles northeast of the Sacramento Valley Wetlands Important Bird Area (IBA) (National Audubon Society 2022). This 307,381-acre area is a known stopover point for migratory birds along the Pacific Flyway, extending across the central and eastern floor of the Central Valley north of Sacramento. This IBA includes several National Wildlife Refuges, State Wildlife (Management) Areas, and private sanctuaries, with rice fields and private duck clubs contributing to habitat throughout. Flooded rice fields in the winter in this IBA host over a million waterfowl from November through March, and tens of thousands of tricolored blackbirds also breed in this IBA.

Given the availability of similar habitat in the project area, wintering waterfowl and shorebirds are expected to move through and utilize the project area. Numerous other migratory birds and raptors are expected to be present in the project area during the fall and spring migration periods.

### 3.4.3 Environmental Impacts and Mitigation Measures

Potential impacts on biological resources resulting from implementation of the proposed project were determined by mapping and quantifying common and sensitive habitats and by evaluating potential effects to special-status species that could result from loss of these habitats and from other potential direct and indirect effects. Potential impact acreage by habitat types were determined by overlaying a conceptual (10%) design layout of the project features over the habitat maps of the project area. While refined designs may be slightly different, the general location and extent of facilities will remain the same, thus the impact acreages determined by this methodology are considered representative.

#### 3.4.3.1 *Methods and Assumptions*

The proposed project has the potential to adversely affect common and sensitive biological resources. Construction required to implement the project would result in ground-disturbing activities that could degrade and remove wildlife habitat, impact aquatic resources by direct removal and/or through sediment runoff, and cause auditory disturbance to wildlife. Once built, the project could result in impacts on common and special-status species due to ongoing operation and maintenance, as described below.

Potential impacts of the proposed project on biological resources were determined by:

1. overlaying the proposed project footprint (10% conceptual design level), with maps of biological resources in the study area in geographic information system (GIS);
2. determining impact acreages on the ground by land cover type through GIS calculations;
3. distinguishing between direct impacts (e.g., construction of solar collection facilities) and indirect impacts (impacts resulting from habitat disturbance and introduction of human activities during construction, operation, and maintenance);
4. distinguishing between permanent impacts (built environment) and temporary impacts (during construction only); and
5. where applicable, applying species-specific protocols to assess impacts.

Details on the nature of the analysis and impact determination for each species are provided in the section below for each specific impact topic.

The project's potential primary direct impacts on biological resources include habitat loss, habitat fragmentation, disturbance, and potential injury or mortality of common and special-status species during construction, operation, and maintenance. Permanent habitat loss would occur in the permanent footprint of project infrastructure within the project area such as the BESS station and other buildings, while temporary habitat loss would occur during construction only, but where natural vegetation will be allowed to become established following construction, such as under solar panels or in temporary construction access areas.

Disturbance to wildlife could also occur temporarily during construction if activities create visual or audible disturbances that would affect wildlife behavior in a way that would reduce their ability to forage, reproduce, and/or move through the area while construction activities are ongoing. Ongoing impacts on wildlife following buildout would occur as a result of increased human presence and activities in the area, including visual and noise disturbance that result from operation and maintenance.

For purposes of this evaluation, it is assumed that permanent habitat loss as a result of conversion would occur in all areas to be occupied by the following project features:

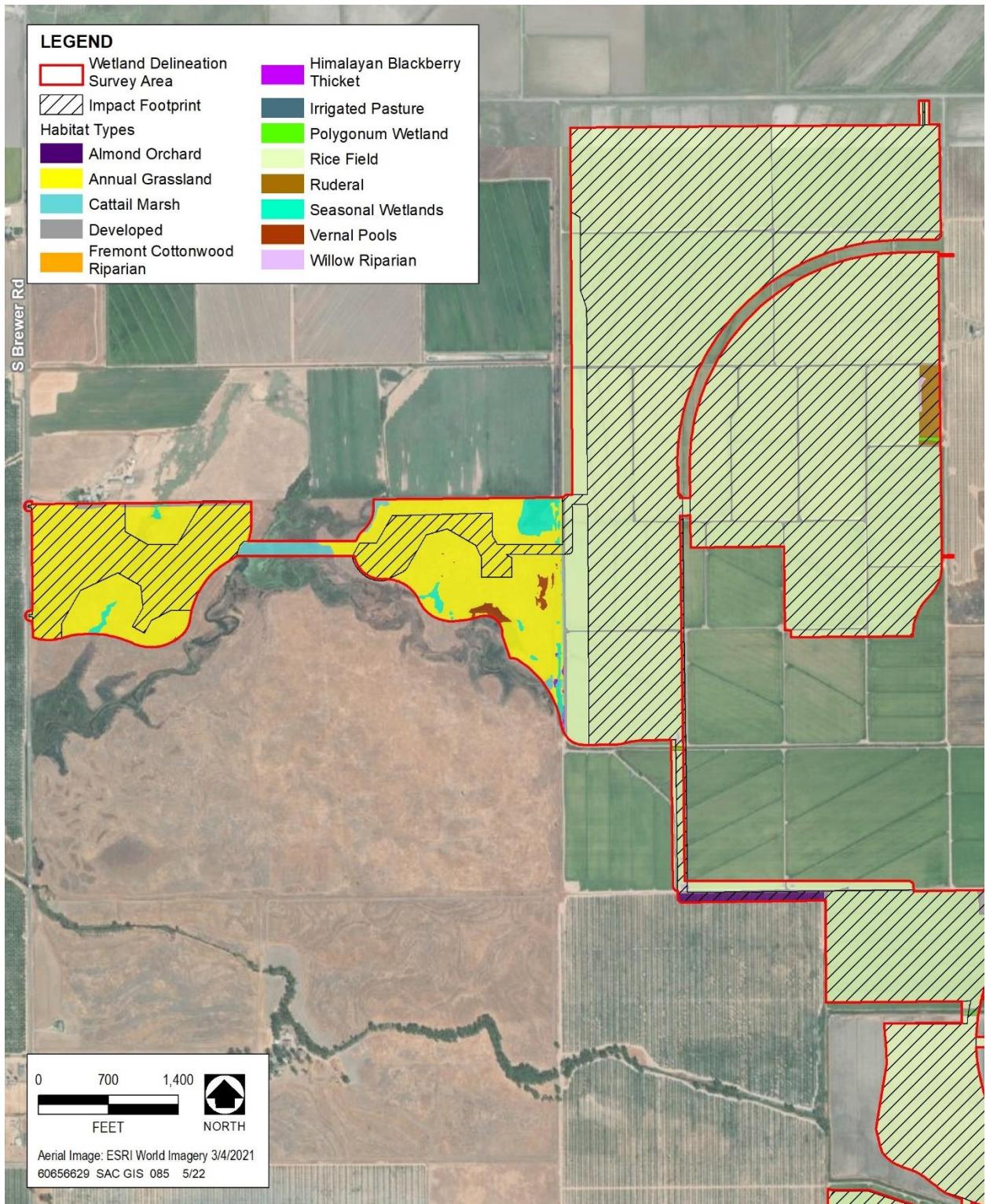
- project access roads
- BESS
- Substation and switchyard
- Solar panels (even though only the footings of the panels result in permanent on-the-ground conversion to hard surface infrastructure and the area under the panels will be used for grazing habitat, the entire solar panel footprint is considered permanent conversion for the purposes of determining impacts by habitat type).

Exhibit 3.4-6 and Exhibit 3.4-7 show the habitat types at the project area overlaid with the project footprint, based on 10% concept design. The resulting potential habitat conversion acreages are summarized in Table 3.4-6 below. The 10% concept design was developed to avoid all direct impacts to vernal pools and seasonal wetlands mapped in the project area (AECOM 2022), as mapped during the Aquatic Resources Delineation (Appendix B-2) and by including a 250-foot buffer around these features, consistent with the PCCP. The 10% concept design also includes 50-foot or 100-foot buffers along drainages, consistent with Placer County Policy and the PCCP, as outlined above under environmental setting.

The impact acreages were calculated by projecting the project feature "footprint" over the habitat types present on the ground and quantifying the resulting acreages. It should be noted that the actual habitat conversion may be different as a result of further refined plans. Collector lines would either be buried under wetland habitats using low-impact horizontal directional drilling or a similar method, or span over them, resulting in a small to no on the ground footprints. In areas that will be occupied by solar panels, such as

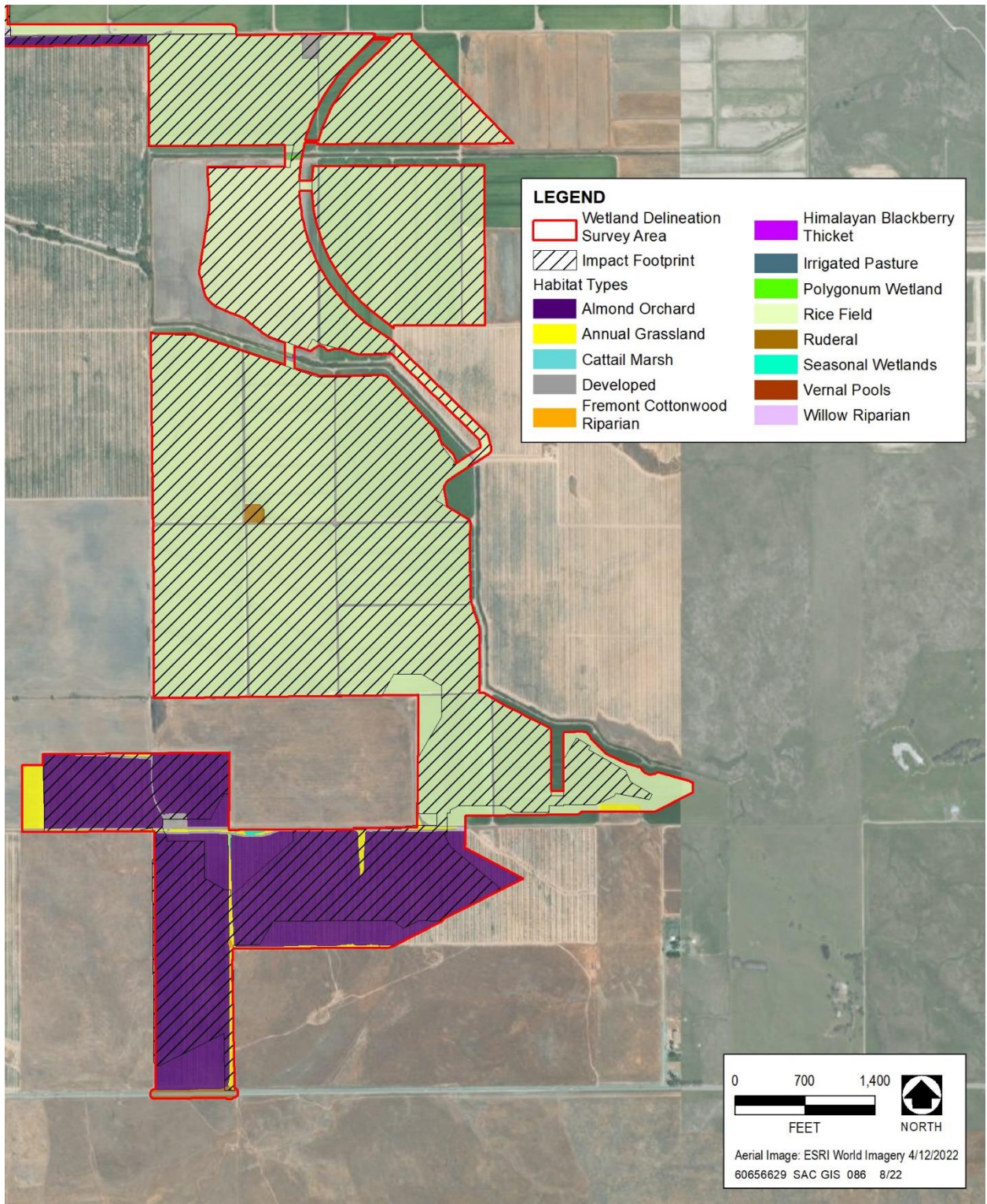


current rice fields and annual grassland, the outer perimeter of the solar panel footprint, as projected onto the underlying habitat type was included in the impact area, resulting in the maximum possible habitat conversion footprint. In reality, only the foundation and poles of the solar panels will be installed on the ground, and much of the area will remain in annual grassland (where grassland currently exists) or will be seeded and used for dryland grazing and/or pollinator habitat (where almond orchard and rice fields currently exist). In addition, the Aquatic Resources Delineation Report has not been verified by the USACE, thus the exact acreage of jurisdictional features subject to CWA Section 404 and the Porter Cologne Act may change. However, the acreages presented in Table 3.4-6 below present a potential conversion scenario and are considered representative in terms of impact calculations.



**Exhibit 3.4-6. Project Impact Footprint Based on 10% Concept Design**





**Exhibit 3.4-7. Project Impact Footprint Based on 10% Concept Design**

**Table 3.4-6. Impact Acres by Vegetation Community/Habitat Typed Based on 10% Design**

<b>Vegetation Community/ Land Cover Type</b>	<b>Cross-Walk to PCCP Land Cover Type(s)</b>	<b>Acres Present on Project Area</b>	<b>Acres within Impact Footprint (based on overlay of 10% design features)</b>
Almond Orchard*	Orchard	131.5	111.70
Annual Grassland	Grassland	117.4	57.20
Cattail Marsh	Marsh Complex	4.2	0.04
Developed	Barren/Industrial and Road	31.6	26.72
Fremont Cottonwood Riparian	Riverine/Riparian Complex	0.1	0.06
Himalayan Blackberry Thicket	Riverine/Riparian Complex	0.2	0.01 (0.006)
Irrigated Pasture	Grassland	0.03	0.02
Polygonum Patches	Riverine/Riparian Complex	0.3	0.24
Rice Field**	Rice	872.8	831.93
Ruderal***	Grassland	4.4	4.39
Seasonal Wetland	Aquatic/Wetland Complex	5.3	0.0 (0.002)
Vernal Pool	Vernal Pool Complex	1.5	0.0
Sandbar Willow Riparian	Riverine/Riparian Complex	0.6	0.47
	<b>TOTAL</b>	<b>1,169.9</b>	<b>1,032.731</b>

PCCP = Placer County Conservation Program; AECOM overlay of 10% design

\*Potential for up to 7.92 acres of temporary impact for potential temporary construction access improvements off Baseline Road not included in Table 3.4-6.

\*\* Rice fields are described as Prior Converted Cropland in the Aquatic Resources Delineation Report (Appendix B-2); preliminary discussions with the EPA have indicated that that these fields may not meet PCC criteria; therefore, additional data are currently being analyzed.

\*\*\*Potential for up to 1.07 acres of temporary impact for potential temporary construction access improvements off Baseline Road not included in Table 3.4-6.

Implementation of the proposed project would result in the following impacts by vegetation community/habitat type:

The total area of permanent impacts is a maximum of 1,033 acres. This acreage differs from the approximately 1,170-acre project site, as not the entire project area will be covered by project infrastructure. The difference accounts for those areas that will remain unshaded within the project impact footprint (depicted with hatch marks in Exhibit 3.4-7 above). Many project facilities, including project access roads, some solar array foundations/post, and the entire substation, switchyard, and battery storage facility would be constructed in previously developed areas (i.e., access roads, equipment storage areas, and almond orchards) and would not result in substantial habitat loss. Existing vegetation would remain in all of the areas in the project area that are not to be occupied by permanent (i.e., approximately 30- to 35-year life-of-project) facilities or infrastructure. Thus, the maximum impact acreages present a very conservative worst-case scenario, and the actual conversion/loss would likely be substantially less, particularly for annual grassland (see discussion above) which will remain or be allowed to re-establish under solar panel arrays.

The following activities could cause direct and indirect impacts on sensitive biological resources that are present on the project area:

- vegetation removal and grading at the substation, switchyard, and battery storage facility and for access roads;
- minor grading and vegetation removal under solar panel arrays;
- trenching for collector lines from the inverters (upland areas only);
- drilling posts into the ground and establishing foundations to support the solar arrays;
- temporary stockpiling of construction materials or other construction wastes;
- siltation from the construction site into adjacent areas; and
- potential runoff of diesel fuel, gasoline, oil, or other toxic materials used for project construction into adjacent wetlands and habitat for special-status species.
- potential impacts from operations and maintenance of the facility, such as driving around the site for inspections, washing panels, or conducting fence maintenance etc.

The following assumptions were used in assessing the magnitude of possible impacts on biological resources:

- Staging (including vehicle parking), storage, and access areas would be restricted to the project disturbance area or other existing developed sites.
- No ground-disturbing activities would occur in the transmission line easement areas.
- Indirect impacts to habitats adjacent to the project area would be avoided through establishment of appropriate buffers or by existing topographical barriers.
- Most impacts would occur during the approximately 18-month construction period; once constructed, activity at the site would be relatively low, related to maintenance and operations; activities onsite during operations and maintenance would generally be expected to be less than current farming operations, but the patterns of use would be different.

#### *3.4.3.2 Consistency with the Placer County Conservation Program*

Biological surveys conducted to support this DEIR analysis assessed land cover types and covered species habitat within the project area. Results of these surveys are provided above and are intended to provide information about land cover types and

covered species habitat on site to develop appropriate mitigation measures, and track loss of natural communities and covered species habitat as a result of buildout of the proposed project. Habitat types were cross referenced to those used in the PCCP. As mentioned above under special-status wildlife species, select protocol-level wildlife surveys are currently being conducted for the project area in compliance with the mitigation measures listed below. All mitigation measures below have been developed consistent with conservation measures in the PCCP even though the project is not a covered activity and cannot seek coverage under the PCCP. Table BR-2 in Appendix BR-1 provides a side-by-side comparison of mitigation measures in this EIR with conservation measures in the PCCP. Table BR-1 was developed in close coordination with Placer County and the PCA. Because the project is not covered under the PCCP, and is seeking separate permits and approvals, it cannot be entirely consistent with the PCCP that envisioned covered projects and associated fees for the project area. However, as it relates to threshold 6 below, this is a policy issue rather than a physical impact issue. Furthermore, mitigation anticipated for the proposed project closely resembles PCCP measures, as applicable.

#### *3.4.3.3 Thresholds of Significance*

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the CEQA Guidelines, as amended. The proposed project area would result in a significant impact related to biological resources if they would do any of the following:

- 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 CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS;
- 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;
- 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;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted HCP, natural community conservation plan, or other approved local, regional, or state HCP.

#### 3.4.3.4 *Impact Analysis*

**Impact 3.4-1. 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?**

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A total of 6 special-status plant species and 15 special-status wildlife species are known to occur in the project area or have a moderate to high potential to occur in the project area and could therefore be impacted by project implementation. Species-specific impacts and avoidance, minimization, and mitigation measures are provided below.

#### 3.4.3.5 *Special-Status Plant Species*

Six special-status plant were identified to have a moderate potential to occur within the project area, including Boggs Lake hedge-hyssop, dwarf downingia, legenere, pincushion navarretia, Ahart's dwarf rush, and Sanford's arrowhead. Suitable habitat for these species includes mesic areas in valley grassland and various types of aquatic resources (e.g., vernal pools, seasonal wetlands, and drainages), like those identified within the biological study area. Of these six special-status species, none are federally listed and only Boggs lake hedge-hyssop is state listed as endangered (CDFW 2022); all six special-status plant species have a CNPS CRPR rank of 1 or 2.

The 10% design plans for the project were developed to avoid any wetlands and other waters of the US and state to the greatest extent feasible, and to include appropriate buffers (250 feet for vernal pools and seasonal wetlands and 100 feet for perennial drainages and 50 feet for intermittent drainages), consistent with Placer County General Plan and PCCP policies. Thus, species that only occur in these habitats or their immediate vicinity will not be impacted by project implementation.

Project implementation may result in the loss of up to 61.6 acres of suitable habitats for special status plants, including 58.5 acres of annual grassland, some of which may be mesic/wet, and some agricultural ditches and canals. No vernal pools or seasonal wetland, the main habitat types potentially supporting special-status plant species, would be impacted based on the 10% project design.

Direct impacts on special-status plants may occur as a result of conversion of these habitat types, if special-status plants are present. Indirect impacts could occur from alteration of the hydrology of these features or from construction and operation runoff. However, the project has been designed to conform to natural topography and to abide by buffers established by Placer County. Furthermore, the project will be subject to Best Management Practices (BMPs) as provided in the Stormwater Pollution Prevention Plan (SWPPP) to be prepared for the project (See section 3.10 Hydrology and Water Quality). Thus, no indirect impacts to special-status plant species associated with wetland and drainage features are expected and this impact is not discussed further.



Loss of special-status plant species, if present in suitable habitat in the project area, as a result of project construction would be considered a **significant impact** under CEQA. Focused protocol-level surveys of all habitats that could support special-status plant species (dwarf downingia, Sanford's arrowhead) and would be impacted by project construction were conducted by AECOM botanists on May 5 and 6, 2022. The surveys were conducted at the appropriate time of year when target species would be blooming or otherwise clearly identifiable. No special-status plants were observed, and thus it was determined that no special-status plant species would be impacted by project construction. There is **no impact**.

#### 3.4.3.6 *Mitigation Measures*

No mitigation is required.

#### 3.4.3.7 *Special Status Wildlife Species*

##### **Western Spadefoot**

Western spadefoot is a state CDFW Species of Special Concern with a moderate potential to occur in the project area. Vernal pools, seasonal wetlands swales, and other aquatic resources in the project area provide habitat for western spadefoot. Development could impact Western spadefoot if this species is present within the solar development area prior to ground-disturbing activities.

Direct impacts on western spadefoot could occur if they are present during ground disturbing activities and become injured or killed by construction equipment or vehicles, and loss of habitat. Indirect impacts include degradation of adjacent habitat from stormwater runoff or fugitive dust.

The 10% design plans have been developed to avoid impacts to wetlands and other waters of the US and State to the greatest extent feasible, and to include appropriate buffers (250 feet for vernal pools and seasonal wetlands), consistent with Placer County General Plan and PCCP policies. With implementation of non-disturbance buffers around vernal pools and seasonal wetlands described below, direct or indirect impacts on this species are expected to be avoided. However, until all protection and training are in place, this impact remains **potentially significant**.

##### **Mitigation Measure 3.4-1. Worker Environmental Awareness Program (WEAP) and Biological Monitor Inspection**

SMUD will prepare a Worker Environmental Awareness Program that will educate staff regarding the presence or potential presence of all special-status species, sensitive natural communities, and protected wetlands with potential to occur, or that are known to occur, within the project area. The program shall describe their identification, habitat requirements, and penalties for species impacts, as well as immediate steps to take should special-status species be observed by staff on site.

This WEAP shall include biological resource avoidance and minimization measures/mitigation measures from the project's CEQA Mitigation Monitoring and Reporting Program, and any resource permits or agreements, as applicable. The WEAP will educate workers regarding sensitive species and their habitats, the need to avoid impacts, state and federal protection, and the legal implications of violating environmental laws and regulations. The WEAP can be provided in the form of a handout and/or video presentation. All staff working onsite shall attend the WEAP training prior to commencing onsite work. Staff that attend the training shall fill out a sign-in sheet indicating that they completed the training.

Prior to construction, a qualified biological monitor shall inspect all areas within the project site with the potential to support sensitive biological resources to ensure the proper implementation of all avoidance and minimization and mitigation measures, agency permit requirements, and environmentally sensitive area exclusion flagging and/or fencing have been properly implemented, and to deliver WEAP training as needed.

The biological monitor shall remain available on an on-call basis for the duration of project construction to conduct inspections and follow up surveys, as needed, and to ensure compliance with permit conditions. The qualified biological monitor shall have the experience, education and training necessary to conduct special-status species surveys and monitoring as described in the mitigation measures below.

During operation and maintenance, an annual Environmental Awareness Training shall be provided to onsite personnel, covering any sensitive biological resources that could be present onsite.

**Mitigation Measure 3.4-2. Establish Non-Disturbance Buffers around Vernal Pools and Seasonal Wetlands to protect Western Spadefoot during Construction and Operation**

Based on the assumptions that all vernal pools and seasonal wetlands in the project areas could provide suitable habitat for western spadefoot, SMUD, in coordination with a qualified biologist, will establish a 250-foot no-disturbance buffer from the high-water mark of the vernal pool or seasonal wetland habitat prior to commencement of ground-disturbing activities. The perimeter of the no-disturbance buffer will be delineated with a wildlife-friendly fence that allows the movement of wildlife, including western spadefoot (and also wide-ranging wildlife, such as coyotes), through the area. The fence will be maintained for the duration of project construction and operation. Signage will be installed on the fence indicating the buffer is an environmentally sensitive area. The boundaries of vernal pools, seasonal wetlands and associated 250-foot buffers will also be clearly delineated on project plans and specifications boundaries. No construction or ground-disturbing activities shall occur within the 250-foot buffer.

The fencing shall be kept in place for the duration of project construction and operations and shall be kept in good condition to prevent any construction, operation and maintenance activities from disturbing the sensitive habitat areas.

### **Significance after Mitigation**

The avoidance and minimization measures described above would avoid impacts on western spadefoots and their habitat by providing information about their potential status and presence in the project area and by establishing 250-foot non-disturbance buffers around all potential aquatic habitat. As a result, implementing this mitigation measure would reduce project impacts on western spadefoot from project construction, operation and maintenance to a **less-than-significant** level.

### **Western Pond Turtle**

Western pond turtle is a CDFW Species of Special Concern with a moderate potential to occur in aquatic habitats (emergent marsh, seasonal wetlands, riverine/riparian). Upland nesting and burrowing habitat is defined in the PCCP (PCCP 2020) as any land cover type within 150 feet of aquatic habitat, except for urban/suburban, rural residential, agricultural types, barren, and disturbed land cover. Development in the project area could impact this species if upland nesting or aestivation sites or individual turtles are present within the construction footprint during ground disturbance.

Project implementation may result in the loss of up to 3.7 acres of suitable habitats for western pond turtle, including 3.1 acres of cattail marsh (likely impact less, as discussed above), 0.5 acre of sandbar willow riparian, and 0.1 acre of cottonwood riparian. Western pond turtles are unlikely to be directly affected by construction activities because this wary species is mobile and able to avoid disturbance by diving into ponds or streams, but construction equipment could crush the nests of pond turtles, destroying eggs. These potential impacts would be avoided and minimized by implementing the measures described below.

Ground-disturbing construction activities may also result in sedimentation and water quality impacts on nearby waterways. Construction could result in adverse impacts on water quality in nearby aquatic habitat occupied by pond turtles, including transport of sediment (erosion) and runoff of contaminants (e.g., fuel, lubricants). Implementation of avoidance and minimization measures and Best Management Practices (BMPs) described in Section 3.10 "Hydrology and Water Quality" would avoid and minimize water quality impacts.

Direct or indirect impacts to this species would be considered a **potentially significant** impact under CEQA. To reduce impacts to western pond turtle and its habitat to less than significant with mitigation incorporated, the measures below will be implemented to avoid and minimize direct or indirect impacts on this species.

**Mitigation Measure 3.4-3. Conduct Pre-Construction Surveys for Western Pond Turtle**

- Project ground-disturbing activities will be conducted outside of western pond turtle's active breeding and dispersal season (i.e., after May 1 and before September 15), to the extent feasible. If project activities must be implemented during the breeding and dispersal season, they will not start until 30 minutes after sunrise and must be completed 30 minutes prior to sunset.
- A qualified biologist shall conduct a pre-construction survey for western pond turtle within 48 hours prior to the start of construction activities within 300 feet of suitable habitat (e.g., any adjacent waterway, marsh, or emergent wetland). Concurrently with the pre-construction survey, searches for nesting sites shall be conducted and any identified sites shall be delineated with high-visibility flagging or fencing and avoided during construction activities. If avoidance is not possible, the nest and/or turtle shall be removed by a qualified biologist and relocated to an appropriate location in consultation with CDFW.

**Mitigation Measure 3.4-4. Avoid Impacts on Western Pond Turtle during Construction**

If turtles and/or nests are encountered during the pre-construction survey, a qualified biologist shall be present during grubbing and clearing activities in suitable habitat (aquatic) to monitor for western pond turtle. If a turtle is observed in the active construction zone, construction shall cease within a 100-foot buffer. Construction may resume when the biologist has, in consultation with CDFW, either hand-captured and relocated the turtle to nearby suitable habitat outside the construction zone, or, after thorough inspection, determined that the turtle has moved away from the construction zone.

On-site personnel will observe a 20-mile-per-hour speed limit at all times.

Information about avoidance and minimization measures for western pond turtles shall be included in the WEAP described above in Mitigation Measure 3.4-1.

**Significance after Mitigation**

The avoidance and minimization measures described above would avoid impacts on western pond turtles by establishing 100-foot non-disturbance buffers around all potential habitat for this species. Implementation of BMPs would avoid and minimize water quality impacts that could adversely affect pond turtle habitat. As a result, implementing this mitigation measure would reduce project impacts on western pond turtle to a **less-than-significant** level.

**Giant Garter Snake**

The giant garter snake is both federally and state listed as threatened. This species inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley. Most of the snake's natural habitat has been lost, which is why the species commonly inhabits agricultural rice-fields and seasonally flooded agricultural areas. Giant garter snakes are dormant during the winter, so they inhabit small mammal burrows and other soil crevices above flood elevations during this inactive period. The snakes typically select burrows with sunny exposure along south and west facing slopes (Hansen et al. 2017).

As discussed above in the Special-Status Wildlife Section, site-specific surveys and habitat assessments have determined that the probability of giant garter snake occurrence at the project site is very low. While the project will not result in loss of giant garter snake habitat (indirect impacts), construction activities could present a risk of mortality (e.g., construction vehicles crushing giant garter snakes basking on roads, direct impacts) in the unlikely event that individuals of this species occurred in the project area. Direct impacts to this species would be considered a significant impact under CEQA. The avoidance and minimization measures described below would avoid these potential direct impacts.

**Mitigation Measure 3.4-5. Conduct Pre-Construction Surveys for Giant Garter Snake and Implement Avoidance and Minimization Measures**

- Project ground-disturbing activities in aquatic habitat and adjacent upland habitat within 200 feet of aquatic habitat will be conducted during the giant garter snake's active season (i.e., after May 1 and before October 1), to the extent feasible. During this period, the potential for direct mortality is reduced, because snakes are expected to actively move and avoid danger. If project activities in aquatic habitat and adjacent upland habitat within 200 feet of aquatic habitat must be implemented outside of the snake's active season, the following mitigation measures must be implemented:
  - Within 24-hours prior to commencement of construction activities within 200 feet of potential giant garter snake habitat, the site shall be inspected by a qualified biologist who is approved by the CDFW and USFWS. If construction activities stop for a period of 2 weeks or more, another preconstruction clearance survey will be conducted within 24 hours before resuming construction activity. If snakes, or evidence of snakes, are encountered during preconstruction surveys, a biological monitor shall be present

during construction activities in aquatic habitat and adjacent upland habitat within 200 feet of aquatic habitat.

- The monitoring biologist shall be present during construction within 200 feet of potential aquatic habitat for giant garter snake (i.e., drainages that contain water) for the duration of the project. If a snake is encountered during construction activities, the monitoring biologist shall have the authority to stop construction activities until appropriate corrective measures have been completed or it is determined that the snake will not be harmed. The monitor will remain in the area for the remainder of the workday to ensure the snake is not harmed or, if it leaves the site, does not return. The qualified biologist will work with the PCA, USFWS, and CDFW to redirect the snake away from the disturbance area within 3 days of reporting the snake's presence at the construction site to USFWS and CDFW.
- The project biologist shall report any observations of giant garter snake to CDFW and USFWS within 24 hours of detection.
- Information about avoidance and minimization measures for giant garter snake shall be included in the WEAP described above in Mitigation Measure 3.4-1.

### **Significance after Mitigation**

The avoidance and minimization measures described above would avoid direct impacts on giant garter snake by conducting surveys within 200 feet of giant garter snake potential habitat and monitoring during construction. As a result, implementing this mitigation measure would reduce potential project impacts on giant garter snake to a **less-than-significant** level.

### **Black Rail**

The project would result in loss of potentially suitable habitat for California black rail (i.e., cattail marsh), in the amounts shown in Table 3.4-3 above. If California black rail is present in project area wetlands, direct or indirect loss of active nests could occur. The loss or abandonment of active nests of this species could result in a substantial adverse impact on the local population because of the rarity status of the species and relative isolation of the recently discovered inland foothill population. Implementation of avoidance and minimization measures that would require a non-disturbance buffer to occupied habitat during the breeding season would avoid any adverse impacts on active nest sites of California black rail.

Because this species is a year-round resident where it occurs, ground-disturbing activities occurring in potential habitat outside the breeding season such as mechanical vegetation removal, grading, or the placement of fill also could injure or crush individuals, if present during project implementation. Although adults and fledged

juveniles are mobile and would presumably be able to move out of harm's way, individuals typically run on the ground and are generally reluctant to fly (Eddleman et al. 1994), and may not move quickly enough to avoid injury or mortality. In addition, project-related changes to the hydrological regime of wetlands that support California black rails, including drying up existing wetlands or creating flooded conditions rather than shallowly inundated wetlands, could reduce or eliminate suitable foraging habitat for this species. Implementation of avoidance and minimization measures, including required consultation with CDFW to avoid take of this fully protected species if it is found to be present, would reduce any adverse impacts.

**Mitigation Measure 3.4-6. Survey for California Black Rails and Implement Avoidance Measures**

- Preconstruction Call-Playback Surveys for California Black Rail. A qualified biologist will conduct a preconstruction survey in potentially suitable habitat for this species in the project footprint and a 500-foot buffer to the project footprint. Surveys will be initiated sometime between March 15 and May 31, preferably before May 15. A minimum of four surveys will be conducted. The survey dates will be spaced at least 10 days apart and will cover the time period from the date of the first survey through the end of June to early July. This will allow the surveys to encompass the time period when the highest frequency of calls is likely to occur. Projects must conduct surveys during this time period, regardless of when the project is scheduled to begin, and shall be conducted the year in which ground disturbance activities commence. Surveys will follow a standardized tape call-playback/response protocol similar to that of Evens et al. 1991 and Richmond et al. 2008 or other CDFW-approved method. The surveys will document the presence or absence of black rail. CDFW will be notified within 2 business days of any identified black rail detections.
- If California black rails are detected during preconstruction surveys, the following additional measures will be implemented in association with occupied California black rail habitats:
- SMUD will establish and maintain a non-disturbance buffer of up to 500 feet around all identified occupied wetland habitat, depending on site-specific conditions and at the discretion of a qualified biologist in consultation with CDFW. Where feasible, all construction-related activities will be excluded from the buffer for the duration of project implementation.
- Where maintaining the non-disturbance buffer for the duration of the project is not feasible, at minimum, all construction-related activities will be excluded from the buffer for the duration of the breeding season



(March through September, or for lesser duration as approved by CDFW).

- If project activities are necessary within the established non-disturbance buffer or within occupied habitat, including potential alterations to hydrological conditions that support black rail habitat, SMUD will consult with CDFW to identify a strategy that will avoid take of the year-round resident California black rail. This may or may not include work windows outside the breeding season, installation of wildlife exclusion fencing, and/or methods for passive exclusion of individuals out of the temporary and permanent impact area such as through the hand removal of vegetation before other project-related ground disturbances, as determined in consultation with CDFW. A qualified biologist will be present for any construction activities occurring within the non-disturbance buffer; the intensity and frequency of the monitoring will be established in consultation with CDFW.
- Information about avoidance and minimization measures for California black rails shall be included in the WEAP described above in Mitigation Measure 3.4-1.

### **Significance after Mitigation**

The avoidance and minimization measure described above would avoid impacts on California black rails by conducting pre-construction surveys at all potential habitat and, in coordination with CDFW, and establishing 500-foot non-disturbance buffers around that habitat. As a result, implementing this mitigation measure would reduce project impacts on California black rails to a **less-than-significant** level.

### **Western Burrowing Owl**

The western burrowing owl is a CDFW Species of Special Concern. There is suitable habitat for burrowing owl in the project area in open grassland areas. These relatively undisturbed, open areas provide suitable foraging and nesting habitat for the species.

Project implementation may result in the loss of up to 58.5 acres of suitable habitat (grassland) for burrowing owl. However, installation of solar panels will not preclude use of the site by burrowing owls because the solar fields will be maintained as grazed annual grassland and will still provide foraging habitat. Direct impacts on burrowing owl may occur if burrowing owls were present during construction and would be affected by the noise and disturbance associated with construction activities.

Impacts to burrowing owls, their nests, or young, would likely be considered a **potentially significant impact** under CEQA and would be considered take under the MBTA. To reduce impacts to burrowing owl and its habitat to less than significant with mitigation incorporated, the following measures will be implemented to avoid, minimize, and mitigate direct or indirect impacts to this species.

To avoid and minimize impacts on burrowing owls, SMUD will implement the following guidelines adapted from the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFG 2012):

**Mitigation Measure 3.4-7 Avoid and Minimize Impacts on Burrowing Owl**

- SMUD will have preconstruction burrowing owl surveys conducted in all areas that may provide suitable nesting habitat according to CDFW (CDFG 2012) guidelines. A qualified wildlife biologist shall conduct take avoidance surveys, including documentation of burrows and burrowing owls, in all suitable burrowing owl habitat within 250 feet of proposed construction. Two surveys will be conducted within 15 days prior to ground disturbance to establish the presence or absence of burrowing owls. The surveys will be conducted at least 7 days apart (if burrowing owls are detected on the first survey, a second survey is not needed) for both breeding and non-breeding season surveys. All burrowing owls observed will be counted and mapped.
- During the breeding season (February 1 to August 31), surveys will document whether burrowing owls are nesting in or within 250 feet of the project area.
- During the non-breeding season (September 1 to January 31), surveys will document whether burrowing owls are using habitat in or directly adjacent to any area to be disturbed. Survey results will be valid only for the season (breeding or non-breeding) during which the survey was conducted.
- The qualified biologist will survey the proposed footprint of disturbance and a 250-foot radius from the perimeter of the proposed footprint to determine the presence or absence of burrowing owls. The site will be surveyed by walking line transects, spaced 20 to 60 feet apart, adjusting for vegetation height and density. At the start of each transect and, at least, every 300 feet, the surveyor, with use of binoculars, shall scan the entire visible project area for burrowing owls. During walking surveys, the surveyor will record all potential burrows used by burrowing owls, as determined by the presence of one or more burrowing owls, pellets, prey remains, whitewash, or decoration. Some burrowing owls may be detected by their calls; therefore, observers will also listen for burrowing owls while conducting the survey.
- Adjacent parcels under different land ownership will be surveyed only if access is granted. If portions of the survey area are on adjacent sites for which access has not been granted, the qualified biologist will get as close

to the non-accessible area as possible and use binoculars to look for burrowing owls.

- The presence of burrowing owl or their sign anywhere on the site or within the 250-foot accessible radius around the site will be recorded and mapped. Surveys will map all burrows and occurrence of sign of burrowing owl on the project site. Surveys must begin 1 hour before sunrise and continue until 2 hours after sunrise (3 hours total) or begin 2 hours before sunset and continue until 1 hour after sunset. Additional time may be required for large project sites.

If a burrowing owl or evidence of presence at or near a burrow entrance is found to occur within 250 feet of the project site, the following measures will be implemented:

- **Burrowing Owl 2.** If burrowing owls are found during the breeding season (approximately February 1 to August 31), the project applicant will:
  - Avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups foraging on or near the site following fledging).
  - Establish a 250-foot non-disturbance buffer zone around nests. The buffer zone will be flagged or otherwise clearly marked. Should construction activities cause the nesting bird to vocalize, make defensive flights at intruders, or otherwise display agitated behavior, then the exclusionary buffer will be increased such that activities are far enough from the nest so that the bird(s) no longer display this agitated behavior. The exclusionary buffer will remain in place until the chicks have fledged or as otherwise determined by a qualified biologist.
  - Construction may only occur within the 250-foot buffer zone during the breeding season only if a qualified raptor biologist monitors the nest and determines that the activities do not disturb nesting behavior, or the birds have not begun egg-laying and incubation, or that the juveniles from the occupied burrows have fledged and moved off site. Measures such as visual screens may be used to further reduce the buffer with Wildlife Agency approval and provided a biological monitor confirms that such measures do not cause agitated behavior.
- **Burrowing Owl 3.** If burrowing owls are found during the non-breeding season (approximately September 1 to January 31), the project applicant will establish a 160-foot buffer zone around active burrows. The buffer

zone will be flagged or otherwise clearly marked. Measures such as visual screens may be used to further reduce the buffer with CDFW approval and provided a biological monitor confirms that such measures do not cause agitated behavior.

- **Burrowing Owl 4.** During the non-breeding season only, if a project cannot avoid occupied burrows after all alternative avoidance and minimization measures are exhausted, as confirmed by CDFW, a qualified biologist may passively exclude birds from those burrows. A burrowing owl exclusion plan must be developed by a qualified biologist consistent with the most recent guidelines from CDFW (e.g., California Department of Fish and Game 2012) and submitted to and approved by CDFW. Burrow exclusion may be conducted for burrows located in the project footprint and within a 160-foot buffer zone as necessary.

Information about avoidance and minimization measures for western burrowing owl shall be included in the WEAP described above in Mitigation Measure 3.4-1.

#### **Mitigation Measure 3.4-8. Compensate for the Loss of Burrowing Owl Habitat**

If burrowing owls are documented as breeding in the project area, compensatory mitigation shall be provided for permanent impacts on (removal of) burrowing owl nesting and foraging habitat. Burrowing owl foraging and nesting habitat will still be available after installation of solar panels. However, if the project results in a net loss of nesting or grassland foraging habitat due to conversion of 57.2 acres of grassland habitat to project infrastructure the loss of habitat will be mitigated as described in CDFW guidelines (CDFG 2012) in consultation with CDFW. The performance standard for compensatory mitigation for nesting and foraging habitat will be to achieve no net loss of habitat value to the burrowing owl. Compensatory mitigation for habitat loss shall be consistent with guidance by CDFW (CDFG 2012) and may include development and implementation of a land management plan to address long-term ecological sustainability and maintenance of the site for burrowing owls on the project site, acquisition of credits in a burrowing owl mitigation bank, or another form of mitigation acceptable to CDFW, such as payment of fees into the PCCP's in-lieu fee program under a Memorandum of Understanding (MOU) with the PCA prior to issuance of improvement plans. In-lieu fee payments would address impacts to special-status species, sensitive natural communities, wetlands and other waters of the US and state/County, and impacts to agricultural lands resulting from the conversion of important farmland (see Mitigation Measure 3.2-1 in Section 3.2 "Agricultural Resources" of this Draft EIR). Payments may be spread out in alignment with construction phasing and will occur prior to the start of each new phase. The compensatory mitigation will be consistent with the PCCP goal of maintaining or increasing the population size of overwintering western burrowing

owl and promoting expansion of breeding populations of burrowing owls and will be approved by CDFW. Compensatory mitigation will include the following requirements as described in CDFG 2012:

- Permanently protect mitigation land through a conservation easement deeded to a non-profit conservation organization or public agency with a conservation mission, for the purpose of conserving burrowing owl habitat and prohibiting activities incompatible with burrowing owl use. This may occur through the payment of fees into the PCCP's in-lieu fee program under a Memorandum of Understanding (MOU) with the PCA prior to issuance of improvement plans. In-lieu fee payments would address impacts to special-status species, sensitive natural communities, wetlands and other waters of the US and state/County, and impacts to agricultural lands resulting from the conversion of important farmland (see Mitigation Measure 3.2-1 in Section 3.2 "Agricultural Resources" of this Draft EIR). Payments may be spread out in alignment with construction phasing and will occur prior to the start of each new phase. If the project is located within the service area of a CDFW-approved burrowing owl conservation bank, the project proponent may also purchase available burrowing owl conservation bank credits.
- Develop and implement a mitigation land management plan to address long-term ecological sustainability and maintenance of the site for burrowing owls.
- Fund the maintenance and management of mitigation land through the establishment of a long-term funding mechanism such as an endowment.

### **Significance after Mitigation**

The avoidance, minimization and mitigation measures described above would avoid impacts on western burrowing owls by conducting protocol pre-construction surveys and implementing non-disturbance buffers in accordance with CDFW guidance (CDFG 2012). If the project site is occupied by burrowing owls mitigation for any net loss of foraging habitat due to conversion of 57.2 acres of grassland will be mitigated consistent with CDFW guidance. As a result, implementing this avoidance and minimization and compensatory mitigation would reduce project impacts on western burrowing owls to a **less-than-significant** level.

### **Swainson's Hawk**

Swainson's hawk is a state threatened species and individuals were observed foraging in the project area and roosting in large willow trees southwest of the project area during biological surveys. Large trees along the edges of the project area and within 0.5 mile outside of the project area provide potential nesting habitat for Swainson's hawk, and open areas (grassland, pasture, and ruderal areas) in the project area provide foraging habitat for the species.

Construction activities, including grading and grubbing, near suitable nesting habitat (e.g., individual trees or riparian woodland habitats) within the project area could disturb a nesting Swainson's hawk. No large trees suitable for nesting Swainson's hawk will be removed by the project. If trees within 0.5 mile of the project area become occupied by nesting Swainson's hawk prior to construction, then project construction activities could result in the incidental loss of adults, juveniles, nestlings, or fertile eggs. Increased levels of noise and human activity within 0.5 mile of an active nest could result in nest abandonment or forced fledging and subsequent loss of fertile eggs, nestlings, or juveniles. These construction-generated disturbances could also cause Swainson's hawks to temporarily avoid foraging in the project area. Conversion of grassland land cover to solar fields and other facilities (i.e., disturbed habitat) could result in impacts on Swainson's hawk through permanent loss of foraging habitat. Although there is a large amount of available foraging habitat in the project vicinity, grassland conversion in the project area would decrease available foraging habitat for locally nesting Swainson's hawks and, depending on the intensity of Swainson's hawk use of the affected foraging habitat, this decrease could result in displacement of nesting pairs, reduction in reproductive potential, or decreased survival rates, particularly for hawks nesting within 0.5 mile of the project area.

Furthermore, project implementation may result in the loss of up to 62.6 acres of suitable foraging habitat (58.5 acres of grassland, 4.1 acres of ruderal areas) for Swainson's hawk.

As a state-listed species, impacts to Swainson's hawks would be considered take under CESA, and therefore would be a **significant impact** under CEQA. To reduce impacts on Swainson's hawk and avoid potential for take, the following measures will be implemented to avoid, minimize, permit, and mitigate direct or indirect impacts to this species.

#### **Mitigation Measure 3.4-9. Conduct Pre-Construction Surveys for Swainson's Hawk and Implement Protective Buffers.**

**Preconstruction Surveys.** A qualified biologist will conduct preconstruction surveys for Swainson's hawks during the nesting season (March 1 through August 21) within the project footprint and of all suitable nesting habitat within line of sight of construction activities within a 0.25-mile radius of the project footprint. The surveys will be conducted no more than 15 days prior to ground disturbance and will be conducted using methods consistent with guidelines provided in *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in the Central Valley* (SHTAC 2000) with the following exceptions:

- Surveys will be required within a 0.25 miles (1,320-foot) radius around the project site. In instances where an adjacent parcel is not accessible to survey because the qualified biologist was not granted permission to enter, the qualified biologist will scan all potential nest tree(s) from the

adjacent property, road sides, or other safe, publicly accessible viewpoints, without trespassing, using binoculars and/or a spotting scope to look for Swainson's hawk nesting activity;

- Surveys will be required from February 1 to September 15 (or sooner if it is found that birds are nesting earlier in the year); and
- If a Swainson's hawk nest is located and presence confirmed, only one follow-up visit is required (to avoid disturbance of the nest due to repeated visits).

**Nest Buffers.** If active Swainson's hawk nests are found, appropriate buffers shall be established around active nest sites, in coordination with CDFW, to provide adequate protection for nesting raptors and their young. No project activity shall commence during the nesting season within the buffer areas until the qualified biologist has determined that the young have fledged, the nest is no longer active, or reducing the buffer would not result in nest abandonment.

**Nest Monitoring.** Monitoring of the nest by a qualified biologist during construction activities may be required if the qualified biologist determines that the activity has potential to adversely affect the nest. If construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the no-disturbance buffer shall be increased until the agitated behavior ceases. The exclusionary buffer will remain in place until the qualified biologist has confirmed that the chicks have fledged.

Information about avoidance and minimization measures for Swainson's hawk shall be included in the WEAP described above in Mitigation Measure 3.4-1.

#### **Mitigation Measure 3.4-10. Compensate for the Loss of Swainson's Hawk Foraging Habitat**

To offset net impacts on foraging habitat for breeding Swainson's hawks SMUD will mitigate the loss of Swainson's hawk foraging habitat in accordance with CDFW recommendations (CDFG 1994) by providing mitigation lands or securing Swainson's hawk mitigation bank credits as follows:

- Foraging habitat permanently lost within 5 miles of an active Swainson's hawk nest tree but more than 1 mile from the nest tree will be replaced with 0.75 acre of mitigation land for each acre of foraging habitat permanently lost because of project construction (0.75:1 ratio). Foraging habitat for nests that are within 1 mile of the project site will be mitigated at a 1:1 ratio. All mitigation lands protected under this requirement shall be protected in a form acceptable to CDFW (e.g., through fee title acquisition or conservation easement) on agricultural lands or other suitable habitats



that provide foraging habitat for Swainson's hawk. This may occur through the payment of fees into the PCCP's in-lieu fee program under a Memorandum of Understanding (MOU) with the PCA prior to issuance of improvement plans. In-lieu fee payments would address impacts to special-status species, sensitive natural communities, wetlands and other waters of the US and state/County, and impacts to agricultural lands resulting from the conversion of important farmland (see Mitigation Measure 3.2-1 in Section 3.2 "Agricultural Resources" of this Draft EIR). Payments may be spread out in alignment with construction phasing and will occur prior to the start of each new phase. Management authorization holders/project sponsors will provide for management of the mitigation lands in perpetuity by funding a management endowment.

### **Significance after Mitigation**

The avoidance, minimization and mitigation measures described above would avoid impacts on nesting Swainson's hawk and would also replace foraging habitat for Swainson's hawks at a 1:1 ratio (based on nearby nesting Swainson's hawks) to replace and offset the foraging habitat lost due to project construction. As a result, implementing this mitigation measure would reduce project impact on Swainson's hawk to a **less-than-significant** level.

### **Tricolored Blackbird**

Tricolored blackbird is state threatened species under CESA. Dense stands of emergent vegetation, willows, thistle, and Himalayan blackberry in the project area, provide nesting habitat for tricolored blackbird, and the open grassland and cultivated fields provide foraging habitat for this species.

If vegetation within 500 feet of project activities becomes occupied by nesting tricolored blackbirds prior to construction, then project construction activities could result in the incidental loss of adults, juveniles, nestlings, or fertile eggs. Increased levels of noise and human activity within 500 feet of an active nest colony could result in nest abandonment or forced fledging and subsequent loss of fertile eggs, nestlings, or juveniles. These construction-generated disturbances could also cause tricolored blackbirds to temporarily avoid foraging in the project area. Conversion of grassland and cultivated field land cover to solar fields and other facilities (i.e., disturbed habitat) could result in impacts on tricolored blackbird through permanent loss of foraging habitat. Although there is a large amount of available foraging habitat for in the project vicinity, grassland and field conversion in the project area would decrease available foraging habitat for locally nesting tricolored blackbirds and this decrease could result in displacement of nesting pairs, reduction in reproductive potential, or decreased survival rates.

Active tricolored blackbird colonies have been documented within 1.5 miles of the project site. If tricolored blackbirds were to nest in the blackberry thickets and cattail marsh at the project site, impacts on a tricolored blackbird nesting colony (i.e., direct

impacts on nests or young or abandonment of nests due to project disturbance) would be considered take under CESA and a **significant impact** under CEQA. Avoidance and minimization measures will be implemented to avoid take of tricolored blackbird.

Project implementation may result in the loss of suitable nesting (0.5 acre of sandbar willow scrub, 0.1 acre of Himalayan blackberry thicket, and up to 0.04 acres of cattail marsh) habitats for tricolored blackbird. No tricolored blackbird nesting activity has ever been documented at the project site, and no currently active tricolored blackbird nesting colonies have been recorded within five miles of the site. Loss of potential nesting habitat at a site that is not currently and which has never supported tricolored blackbirds is not likely to adversely affect tricolored blackbird populations in western Placer County. Foraging habitat for tricolored blackbirds is available in the project area's grasslands and rice fields.. The conversion of rice fields to pollinator/grassland habitat in the areas to be occupied by solar panels will not result in loss of tricolored blackbird foraging habitat. Therefore, the loss of potential nesting and foraging habitat for tricolored blackbirds is a **less than significant impact** on this species.

To reduce impacts on tricolored blackbird to less than significant with mitigation incorporated, the following measures will be implemented to avoid and minimize direct or indirect impacts to this species.

#### **Mitigation Measure 3.4-11. Conduct Focused Pre-Construction Surveys for Nesting Tricolored Blackbird and Avoid Impacts During Construction**

- **Preconstruction Tricolored Blackbird Surveys.** Before any ground-disturbing activities or vegetation clearing that may result in effects on potential habitat for Tricolored Blackbird (TRBL), a qualified biologist will conduct a preconstruction survey in potentially suitable nesting habitat (i.e., blackberry thickets and cattail marsh) for this species in the project footprint and a 500-foot buffer to the project footprint. The biologist will conduct three separate surveys, one each in mid-April, mid-May, and mid-June (Beedy, pers. comm., 2022a), and will use methods consistent with survey protocol used by surveyors for the Western Riverside County MSHCP 2018 [https://www.wrc-rca.org/species/survey\\_protocols/2018\\_Tricolored\\_Blackbird\\_Survey\\_Protocol.pdf](https://www.wrc-rca.org/species/survey_protocols/2018_Tricolored_Blackbird_Survey_Protocol.pdf)). If an active nesting colony is detected during the surveys CDFW will be consulted to provide any guidance on appropriate avoidance and minimization measures in addition to those described below.
- **Avoidance and Minimization.** Project activities will avoid occupied TRBL nesting habitat. If TRBL colonies are identified during the breeding season, an approximate buffer of up to 500 feet will be established around the colony, depending on site-specific conditions and at the discretion of a qualified biologist in consultation with CDFW. Any construction-related activities will be excluded from the buffer until the end of the breeding season.

- **Construction Monitoring.** If construction takes place during the breeding season when an active colony is present within 500 feet of construction activities, a qualified biologist will regularly monitor construction to ensure that the buffer zone is enforced and to verify that construction is not disrupting the colony. The intensity and frequency of the monitoring will be established in consultation with CDFW. If monitoring indicates that construction outside of the buffer is affecting a breeding colony, the buffer will be increased, as needed, in consultation with CDFW.
- Information about avoidance and minimization measures for tricolored blackbird shall be included in the WEAP described above in Mitigation Measure 3.4-1.

### **Significance after Mitigation**

The avoidance and minimization measures described above would avoid impacts on tricolored blackbird nesting colonies by conducting preconstruction surveys, implementing a 500-foot buffer (or larger, if specified by CDFW) around any nesting colonies detected during the survey, and conducting nest colony monitoring during construction. As a result, implementing this mitigation measure would reduce project impact on tricolored blackbird to a **less-than-significant** level.

### **Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp**

Vernal pool fairy shrimp are a federally threatened species and vernal pool tadpole shrimp are a federally endangered species. Both species of these large branchiopods may be present in vernal pool and seasonal wetland habitats in the project area.

Approximately 1.5 acres of vernal pool complex and 5.3 acres of seasonal wetland complex is present within the project area. Vernal pool fairy shrimp and vernal pool tadpole shrimp species and their habitat are subject to agency jurisdiction pursuant to regulations under Federal Endangered Species Act (FESA), CESA, CFGC, and CEQA Guidelines. Implementation of measures to avoid, minimize, and mitigate indirect and direct impacts on jurisdictional wetlands and waters that provide potential habitat for large listed branchiopod species are provided below and will reduce impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp habitat to less than significant with mitigation incorporated.

The following mitigation measure will be implemented to avoid, minimize, and mitigate potential direct impacts on vernal pool fairy shrimp and vernal pool tadpole shrimp to less than significant with mitigation incorporated.

### **Mitigation Measure 3.4-12. Avoid Impacts on Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp During Construction**

Vernal pools and seasonal wetlands in the project area provide potentially suitable habitat for vernal pool fairy shrimp and tadpole shrimp. A 250-foot no-disturbance buffer area will be established from the high-water mark of the vernal

pool or wetland habitat prior to construction and will be delineated by fencing as described in Mitigation Measure 3.4-2 and confirmed by a qualified biologist. The boundaries of vernal pools, seasonal wetlands and associated 250-foot buffers will also be clearly delineated on project plans and specifications boundaries. No construction or ground-disturbing activities shall occur within the 250-foot buffer. All construction activities are prohibited within this buffer area. With complete avoidance of ground-disturbing activities within vernal pools and seasonal wetlands and a 250-foot buffer beyond the boundaries of these aquatic features, no direct or indirect impacts will occur to vernal pool fairy shrimp or tadpole shrimp and no further avoidance or minimization measures are required.

Information about avoidance and minimization measures for vernal pool fairy shrimp and vernal pool tadpole shrimp shall be included in the WEAP described above in Mitigation Measure 3.4-1.

### **Significance after Mitigation**

The avoidance and minimization measures described above would avoid impacts on vernal pool fairy shrimp and vernal pool tadpole shrimp and their habitat by establishing 250-foot non-disturbance buffers around all potential aquatic habitat. As a result, implementing this mitigation measure would reduce project impacts on vernal pool fairy shrimp and tadpole shrimp to a **less-than-significant** level.

### **American Badger**

American badger is CDFW Species of Special Concern that is known to occur in the relatively undisturbed grassland habitat in the biological study area, where badger sign (i.e., distinctive claw marks in partially-dug holes) was documented in the northwestern portion of the project area. Project development could impact this species if the species is denning in or near the construction footprint during ground disturbance activities.

Impacts on this species will be reduced to less than significant with implementation of the following measures to avoid and minimize impacts on American badger.

### **Mitigation Measure 3.4-13. Conduct Focused Pre-Construction Surveys for American Badger and Implement Avoidance Measures during Construction**

A qualified biologist shall conduct focused surveys for American badger dens no more than 14 days prior to ground-disturbing activities in grassland habitat. The survey shall cover the limits of ground disturbance and a 100-foot buffer. Any winter or natal American badger dens located during the survey shall be evaluated (typically with remote cameras) to determine activity status.

If American badger dens are detected in the project area, the qualified biologist shall establish a 100-foot no-disturbance buffer (e.g., wildlife-friendly fencing, flagging, or similar) around any active American badger natal dens identified during the survey. The buffer shall be maintained until the qualified biologist

determines that the den is no longer active, and the young are no longer dependent upon the den for survival.

If construction is scheduled to begin during the non-breeding period (i.e., typically from June through February) and an active non-natal den is found in or adjacent to the construction footprint, a qualified biologist shall develop a plan in consultation with CDFW to trap or flush the individual and relocate it to suitable habitat away from construction. If no dens are observed, and/or after a trapping or flushing effort is completed, and/or after it is confirmed that a natal den is no longer active, the vacated or unoccupied den can be excavated, and construction can proceed.

If American badger is detected during the surveys the qualified biologist will determine if regular monitoring of the badger den is required to ensure there are no impacts to this species and its habitat during construction.

Information about avoidance and minimization measures for American badger shall be included in the WEAP described above in Mitigation Measure 3.4-1.

### **Significance after Mitigation**

The avoidance and minimization measures described above would avoid impacts on badger dens by establishing 100-foot non-disturbance buffers around all potential habitat. Monitoring of the den to ensure avoidance is achieved may also be deemed necessary by the qualified biologist. As a result, implementing this mitigation measure would reduce project impacts on American badgers to a **less-than-significant** level.

### **Western Red Bat**

The western red bat is a State species of special concern. It is a solitary foliage-roosting species that occurs throughout California. Roosting habitat includes forest and woodlands, but this species generally is considered to be associated with riparian habitats (e.g., willows, cottonwoods, and sycamores) and may occasionally use caves. Roost sites are primarily located in trees, often in edge habitats adjacent to streams, open fields, or urban areas. Potentially suitable roosting and foraging habitat for red bats occur in riparian habitat in the project site, and this species may also forage in grasslands. Project construction is not expected to result in impacts to western red bat roosts because the riparian forest in the project area will not be affected by the construction. The only proposed tree removal will occur in the orchards. While red bat day roosts have been recorded in orchard trees, such records are from orchard trees near aquatic or riparian habitat and orchard trees in the project area are not likely to provide suitable habitat for western red bat day roosts. The project will not result in significant impacts on western red bat.

#### **3.4.3.8 Mitigation:**

No mitigation is required.

**Nesting Raptors and Migratory Birds**

Potential nesting habitat for migratory bird species within the project area includes open grassland for ground-nesting species, scattered trees and shrubs, and cattail and emergent marsh vegetation. Special-status raptors and other birds observed in the biological study area during biological surveys include white-tailed kite, northern harrier, and loggerhead shrike. Suitable nesting habitat for song sparrow “Modesto” population, as CDFW Species of Special Concern, is also present throughout the project area.

Project construction could involve removal of vegetation and isolated trees, which has the potential to impact special-status nesting birds as well as birds protected by the federal MBTA and the state CFGC. Potential direct and indirect impacts on nesting migratory birds and raptors are like those described above for tricolored blackbird. In addition to violating the protections under the MBTA and CFGC, direct or indirect impacts on nesting birds would be considered a potentially significant impact under CEQA.

To reduce impacts on nesting birds and raptors to less than significant, the following measures will be implemented to avoid and minimize impacts.

**Mitigation Measure 3.4-14. Conduct Pre-Construction Surveys for Nesting Birds and Raptors**

Tree or vegetation removal shall be conducted outside of the nesting season (i.e., the nesting season is defined as February 1 through August 31) to the greatest extent feasible.

If construction activities will begin during the nesting season, a qualified biologist shall conduct a survey for nesting birds no more than 3 days prior to vegetation removal or ground-disturbing activities during the nesting season within suitable habitat (i.e., February 1 through August 31). The survey shall cover the limits of construction and accessible suitable nesting habitat within 500 feet. If any active nests are observed during surveys, a qualified biologist should establish a suitable avoidance buffer from the active nest. The buffer distance will typically range from 50 feet (for nesting passerines) to 500 feet (for nesting raptors) and will 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.

If vegetation removal activities are delayed, additional nest surveys shall be conducted such that no more than 7 days are allowed to pass between the survey and vegetation removal activities.

**Mitigation Measure 3.4-15. Avoid Impacts on Nesting Birds and Raptors during Construction**

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 and the nests are no longer active, as determined by the qualified biologist.

If an active nest is identified in or adjacent to the construction zone after construction has started, work in the vicinity of the nest shall be halted until the qualified biologist can provide appropriate avoidance and minimization measures to ensure that the nest is not disturbed by construction. Appropriate measures may include a no-disturbance buffer until the nest has fledged and/or full-time monitoring by a qualified biologist during construction activities conducted near the nest.

Information about avoidance measures to protect nesting birds and raptors shall be included in the WEAP described above in Mitigation Measure 3.4-1.

**Significance after Mitigation**

The avoidance and minimization measures described above would avoid impacts on nesting migratory birds and raptors by establishing non-disturbance buffers around the nest sites during construction. Implementing this measure would reduce project impact on nesting birds and raptors to a **less-than-significant** level.

**Impact 3.4-2. 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?**

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Sensitive natural communities, including riparian habitat, fall under the jurisdiction of CDFW under Fish & Game Code. These communities are habitats that have a limited distribution and are often vulnerable to the environmental effects of projects. In addition, riparian habitat is subject to protections under Placer County code. These communities may or may not contain special-status species or their habitats. Sensitive natural communities identified within the project area include vernal pools and seasonal wetlands, cattail marsh, Fremont cottonwood riparian, and sandbar willow scrub.

The conceptual (10%) design of the project has been developed to avoid impacts to wetlands and drainages and to incorporate buffers consistent with Placer County guidelines and policies, as outlined above (250 feet for vernal pools and seasonal wetlands, 100 feet for perennial drainages, and 50 feet for seasonal drainage), thus any impacts to sensitive natural communities have already been minimized. No impacts to vernal pool and seasonal wetland habitat will occur. Based on the current (10%) conceptual design, implementation of the proposed project is expected to result in direct impacts through habitat conversion of up to 0.04 acre of cattail marsh, 0.057 acre of



Fremont cottonwood riparian, and 0.474 acre of sandbar willow riparian. This impact is considered **potentially significant**.

To reduce impacts on riparian habitat or other sensitive natural community to less than significant, the following measures will be implemented to avoid and minimize impacts.

#### 3.4.3.9 *Mitigation Measures*

##### **Mitigation Measure 3.4-16. Avoid, Minimize and Compensate for Impacts on Sensitive Natural Communities and Comply with Federal, State and Local Permits**

Prior to project implementation, SMUD shall refine potential impacts on sensitive natural communities based on advanced designs and obtain the necessary permits for impacts on any sensitive natural communities. These include the following permits:

- Section 1600 Streambed Alteration Agreement from CDFW (for impact on riparian area and other sensitive natural communities not considered Waters of the U.S. (WUS) or State)
- CWA Section 404 permit from USACE for impacts to WUS
- CWA Section 401 Clean Water Certification from the Regional Water Quality Control Board for impacts to WUS
- Waste Discharge Permit from Regional Water Quality Control board for impacts to water of the state
- Floodplain encroachment permit from the County, if necessary based on advanced designs
- As part of the permit applications, SMUD shall develop a habitat mitigation plan that will include mitigation for impacted sensitive natural communities on a no-net-loss basis. The plan may include onsite restoration, if feasible, offsite preservation, or purchasing mitigation credits from an agency-approved wetlands mitigation bank, paying an agency-approved in-lieu fee, and/or developing conservation lands to compensate for permanent loss of resources. Mitigation ratios shall be no less than 1:1 and shall be determined during the permitting process. This may also occur through the payment of fees into the PCCP's in-lieu fee program under a Memorandum of Understanding (MOU) with the PCA prior to issuance of improvement plans. In-lieu fee payments would address impacts to special-status species, sensitive natural communities, wetlands and other waters of the US and state/County, and impacts to agricultural lands resulting from the conversion of important farmland (see Mitigation Measure 3.2-1 in Section 3.2 "Agricultural Resources" of this Draft EIR).

Payments may be spread out in alignment with construction phasing and will occur prior to the start of each new phase.

- SMUD shall implement all conditions of the permits, including any performance monitoring, if required for onsite restoration and report on the results of the monitoring to the appropriate agencies at the frequency and duration included in the permits.
- Sensitive natural communities shall be included in the WEAP described above in Mitigation Measure 3.4-1.

### **Significance after Mitigation**

Implementation of Mitigation Measure 3.4-16 would avoid impacts on sensitive natural communities by minimizing impacts, obtaining necessary permits, and implementing permit conditions, and providing mitigation on a no-net-loss base. Implementing this measure would reduce project impact on sensitive natural communities to a **less-than-significant** level.

### **Impact 3.4-3. 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?**

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The project area contains 9.339 acres of CWA Section 404 potentially jurisdictional features (wetlands [8.601 acres] and other waters [0.738 acre]) (Table 3.4-2), and 1.899 acres of Porter-Cologne potentially jurisdictional features (AECOM 2021) (Table 3.4-3). Both CWA Section 404 jurisdictional features and Porter Cologne jurisdictional features would also qualify as Waters of Placer County under the County's CARP. These numbers are based on the Aquatic Delineation Report (Appendix BR-2) which has not been verified by the USACE. Thus, the exact acreage of jurisdictional habitats in the project area may change depending on that verification.

The 10% concept design was developed to specifically avoid impacts on vernal pools and seasonal wetlands and also includes 250-foot buffers around these features that will avoid indirect impacts. Based on the 10% design and the unverified Aquatic Resources Delineation Report, the proposed project may result in minor impacts on cattail marsh (0.04 acre), minor impacts on polygonum wetlands (0.243 acre) and minor impacts on seasonal wetlands (0.002 acre). In addition, improvements of access roads and other project features may result in minor impacts to drainages in the project area.

Impacts on state and federally protected wetlands would be a **potentially significant** impact.

To reduce impacts on state and federally protected wetlands and waters to less than significant, the following measures will be implemented to avoid and minimize impacts.

Implement relevant portions relating to Waters of the US and Waters of the state from Mitigation Measure 3.4-16 Avoid, Minimize and Compensate for Impacts on Sensitive Natural Communities and Comply with Federal, State and Local Permits; and

**Mitigation Measure 3.4-17. Avoid impacts to jurisdictional features and sensitive natural communities by use of horizontal directional drilling.**

The following avoidance and minimization measures shall be implemented to protect listed and other special-status plants and animals, and to avoid impacts to wetlands and riparian zones:

- Boring activities and set-up activities for boring operations shall be situated outside of wetlands and riparian areas. An earthen or sandbag berm shall be installed around all drilling fluid mixing and pumping areas to contain any inadvertently spilled material. Sediment control devices shall be installed between the drilling staging areas and any waterways. This includes any culverts or drainage ditches that lead to a waterway.
- HDD operations at the creek crossings and/or jurisdictional features shall be limited to daylight hours because of the difficulty in identifying the loss of bentonite or machine pressure without daylight. This shall be defined by the termination of drilling 30 minutes before dusk, and resumption of drilling at dawn. The contractor will make every effort to schedule drilling activities to be completed between dawn and 30 minutes to dusk. Should the drilling activities be within one hour of completion, 30 minutes before dusk, drilling activities may be allowed to continue until completion if the Project environmental monitor and/or the CDFW or its agents determine that completing the drilling activities will result in less risk to the stream.
- Visual inspection along the bore alignment for frac-outs shall take place at all times while the drill is in operation. The monitor shall be in radio contact with the boring machine operator at all times. A biologist/monitor's presence shall be required during all boring activities (i.e. boring, back reaming, etc.) within CDFW jurisdiction unless the drainage is dry.
- The HDD Operator shall design, pre-plan, and direct the HDD operation in such a way as to minimize the risk of spills of all types. The HDD Operator shall prepare and implement a Frac-Out Contingency Plan and submit it to SMUD and CDFW for review and approval 30 days prior to construction, which includes the boring plans and frac-out and clean-up plans, in the event of the accidental release of drilling lubricants through fractures in the streambed or bank ("frac-outs"). In substrates where frac-outs are likely to occur, the HDD Operator shall operate in a manner that will reduce risk,

such as using lower pressure and greater boring depths. The Contingency Plan shall be kept on site at all times.

- A non-toxic fluorescent water-soluble dye shall be added to the drilling muds to allow for frac-outs to be seen in muddy waters. The dye shall be used in a concentration which allows the monitors to easily determine the source of the frac-out, and shall be a type of dye approved for use by the local Regional Water Quality Control Board.
- All equipment required to contain and clean up a frac-out release shall be available at the work site.
- Boring plans should include:
  - A sketch of the construction site, including equipment staging areas, approximate location of drill entry and exit points and the approximate location of access roads in relation to the surrounding area,
  - Proposed depth of bore and statement of streambed or wetland condition (subsurface strata and percent of gravel and cobble) that support the depth of the bore,
  - Approximate length of bores (50-foot increments),
  - Type and size of boring equipment to be used (categorized as mini, mid or maxi),
  - Estimated time to complete bore,
  - List of lubricants and HDD additives to be used including Material Safety Data Sheets (MSDS), and
  - Name of Operator's agents and cell phone numbers.
- Frac-out prevention and clean-up plans should include:
  - Name(s) and phone numbers of biological monitor(s) and crew supervisor(s),
  - Site specific resources of concern (if applicable, include factors such as possible presence of sensitive species),
  - Monitoring protocols (include biological monitoring and frac-out monitoring), and

- Containment and clean-up plan (include staging location of vacuum trucks and equipment, equipment list, necessary hose lengths, special measures needed for steep topography, etc. at each location).
- If a frac-out or spill occurs in a sensitive resource, the Operator shall immediately notify the SMUD Environmental Monitor.
- If a frac-out occurs, the SMUD Environmental Monitor, shall determine whether clean-up actions are warranted. If containment and clean-up is needed to prevent additional impacts, the Contractor shall begin the following containment and clean up measures immediately. Where water flows allow, the Contractor shall immediately construct a sandbag well around the frac-out or place a standing pipe (such as a 55-gallon drum with the top and bottom removed, heavy PVC pipe or CMP or culvert type material) around the frac-out to contain the drilling mud. A trailer-mounted vacuum or vacuum truck shall be deployed to vacuum out spilled drilling fluids that continue to leak. Removed drilling fluids shall not be placed where they are likely to re-enter the stream. All cleanup and containment efforts shall adhere to the Frac-out Contingency Plan approved by the SMUD for spill response.

**Significance after Mitigation**

Implementation of mitigation measure 3.4-16 and 3.4-17 would avoid impacts on state and federally protected wetlands by minimizing impacts, obtaining necessary permits, and implementing permit conditions, and providing mitigation on a no-net-loss basis. Implementing this measure would reduce project impact on state or federally protected wetlands to a **less-than-significant** level.

**Impact 3.4-4. 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?**

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The project area falls within the Pacific Flyway, a major migratory route stretching 4,000 miles north-to-south and 1,000 miles east-to-west, from the Arctic to the west coast of Mexico and the Rocky Mountains to the Pacific Ocean. As described earlier under connectivity and migration corridors, rice fields like those present in the project area provide important foraging and stopover sites for large numbers of resident and migratory waterfowl and shorebirds (PCCP 2020; Shaffer 2001).

Solar panels and associated infrastructure can pose a risk of collisions and electrocutions for migratory and resident birds. Facilities in major migration flyways could potentially have a greater impact on avian populations due to the larger number of birds typically associated with these areas.

Studies have shown that some solar facilities, especially PV projects, may attract birds which can result in birds flying into solar panels, resulting in injury or mortality. Kagen et

al. (2014) hypothesized that water-dependent species (loons, grebes, rails, coots, shorebirds, waterbirds, and waterfowl) may be vulnerable to collisions at PV facilities because of the potential for them to confuse solar arrays for bodies of water (the lake effect hypothesis). However further studies have not detected a consistent pattern of fatality by taxonomic groups among the solar energy facilities, most of which were in desert regions, that would support or refute this hypothesis (Walston et al. 2015). Due to the limited and inconsistent dataset (i.e., six studies of incidental and systematic observations), Walston et al (2015) concluded that it was too speculative to make any conclusions about the influence of the lake effect fatality on water-dependent birds.

Kosciuch et al. (2020) summarized 13 years of bird mortality data from utility scale PV solar facilities in the Southwestern U.S. in California and Nevada; to date no studies have been conducted in California's Central Valley or Sierra Nevada foothills. The authors provided some overarching conclusions based on their analysis:

- Approximately 75% of fatalities detected were ground-dwelling birds such as resident meadowlarks and horned larks;
- the most widely occurring bird fatalities had populations in the millions in the region where studies were conducted;
- there was no evidence of large-scale fatality events of nocturnal migrating passerines or water dependent species, and
- most of the detections of avian fatalities were feather spots with the cause of death unknown.

Based on these studies it is considered unlikely that the project would result in substantial fatalities of waterfowl or other water dependent birds due to collisions with solar panels and the presence of solar panels would not interfere substantially with the movement of waterfowl and other migratory birds. Therefore, this impact is **less than significant**.

Overhead power lines are a well-documented collision and electrocution risk for larger species such as raptors, and the risk may be greater if overhead lines are near flight corridors for susceptible species (e.g., wetland areas where waterfowl are at risk). The project's overhead lines (including the overhead transmission lines and the line from the substation to the switch station) would be designed to reduce raptor and other bird collisions and electrocutions in compliance with SMUD's current Avian Protection Plan (APP) standards, developed in accordance with the Edison International Institute's Avian Power Line Interaction Committee (APLIC) and USFWS joint APP Guidelines (SMUD 2016). Avian protection design standards and mortality reduction measures in the SMUD APP include installing flight diverters to increase overhead wire visibility in high-risk collision areas and using 60-inch clearance (minimum vertical separation of 36 inches from phase to ground on single-phase structures or 43 inches between energized conductors and ground on three-phase structures) pole design in eagle/raptor use areas. In addition, the APP requires that avian injuries and mortalities be reported

to the SMUD APP Coordinator and that corrective actions be implemented if high mortality rates or avian caused power outages are recorded. Observations of injured or deceased birds during routine inspections are reported to SMUD's APP Coordinator.

With implementation of SMUDs avian protection design standards the risk of raptor collision or electrocution is minimal, and the project would not affect raptor or other bird migration corridors. Therefore, this potential impact is **less than significant**.

The PCCP recognizes that areas planted in rice in western Placer County will decline because of the current trend for the conversion of rice or row cropland to orchard land, mainly for walnuts (PCCP 2020). The declining acreage of rice lands in Placer County is also a result of loss of irrigation water to other uses. In the project area and adjacent areas, many former rice fields have been converted to almond orchards or have been abandoned and allowed to revert to contoured grasslands. As the value of nut crops increases, trees are planted on converted pastures and in rice fields after deep-ripping to improve drainage, which may make the ground no longer suitable for rice production in the future.

The proposed project would not create a barrier to movement of migratory birds that use the Pacific Flyway because similar to rice fields, emergent wetlands and open land is available in the project vicinity and many thousands of acres of habitat for migrating birds will still be available after the project is constructed. The project area does not currently provide an important connection between any areas of natural habitat that would otherwise be isolated and is not located within any of the ecological corridors identified in the Placer HCP/NCCP as important to maintaining connectivity between communities, habitat patches, species populations, or the Placer HCP/NCCP proposed reserve system (PCCP 2020). Therefore, this impact is **less than significant**.

#### *3.4.3.10 Mitigation Measures*

No Mitigation is required.

#### **Impact 3.4-5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

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While most of the project area is open and treeless, except for orchards, there are patches of native willows, oaks, and cottonwood trees scattered along waterways. Protected trees are defined under Article 19.50 (Woodland Conservation) of Placer County code as any tall woody plant native to California, with a single main stem or trunk at least six inches diameter at breast (standard) height (dbh) (i.e., 54 inches above the ground surface), or a multiple trunk with an aggregate of at least ten (10) inches dbh. For all oak species (*Quercus* sp.) the woody plant is considered a tree when the single main stem is five inches dbh or larger. Foothill pines are exempt, and certain plants which are more commonly found as "brush," such as manzanita, are not considered to be a tree regardless of size. None of the native trees are expected to be removed or impacted as part of the project, thus this impact is **less than significant**.



#### 3.4.3.11 *Mitigation Measures*

No mitigation is required.

#### **Impact 3.4-6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?**

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The County adopted the PCCP in 2020, which established a regional habitat conservation program for Placer County. The PCCP provides simplified permitting for the impacts of identified covered activities to covered species and wetlands. Solar development is not a covered activity under the PCCP, is not subject to the PCCP permitting process and associated mitigation requirements, and is not otherwise subject to regulation under the PCCP. As such, SMUD is not a participant to the PCCP, and the project must instead apply for and receive CWA section 401/404 authorization, CDFW 1600 permit, and any other necessary state and federal authorizations separately from the PCCP. The project falls within the HCP/NCCP's Potential Future Growth (PFG) area for which the potential effects of the conversion of natural and semi-natural lands within the project area have been evaluated as part of the potential effects of the HCP/NCCP's Covered Activities. However, because utility scale solar is not a PCCP covered activity and cannot be covered by the PCCP's incidental take and programmatic Clean Water Act Section 401/404 and West Placer In-Lieu Fee Program, and because the lands within the project area would not be available for development of the property under the PFG or inclusion within the PCCP Reserve System for the 30 to 35-year life of the project, the PCA's ability to meet HCP/NCCP goals and objectives would be at risk should the project not avoid, minimize, and mitigate consistent with the PCCP's conservation strategy.

However, in order to mitigate for project impacts, the project will provide compensatory mitigation as detailed above under sensitive natural communities, wetland and other waters of the United States, and burrowing owl and Swainson's hawk. These impacts on aquatic resources and PCCP covered species and habitat may be compensated through the payment of fees into the PCCP's in-lieu fee program under a Memorandum of Understanding (MOU) with the PCA, as detailed under Mitigation Measures 3.4-8., 3.4-10, and 3.4-16. above. This MOU would include terms and conditions as needed to ensure compensatory mitigation for the project does not conflict with the HCP/NCCP's conservation and mitigation strategy and would be approved by the PCA board and SMUD prior to issuance of improvement plans. Compensatory mitigation for the project would therefore help achieve the conservation goals of the PCCP. Alternatively, SMUD may acquire credits from existing mitigation banks within the PCCP Plan Area which are approved by and in good standing with the U.S. Army Corps' Interagency Review Team, and implement other mitigation, as outlined in the mitigation measures above. SMUD will work with the County and resource agencies, including CDFW and USFWS, to ensure that any mitigation does not conflict with the goals of the PCCP.

Thus, with implementation of Mitigation Measures 3.4-8, 3.4-10 and 3.4-16, the proposed project would not conflict with an adopted Habitat Conservation Plan/Natural Community Conservation Plan. This impact is **less than significant**.

*3.4.3.12 Mitigation Measures*

No Mitigation is required.

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### 3.5 Cultural Resources

This section analyzes and evaluates the potential impacts of the project on known and unknown cultural resources. Although impacts related to human remains are typically analyzed in a cultural resources section, unanticipated discovery of human remains in the project area may potentially be Native American and would be considered a Tribal cultural resource, impacts associated with Tribal cultural resources are discussed in Section 3.18, “Tribal Cultural Resources.”

Cultural resources include districts, sites, buildings, structures, or objects generally older than 50 years and considered to be important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. They include prehistoric resources and historic-period resources. Archaeological resources are locations where human activity has measurably altered the earth or left deposits of prehistoric or historic-period physical remains (e.g., stone tools, bottles, former roads, house foundations). Historical (or built environment) resources include standing buildings (e.g., houses, barns, outbuildings, cabins) and intact structures (e.g., dams, bridges, roads, districts), or landscapes. A cultural landscape is defined as a geographic area (including both cultural and natural resources and the wildlife therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.

#### 3.5.1 Regulatory Setting

##### *Federal*

##### *National Register of Historic Places*

The National Register of Historic Places (NRHP) is the nation’s master inventory of known historic properties. It is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level.

The formal criteria (36 CFR 60.4) for determining NRHP eligibility are as follows:

1. The property is at least 50 years old (however, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP);
2. It retains integrity of location, design, setting, materials, workmanship, feeling, and associations; and
3. It possesses at least one of the following characteristics:

Criterion A Is associated with events that have made a significant contribution to the broad patterns of history (events).

- Criterion B Is associated with the lives of persons significant in the past (persons).
- Criterion C Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction (architecture).
- Criterion D Has yielded, or may be likely to yield, information important in prehistory or history (information potential).

A project is considered to have a significant impact when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. These seven aspects of integrity are described as:

- **Location.** Integrity of location refers to whether a property remains where it was originally constructed or was relocated.
- **Design.** Integrity of design refers to whether a property has maintained its original configuration of elements and style that characterize its plan, massing, and structure. Changes made after original construction can acquire significance in their own right.
- **Setting.** Integrity of setting refers to the physical environment surrounding a property that informs the characterization of the place.
- **Materials.** Integrity of materials refers to the physical components of a property, their arrangement or pattern, and their authentic expression of a particular time period.
- **Workmanship.** Integrity of workmanship refers to whether the physical elements of a structure express the original craftsmanship, technology and aesthetic principles of a particular people, place, or culture at a particular time period.
- **Feeling.** Integrity of feeling refers to the property's ability to convey the historical sense of a particular time period.
- **Association.** Integrity of association refers to the property's significance defined by a connection to a particular important event, person, or design.

Listing in the NRHP does not entail specific protection or assistance for a property but it does guarantee consideration in planning for federal or federally-assisted projects, eligibility for federal tax benefits, and qualification for federal historic preservation assistance. Additionally, project effects on properties listed in the NRHP must be evaluated under CEQA.

The National Register Bulletin series was developed to assist evaluators in the application of NRHP criteria. For example, National Register Bulletin #36 provides

guidance in the evaluation of archaeological site significance. If a property cannot be placed within a particular theme or time period, and thereby lacks “focus,” it will be unlikely to possess characteristics which would make it eligible for listing in the NRHP. Evaluation standards for linear features (such as roads, trails, fence lines, railroads, ditches, and flumes) are considered in terms of four related criteria that account for specific elements that define engineering and construction methods of linear features: (1) size and length, (2) presence of distinctive engineering features and associated properties, (3) structural integrity, and (4) setting. The highest probability for NRHP eligibility exists in the intact, longer segments, where multiple criteria coincide.

### Secretary of the Interior’s Standards

The “Secretary of the Interior’s Standards for the Treatment of Historic Properties” (Secretary’s Standards), codified in 36 CFR 67, provide guidance for working with historic properties. The Secretary’s Standards are used by lead agencies to evaluate proposed rehabilitative work on historic properties. The Secretary’s Standards are a useful analytic tool for understanding and describing the potential impacts of proposed changes to historic resources. Projects that comply with the Secretary’s Standards benefit from a regulatory presumption that they would not result in a significant impact to a historic resource. Projects that do not comply with the Secretary’s Standards may or may not cause a substantial adverse change in the significance of a historic property.

In 1992, the Secretary’s Standards were revised so they could be applied to all types of historic resources, including landscapes. They were reduced to four sets of treatments to guide work on historic properties: Preservation, Rehabilitation, Restoration, and Reconstruction. The four distinct treatments are defined as follows:

- **Preservation** focuses on the maintenance and repair of existing historic materials and retention of a property’s form as it has evolved over time.
- **Rehabilitation** acknowledges the need to alter or add to a historic property to meet continuing or changing uses while retaining the property’s historic character.
- **Restoration** depicts a property at a particular period of time in its history, while removing evidence of other periods.
- **Reconstruction** re-creates vanished or non-surviving portions of a property for interpretive purposes.

The “Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings” (Guidelines) illustrate how to apply the four treatments detailed above to historic properties in a way that meets the Secretary’s Standards. The Guidelines are advisory, not regulatory. The purpose of the Guidelines is to provide guidance to historic building owners and building managers, preservation consultants, architects, contractors, and project reviewers prior to beginning work. They address both exterior

and interior work on historic buildings. There are four sections in the Guidelines, each focusing on one of the four treatment Standards: Preservation, Rehabilitation, Restoration, and Reconstruction. Each section includes one set of Standards with accompanying Guidelines that are to be used throughout the course of a project.

### *State*

#### *California Register of Historical Resources*

All properties in California that are listed in or formally determined eligible for listing in the NRHP are also listed in the California Register of Historical Resources (CRHR). The CRHR is a listing of State of California resources that are significant in the context of California's history. It is a Statewide program with a scope and with criteria for inclusion similar to those used for the NRHP. In addition, properties designated under municipal or county ordinances are also eligible for listing in the CRHR.

A historical resource must be significant at the local, state, or national level under one or more of the criteria defined in the California Code of Regulations Title 15, Chapter 11.5, Section 4850 to be included in the CRHR. The CRHR criteria are tied to CEQA because any resource that meets the criteria below is considered a significant historical resource under CEQA. As noted above, all resources listed in or formally determined eligible for listing in the NRHP are automatically listed in the CRHR.

The CRHR uses four evaluation criteria:

- Criterion 1. Is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.
- Criterion 2. Is associated with the lives of persons important to local, California, or national history.
- Criterion 3. Embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of a master; or possesses high artistic values.
- Criterion 4. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

Similar to the NRHP, a historical resource must meet one of the above criteria and retain integrity to be listed in the CRHR. The CRHR uses the same seven aspects of integrity used by the NRHP.

#### *California Environmental Quality Act*

CEQA requires public agencies to consider the effects of their actions on "historical resources," and "unique archaeological resources." Pursuant to PRC Section 21084.1, a



“project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.” Section 21083.2 requires agencies to determine whether projects would have effects on unique archaeological resources.

### **Historical Resources**

“Historical resource” is a term with a defined statutory meaning (PRC Section 21084.1; State CEQA Guidelines Sections 15064.5[a] and [b]). Under State CEQA Guidelines Section 15064.5(a), historical resources include the following:

- 1) A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in, the CRHR (PRC Section 5024.1).
- 2) A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g), will be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- 3) Any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency’s determination is supported by substantial evidence in light of the whole record. Generally, a resource will be considered by the lead agency to be historically significant if the resource meets the criteria for listing in the CRHR (PRC Section 5024.1).
- 4) The fact that a resource is not listed in or determined to be eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to PRC Section 5020.1[k]), or identified in a historical resources survey (meeting the criteria in PRC Section 5024.1[g]) does not preclude a lead agency from determining that the resource may be a historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

### **Unique Archaeological Resources**

CEQA also requires lead agencies to consider whether projects will affect unique archaeological resources. PRC Section 21083.2(g) states that “unique archaeological resource” means 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 one or more of the following criteria:

- 1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

- 2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- 3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

### *Local*

#### *Placer County General Plan*

The County's General Plan describes assumptions, goals, and planning principles that provide a framework for land use decisions throughout the County. The following are the relevant goals and policies identified in the 2013 General Plan for cultural and tribal cultural resources.

**GOAL 5.D:** To identify, protect, and enhance Placer County's important historical, archaeological, paleontological, and cultural sites and their contributing environment.

**Policy 5.D.1.** The County shall assist the citizens of Placer County in becoming active guardians of their community's cultural resources.

**Policy 5.D.2.** The County shall solicit the cooperation of the owners of cultural and paleontological resources, encourage those owners to treat these resources as assets rather than liabilities, and encourage the support of the general public for the preservation and enhancement of these resources.

**Policy 5.D.3.** The County shall solicit the views of the Native American Heritage Commission, State Office of Historic Preservation, North Central Information Center, and/or the local Native American community in cases where development may result in disturbance to sites containing evidence of Native American activity and/or to sites of cultural importance.

**Policy 5.D.4.** The County shall coordinate with the cities and municipal advisory councils in the County to promote the preservation and maintenance of Placer County's paleontological and archaeological resources.

**Policy 5.D.5.** The County shall use, where feasible, incentive programs to assist private property owners in preserving and enhancing cultural resources.

**Policy 5.D.6.** The County shall require that discretionary development projects identify and protect from damage, destruction, and abuse, important historical, archaeological, paleontological, and cultural sites and their contributing environment. Such assessments shall be incorporated into a Countywide cultural resource data base, to be maintained by the Division of Museums.

**Policy 5.D.7.** The County shall require that discretionary development projects be designed to avoid potential impacts to significant paleontological or cultural

resources whenever possible. Unavoidable impacts, whenever possible, shall be reduced to a less-than-significant level and/or shall be mitigated by extracting maximum recoverable data. Determinations of impacts, significance, and mitigation shall be made by qualified archaeological (in consultation with recognized local Native American groups), historical, or paleontological consultants, depending on the type of resource in question.

**Policy 5.D.8.** The County shall, within its power, maintain confidentiality regarding the locations of archaeological sites in order to preserve and protect these resources from vandalism and the unauthorized removal of artifacts.

**Policy 5.D.9.** The County shall use the State Historic Building Code to encourage the preservation of historic structures.

**Policy 5.D.10.** The County will use existing legislation and propose local legislation for the identification and protection of cultural resources and their contributing environment.

**Policy 5.D.11.** The County shall support the registration of cultural resources in appropriate landmark designations (i.e., National Register of Historic Places, California Historical Landmarks, Points of Historical Interest, or Local Landmark). The County shall assist private citizens seeking these designations for their property.

**Policy 5.D.12.** The County shall consider acquisition programs (i.e., Placer Legacy Open Space and Agricultural Conservation Program) as a means of preserving significant cultural resources that are not suitable for private development. Organizations that could provide assistance in this area include, but are not limited to, the Archaeological Conservancy, the Native American community, and local land trusts.

### 3.5.2 Environmental Setting

#### *Archaeological Context*

In an attempt to unify the various hypothesized cultural periods in California, Fredrickson (1993) proposed an all-encompassing scheme for cultural development, while acknowledging that these general trends may manifest themselves differently and some variation may exist between subregions. These general cultural periods (i.e., Paleo-Indian, Early, Middle and Late Archaic, and Emergent periods) are used in this document in connection with the North-Central Sierra Nevada chronology because of their relevancy to the lower foothill region of the project area, in the vicinity of Folsom.

The Late Pleistocene pattern and period (greater than 10,000 years before present [B.P.]) is practically nonexistent in the foothill and eastern Sacramento Valley. Sites CA-SAC-370 and CA-SAC-379, located near Rancho Murieta, produced numerous bifaces, cores, and raw materials from gravel strata estimated to be between 12,000 and 18,000

years in age. Early Holocene pattern and period (circa [ca.] 10,000–7000 B.P.) was first defined by Bedwell (1970) as a human adaptation to lake, marsh, and grassland environments that were prevalent at this time. Appearing after 11,000 years B.P., the tradition slowly disappeared ca. 8000–7000 B.P.

During the Archaic pattern and period (ca. 7000–3200 B.P.), the climate in the valleys and foothills of Central California became warmer and dryer, and milling stones are found in abundance.

The Early and Middle Sierran pattern (ca. 3200–600 B.P.) evidences an expansion in use of obsidian, which is interpreted with reservation to indicate an increase in regional land use, and the regular use of certain locales. During this time, a much heavier reliance on acorns as a staple food was developed, supporting large, dense populations.

During the Late Sierran period (ca. 600–150 B.P.), archaeological village sites generally correspond to those identified in the ethnographic literature. Diagnostic artifacts include small contracting-stem points, clam shell disk beads, and trade beads that were introduced near the end of the period, marking the arrival of European groups (Beardsley 1954:77–79; Elsasser 1978:44; Fredrickson 1993).

### *Historical Context*

The historic era in California began with Spanish colonization and is often divided into three distinctive chronological and historic periods: the Spanish or Mission Period (1542–1821), the Mexican or Rancho Period (1821–1848), and the American Period (1848–present). After Mexican independence in 1821, Spain transferred its lands to the newly established country of Mexico. The Mexican Period was also a time when large parcels of land, known as ranchos, were granted to trusted Mexican citizens, many of whom were Americans who had converted to Catholicism and married the children of Mexican nationals, or had otherwise become Mexican citizens to promote settlement in California and encourage agricultural and ranching. The study area is in an agricultural area largely undeveloped until the early twentieth century. The project area is outside of any former Mexican Period ranchos with the nearest rancho approximately three miles to the south, Rancho del Paso (granted 1844, patented 1858), in present-day Sacramento County (Cowan 1956; Kyle et al. 2002:302–303). The United States took control of California after the Mexican-American War in 1848 with the signing of the Treaty of Guadalupe Hidalgo. California became a state in 1850, and the development patterns in California during the late nineteenth and early twentieth centuries were characterized by agricultural ventures, ranching, mining, and settlement.

The project area is in southwest Placer County near the Sacramento County line and northwest of the city of Roseville. The project area was historically part of large tracts of undeveloped land along various creeks in the region that were purchased to create large farms and ranches starting in the mid-1850s. Much of southwest Placer County was eventually comprised of large tracts of land owned by early settlers including the

Fiddymment family, Stephen A. Boutwell, William Dunlap, James Kaseberg, and others. Stock raising sheep and cattle, and wheat and grain farming were the primary land use in the mid-to-late nineteenth century in southwestern Placer County. The development of railroads through the Sacramento Valley in the 1860s and 1870s lead to further development of the region and the creation of the railroad-centered communities of Roseville and Lincoln (City of Roseville 2016:3-37; Southern Placer Regional Transportation Authority 2007: 4-2 to 4-3).

Into the twentieth century, agriculture remained as the region's primary economy as the community of Roseville emerged as the shipping and trading center for southern Placer County. The Southern Pacific Railroad relocated its major locomotive terminal from Rocklin to Roseville in 1909, transforming Roseville into one of the largest railroad centers in the country. A year later, Roseville incorporated and by 1910 had a population of 2,600 becoming the largest city in the county. Population growth in Placer County was relatively slow until World War II and into the post-war period as growth within the greater Sacramento metropolitan spread into surrounding communities. Between 1940 and 1960, Roseville's population more than doubled from 6,600 to 13,400; however, the project area in southwest Placer County remained rural and sparsely populated. Expansion of the state highway system in the post-World War II period, including the completion of State Route 65 in 1971 connecting the communities of Roseville, Rocklin, and Lincoln that were already experiencing rapid growth in the 1960s, impacted the rural character of southern Placer County. Initially suburban housing and commercial developments occurred southeast of the project area around the city of Roseville; however, suburban residential development spread west and northwest from Roseville and toward the project area beginning in the 1990s and continues to the present day abutting the east side of the project area. Today, the project area remains sparsely populated with some rural residential development, but the majority of the land use is devoted to rice, almond trees, and other agricultural uses (City of Roseville 2016: 3-37; Southern Placer Regional Transportation Authority 2007: 4-2 to 4-3; US Census 2011; Historicaerials.com 2021).

### 3.5.3 Literature Review

A cultural resources records search of the project site and vicinity was conducted by the North Central Information Center (NCIC) of the California Historical Resources Information System (or CHRIS) on April 6, 2021 (NCIC File No SAC-21-27). The records search was conducted to obtain background information regarding previous resources or studies that have been reported within and in the vicinity of the project site, and to obtain existing information that may contribute to the proposed project's cultural sensitivity assessment. Documentation of the cultural resources records search results is provided in Appendix C.

The search included the project site and a 0.25-mile radius. The results were used to determine whether known cultural resources have been recorded at or adjacent to the project site, and to assess the cultural sensitivity of the area. The records search

included reviews of maps listing previously conducted cultural resource studies in the area, and historic General Land Office (or GLO) maps.

Site records and previous studies were accessed for the project and a 0.25-mile radius in the Pleasant Grove, California USGS 7.5-minute quadrangle. The following references also were reviewed:

- National Register of Historic Places (NRHP)
- California Register of Historical Resources (CRHR)
- Office of Historic Preservation (OHP) Historic Property Data File (April 2012)
- California State Historical Landmarks (OHP 1996)
- California Inventory of Historic Resources (California Department of Parks and Recreation 1976)
- California Points of Historical Interest (OHP 1992)

A series of cultural resources investigations have occurred in portions of the APE and within 0.25 mile of the APE over the years.

AECOM requested a records search at the NCIC, search of the Native American Heritage Commission (NAHC) Sacred Lands Files, and conducted an archaeological pedestrian survey of the proposed project area to comply with both Section 106 of the NHPA and CEQA requirements as part of this project.

### 3.5.4 Previous Investigations

Seventeen cultural resource investigations have been conducted within portions of the current project, and an additional six studies have been conducted within 0.25 mile of the project.

Two previously recorded resources are located within the project area, and another six previously documented cultural resources have been identified within 0.25 mile of the project area

One of the previously documented resources within the project (P-31-003280) is an electrical transmission line and the other (P-31-006131) is a maintained and well-used county road (Baseline Road).

P-31-003280 is historically identified as a Western Area Power Administration (WAPA) transmission line that extends from the Elverta power station to the Roseville power station and was constructed by the federal government in 1952. Initially, the transmission line was recorded by JRP in 2001 and was recommended not eligible for

inclusion in the NRHP. In 2006, Mark A. Beason confirmed that the transmission line was not eligible for inclusion in the NRHP.

P-31-006131 is a two-lane paved historic road alignment that, while having maintained the integrity of its original alignment and hence integrity of location, it lacks integrity of feeling and association and was recommended as not eligible for inclusion in the NRHP by ECORP in 2015.

With the exception of an isolated biface fragment (P-31-3310) all of the previously observed resources within 0.25 mile of the APE are from the historic era, and appear to reflect land use associated with agriculture and ranching.

### 3.5.5 Field Inventory and Findings

Pedestrian survey utilizing approximately 12- to 15-yard transects was conducted in April, July, and August of 2021, and the complete summary of the methodology and findings are presented in the *Country Acres Solar Project Historic Property Identification Report* prepared by AECOM in 2022. The initial pedestrian survey was conducted in April and March by AECOM Archaeologists Diana Ewing and Michaela Mauriello and covered disked rice fields that had been laser leveled in the 1970s and in production for a minimum of 40 years. In July, an additional three parcels were added to the survey. These three parcels consisted of young almond orchards. The pedestrian survey of these new parcels also utilized approximately 12- to 15-yard transects. Surface visibility in these three parcels averaged 80% to 90%. Diana Ewing conducted the pedestrian survey of these three additional parcels in July and August of 2021. No new historic or prehistoric cultural resources were observed during the pedestrian surveys.

### 3.5.6 Environmental Impacts and Mitigation Measures

#### *Methods and Assumptions*

The impact analysis for archaeological and historical resources is based on the records search results (NCIC File Number SAC-21-27). The analysis is also informed by the provisions and requirements of federal, state, and local laws and regulations that apply to cultural resources.

PRC 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 one or more of the following CRHR-related criteria: (1) that it contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; (2) that it has a special and particular quality, such as being the oldest of its type or the best available example of its type; or (3) that it is directly associated with a scientifically recognized important prehistoric or historic event or person. An impact on a resource that is not unique is not a significant environmental impact under CEQA (State CEQA Guidelines Section 15064.5[c][4]). If



an archaeological resource qualifies as a resource under CRHR criteria, then the resource is treated as a unique archaeological resource for the purposes of CEQA.

### *Thresholds of Significance*

Based on Appendix G of the State CEQA Guidelines, the project would result in a potentially significant impact on cultural resources if it would:

- cause a substantial adverse change in the significance of an historical resource pursuant to Section 15064.5 of the State CEQA Guidelines; or
- cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the State CEQA Guidelines.

### *Issues or Potential Impacts Not Discussed Further*

As described above, no historic resources were identified on the project site. The transmission line and historic road were evaluated and found not eligible for listing in the CRHR or NRHP. As a result, they would not be considered significant for the purposes of CEQA. Therefore, project construction and operation would have no impact on historical resources. This issue is not analyzed further.

All potential archaeological and historical resources issues identified in the significance criteria are evaluated below.

### *Impact Analysis*

#### **Impact 3.5-1. Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?**

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The records search revealed two historic-era cultural sites; the pedestrian survey did not identify cultural resources. The previously identified sites have been evaluated for the NRHP/ CRHR and do not appear to be eligible, and therefore are not considered unique archaeological resources. However, project-related ground-disturbing activities could result in discovery of or damage to yet undiscovered archaeological resources as defined in State CEQA Guidelines Section 15064.5. This would be a **potentially significant** impact.

### *Mitigation Measure*

#### **Mitigation Measure 3.5-1: Halt ground-disturbing activity upon discovery of subsurface archaeological features.**

In the event that any prehistoric or historic-era subsurface archaeological features or deposits, including locally darkened soil (“midden”), that could conceal cultural deposits, are discovered during construction, all ground-disturbing activity within 100 feet of the resources shall be halted and a qualified

professional archaeologist shall be retained to assess the significance of the find. If the find is determined to be significant by the qualified archaeologist (i.e., because it is determined to constitute either an historical resource, a unique archaeological resource, or a tribal cultural resource), the archaeologist shall develop appropriate procedures to protect the integrity of the resource and ensure that no additional resources are affected. Procedures could include, but would not necessarily be limited to, preservation in place (which shall be the preferred manner of mitigating impacts to archaeological sites), archival research, subsurface testing, or contiguous block unit excavation and data recovery (when it is the only feasible mitigation, and pursuant to a data recovery plan).

### **Significance after Mitigation**

Implementation of Mitigation Measure 3.5-1 would reduce impacts associated with archaeological resources to a **less-than-significant** level because it would require the performance of professionally accepted and legally compliant procedures for the discovery of previously undocumented significant archaeological resources.

### **Impact 3.5-2. Disturb any human remains, including those interred outside of dedicated cemeteries?**

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Project construction would involve grading, trenching, excavation, soil stockpiling, and other earthmoving activities. There has been no indication that the area has been used for human burials in the recent or distant past; therefore, human remains are unlikely to be encountered. However, in the unlikely event that human remains are discovered during subsurface activities, they could be inadvertently damaged. Therefore, this impact would be **potentially significant**.

### *Mitigation Measure*

#### **Mitigation Measure 3.5-2: Halt ground-disturbing activity upon discovery of human remains.**

If human remains are discovered during any construction activities, potentially damaging ground-disturbing activities within 100 feet of the remains shall be halted immediately, and SMUD will notify the Placer County coroner and the NAHC immediately, according to PRC Section 5097.98 and Section 7050.5 of the California Health and Safety Code. If the remains are determined by the NAHC to be Native American, the guidelines of the NAHC shall be followed during the treatment and disposition of the remains. SMUD will also retain a professional archaeologist with Native American burial experience to conduct a field investigation of the specific site and consult with the Most Likely Descendant, if any, identified by the NAHC. Following the coroner's and NAHC's findings, the archaeologist and the NAHC-designated Most Likely Descendant shall determine the ultimate treatment and disposition of the remains and take

appropriate steps to ensure that additional human interments are not disturbed. PRC Section 5097.94 identifies the responsibilities for acting upon notification of a discovery of Native American human remains.

**Significance after Mitigation**

Mitigation Measure 3.5-2 requires the performance of professionally accepted and legally compliant procedures in case of the discovery of human remains. Therefore, implementing this mitigation measure would reduce impacts associated with human remains to a **less-than-significant** level.

## 3.6 Energy

This section provides an overview of the primary energy requirements of, and generation by the proposed project, as well as the benefit of existing regulations that require energy-efficient construction and operation and the potential for the proposed project to result in wasteful, inefficient, and unnecessary consumption of energy.

### 3.6.1 Regulatory Setting

Federal and state agencies regulate energy consumption through various policies, standards, and programs. At the local level, individual cities and counties establish policies in their general plans and climate action plans related to the energy efficiency of new development and the use of renewable energy sources. Energy conservation is embodied in many federal, state, and local statutes and policies. At the federal level, energy standards apply to numerous products (EPA EnergyStar™ program) and transportation (e.g., fuel efficiency standards). At the state level, Title 24 of the California Code of Regulations sets forth energy standards for buildings. Further, the State provides rebates/tax credits for installation of renewable energy systems, and offers the Flex Your Power program to promote conservation in multiple areas. Some of the most relevant aspects of the regulatory framework are summarized in the material that follows.

#### *Federal*

##### *National Energy Act of 1978*

The National Energy Act of 1978, including the Public Utility Regulatory Policies Act (Public Law 95-617), Energy Tax Act (Public Law 95-318), National Energy Conservation Policy Act (Public Law 95-619), Power Plant and Industrial Fuel Use Act (Public Law 95-620), and the Natural Gas Policy Act (Public Law 95-621), is a broadscale, national energy conservation and renewable energy initiative.

The intent of the National Energy Act was to promote greater use of renewable energy, provide residential consumers with energy conservation audits to encourage slower growth of electricity demand, and promote fuel efficiency. The Public Utility Regulatory Policies Act created a market for nonutility electric power producers to permit independent power producers to connect to their lines and to pay for the electricity that was delivered.

The Energy Tax Act promoted fuel efficiency and renewable energy through taxes and tax credits. The National Energy Conservation Policy Act required utilities to provide residential consumers with energy conservation audits and other services to encourage slower growth of electricity demand.

### Energy Policy Act

The Energy Policy Act of 1992 was developed to reduce dependence on imported petroleum and improve air quality by addressing all aspects of energy supply and demand, including alternative fuels, renewable energy, and energy efficiency. The Energy Policy Act of 1992 requires certain federal, state, and local government and private fleets to purchase alternative fuel vehicles. The act also includes definitions for “alternative fuels,” and includes fuels such as ethanol, natural gas, propane, hydrogen, electricity, and biodiesel.

The Energy Policy Act of 2005 set federal energy management requirements for energy-efficient product procurement, energy savings performance contracts, building performance standards, renewable energy requirements, and alternative fuel use. The Energy Policy Act of 2005 provides renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

### Energy Independence and Security Act of 2007

The Energy Independence and Security Act was passed to increase the production of clean renewable fuels; increase the efficiency of products, buildings, and vehicles; improve the energy performance of the federal government; and increase U.S. energy security, develop renewable fuel production, and improve vehicle fuel economy. The Energy Independence and Security Act included the first increase in fuel economy standards for passenger cars since 1975. The act also included a new energy grant program for use by local governments in implementing energy-efficiency initiatives, as well as a variety of green building incentives and programs

### *State*

### Warren-Alquist Act

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the California Energy Commission (CEC). The Act established state policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures. The CEC is the state’s primary energy policy and planning agency to regulate energy efficiency standards, tasked with reducing energy costs and environmental impacts of energy use, while ensuring a safe, resilient, and reliable supply of energy. The CEC conducts collection and analysis of energy-related data, including production, transportation, delivery, and distribution, in order to provide both historical information and forecast data on energy usage. It also develops energy policy recommendations and plans for the state and is also in charge of energy efficiency programs and the enforcement of appliance and building energy efficiency standards.

*Senate Bill 1389 (2002) – Integrated Energy Report*

Senate Bill (SB) 1389 (Bowen, Chapter 568, Statutes of 2002) requires the Energy Commission to prepare a biennial integrated energy report. In accordance, the CEC prepares the Integrated Energy Policy Report, which provides a cohesive approach to identifying and addressing the state's energy requirements and challenges. The report develops and implements energy plans and policies. The report contains an integrated assessment of major energy trends and issues facing California's electricity, natural gas, and transportation fuel sectors. The report provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety.

*Senate Bill 1078 (2002), Senate Bill 100 (2021) – California Renewable Portfolio Standard*

Established in 2002 by SB 1078, California's Renewables Portfolio Standard (RPS) requires electricity providers (i.e., utilities, cooperatives, and community choice aggregators) to provide a specified minimum portion of their electricity supply from eligible renewable resources by milestone target years. Since 2002, state legislative actions have modified and accelerated the RPS several times, resulting in one of the most ambitious renewable energy standards in the country. As of December 2021, per SB 100, the RPS requires retail sellers of electricity to serve 60 percent of their electric load with renewable energy by 2030 with new interim targets of 44 percent by 2024 and 52 percent by 2027, as well as requiring that all of the state's electricity come from carbon-free resources (not only RPS-eligible ones) by 2045.

*California Code of Regulations, Title 20 and Title 24*

New buildings constructed in California must comply with the standards contained in CCR Title 20, Appliance Efficiency Regulations, and Title 24, California Building Standards Code.

Title 20 standards range from power plant procedures and siting to energy efficiency standards for appliances, ensuring reliable energy sources are provided and diversified through energy efficiency and renewable energy resources. California's 2009 Appliance Efficiency Regulations (20 CCR 1601–1608) were adopted by the CEC on December 3, 2008, and approved by the California Office of Administrative Law on July 10, 2009. The regulations include standards for both federally regulated appliances and non-federally regulated appliances.

Title 24 of the California Code of Regulations contains regulations governing the design and construction of buildings in California. These standards were established in 1978 in response to a legislative mandate to reduce California's energy consumption and have been updated periodically to include new energy efficiency technologies and methods. The Building Standards were most recently revised in 2019, effective January 1, 2020. Part 6, Title 24, provides energy efficiency standards for both residential and nonresidential buildings. Part 11, Title 24, is the California Green Building Code (also

known as CALGreen) was developed to enhance the design and construction of buildings and sustainable construction practices through planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental air quality. In addition, Chapter 5, Section 5.408, of the 2019 CALGreen Code requires all construction contractors to reduce construction waste and demolition debris by 65 percent. Code requirements include preparing a construction waste management plan that identifies the materials to be diverted from disposal by efficient usage, recycling, reuse on the project, or salvage for future use or sale; determining whether materials will be sorted on-site or mixed; and identifying diversion facilities where the materials collected will be taken. The code also specifies that the amount of materials diverted should be calculated by weight or volume, but not by both. In addition, the 2019 CALGreen Code requires that 100 percent of trees, stumps, rocks, and associated vegetation and soils resulting primarily from land clearing be reused or recycled.

### *Local*

#### *Placer County General Plan*

The Placer County Countywide General Plan (Placer County 2013) contains the following policy related to utility energy resources:

- **Land Use Policy 1.E.3.** The County supports local power generation facilities that can meet all air quality standards as well as all other applicable environmental requirements.

#### *Placer County Sustainability Plan*

Placer County adopted its first Sustainability Plan in January 2020. While the plan is focused on overall opportunities to reduce GHG emissions, several of the actions focus specifically on energy efficiency, energy conservation, and opportunities for renewable energy generation and use. Strategies include replacing natural gas use with electricity as a cleaner energy source, replacement of appliances and equipment with more energy-efficient models, retrofits to existing buildings to improve HVAC and shell/envelope systems, adoption of CALGreen Tier 1 standards and increased zero-net energy in new construction, on-site renewable energy generation and storage systems, and education of community members with regard to energy efficiency and conservation opportunities. Strategy E-23 specifically acknowledges intent to support local renewable energy generation (Placer County 2020):

- **Strategy E-23.** Support efforts on suitable land to increase renewable and carbon-free energy generation including wind, solar, and biomass, to supply the needs of Pioneer Community Energy, Liberty Utilities, and other local providers.



*SMUD Resource Planning Report*

SMUD adopted an Integrated Resource Plan in 2018, supplemented by the Resource Planning Report adopted in 2019 (SMUD 2019), consistent with requirements under the Clean Energy and Pollution Reduction Act (Senate Bill 350) to adopt an Integrated Resource Plan (IRP) that met specific RPS procurement and GHG reduction goals, while considering other goals, such as reliability, ratepayer impacts, and effects on disadvantaged communities. The Resource Planning Report provides guidance for serving the needs of residents and businesses within its service area, while fulfilling regulatory requirements. The report contains the following objectives that are relevant to the proposed project.

- Provide dependable renewable resources to meet 33 percent of SMUD's retail sales by 2020, 44 percent by 2024, 52 percent by 2027, and 60 percent of its retail sales by 2030 and thereafter, excluding additional renewable energy acquiring for certain customer programs.
- In meeting GHG reduction goals, SMUD shall emphasize local and regional environmental benefits.
- SMUD will continue exploring additional opportunities to accelerate and reduce carbon in [its] region beyond the GHG goals in this policy.

*SMUD 2030 Zero Carbon Plan*

The 2030 Zero Carbon Plan is SMUD's strategy to eliminate carbon emissions from its power supply by 2030, which is more ambitious than already aggressive state mandates and is ahead of virtually all other major utilities in the United States. SMUD's 2030 Zero Carbon Plan is a road map to achieve the zero carbon goal while ensuring that all customers and communities SMUD serves reap the benefits of decarbonization. To achieve zero carbon, SMUD is focused on four main areas: repurposing existing natural gas generation power plants to eliminate GHG emissions; using proven clean technologies including solar, wind, and geothermal energy and battery storage; testing pilot projects and programs to test and prove new and emerging technologies; and identifying savings and pursuing partnerships and grants that support the Zero Carbon Plan.

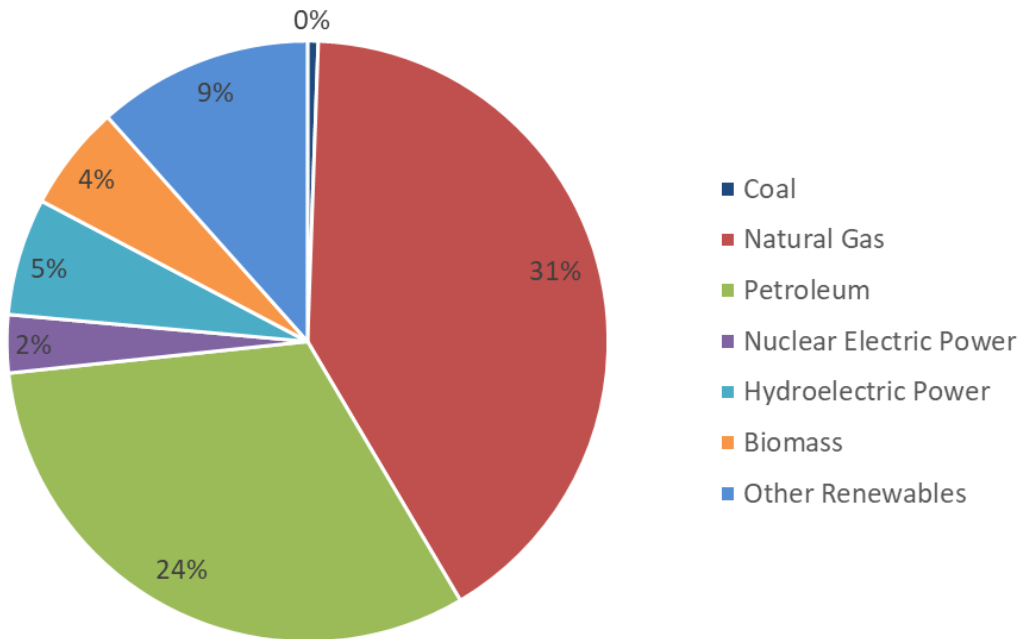
### 3.6.2 Environmental Setting

*State Energy Resources*

In 2018, California's total energy consumption is the second highest in the nation, but the state's per-capita energy consumption was the fourth-lowest, due in part to its mild climate and its energy efficiency programs (EIA 2021).

Exhibit 3.6-1 shows the relative end-use consumption of energy resources in California by source in 2019, as reported by U.S. Energy Information Administration (EIA) (2022).

Total consumption was approximately 7,107 trillion British thermal units (Btus), primarily in the form of natural gas (31 percent) and petroleum (24 percent). California is the second-largest consumer of petroleum products in the nation and the largest consumer of motor gasoline and jet fuel. Almost nine-tenths of the petroleum consumed in the state is used in the transportation sector.



Source: EIA 2021.

### **Exhibit 3.6-1. California Energy Consumption by Source (2019)**

#### **Electricity**

Electricity supply in California involves a complex grid of power plants and transmission lines located in the Western United States, Canada, and Mexico.

In 2019, California ranked first in the nation as a producer of electricity from solar, geothermal, and biomass resources and second in the nation in conventional hydroelectric power generation (EIA 2021). California is the fourth-largest electricity producer in the nation, with renewable resources, including hydropower and small-scale (less than 1-megawatt), customer-sited solar photovoltaic (PV) systems, having supplied more than half of California's in-state electricity generation, natural gas-fired power plants having provided two-fifths, and less than one-tenth coming from nuclear power in 2019; about 0.1 percent of the state's net utility-scale generation was fueled by coal, and it is all from industrial cogeneration units (EIA 2021).

Of the renewable resources, in 2019, 19 percent was provided by the state's electricity net generation, and solar, wind, geothermal and biomass energy resources accounted for approximately 30 percent; however, this fluctuates substantial based on hydrological conditions and in 2015 only seven percent of the state's utility-scale net generation was supplied by hydropower. In 2019, solar supplied 14 percent of the state's utility-scale

electricity net generation and, when accounting for small-scale solar generation, solar energy provided one-fifth of the state's total net generation. In 2019, California produced two-fifths of the total solar PV electricity generation and seven-tenths of the utility-scale solar thermal electricity generation in the nation.

California was also the country's largest net importer of electricity, receiving about 28 percent of its electricity supply from out of state in 2019. More than 70 percent of the out-of-state supply delivered to California in 2019 was from renewable energy resources. Approximately 10 percent of the out-of-state supply was from coal-fired power plants (for a total contribution of coal to the state's electricity supply from imports and in-state generation of less than three percent); the percent of imported electricity supply from coal-fired generation are anticipated to go to zero by the year 2026 due to the California Emissions Performance Standards established in 2006 by SB 268 limiting California utilities' new long-term financial investments in baseload generation with high-carbon dioxide emissions (e.g., coal-fired generation) (EIA 2021, EIA 2018).

### **Petroleum**

California ranks third in petroleum refining capacity, with refining centers processing crude oil from within the state and offshore waters, as well as processing imported crude oil (EIA 2021). To meet state environmental regulations, California refineries are configured to produce cleaner fuels. Refineries in the state often operate at or near maximum capacity because of the high demand for those petroleum products and the lack of interstate pipelines that can deliver them into the state.

California is the second-largest consumer of petroleum products and accounts for 10 percent of the nation's total petroleum consumption. Of the petroleum consumed in California, 85 percent is used in the transportation sector, which itself accounts for the largest share – approximately 40 percent - of the state's end-use energy consumption. California requires that all motorists use, at a minimum, a specific blend of motor gasoline called CaRFG (California Reformulated Gasoline) as part of an overall program to reduce emissions from motor vehicles (CaRFG regulations, California Code of Regulations, Title 23, Sections 2250-2273.5).

### **Natural Gas**

California accounts for less than 1 percent of total U.S. natural gas reserves and production. The state is second in natural gas end-use consumption in the country, approximately 37 percent of which serves the state's industrial sector and 28 percent of which serves the state's electric power sector (EIA 2021).

### **Regional Energy Resources**

SMUD provides electricity services to the larger Sacramento area. SMUD's service area encompasses approximately 900 square miles, including most of Sacramento County, and small portions of Placer and Yolo Counties. In 2020, SMUD delivered approximately 10,443 GWh of electricity within its service area (CEC 2022a).

SMUD obtains power from various sources, including hydropower, natural-gas-fired generators, renewable energy resources (i.e., solar, wind, hydroelectric, and biomass), and power purchased through other utility companies. SMUD's biggest single source of energy is the natural gas Cosumnes Power Plant, which generates up to approximately 600 megawatts of energy, or enough electricity to power approximately 450,000 single-family homes (SMUD 2022). The SMUD resource portfolio also includes over 340 megawatts of solar generation, as well as individual customers within the SMUD network operating rooftop solar panels totaling 210 megawatts of renewable capacity. SMUD has three options in addition to its base plan, which gives customers the option to purchase energy from only renewable energy resources. The Greenergy Partner and SolarShares options provides 100 percent of customer's energy from solar resources, while the other option, Greenergy PartnerPlus, provides 100 percent of customer's energy from a mix of biomass, wind, and solar resources.

Pacific Gas and Electric Company (PG&E) is the primary service provider of electrical and natural gas services within Placer County. In 2020, PG&E delivered approximately 78,518 GWh of electricity within its service area (CEC 2022b); Placer County consumed approximately 3.8 percent (2,996 GWh) of that total (CEC 2022c). Natural gas consumption in the PG&E service area in 2020 totaled approximately 4,509 million therms (CEC 2022c), approximately 3 percent (92 million therms) of which was consumed by users in Placer County (CEC 2022d). PG&E provides power from a variety of sources, including nuclear, hydroelectric, natural gas, and renewable energy resources such as wind, geothermal, biomass, solar, and small hydro. In addition to a base power mix, PG&E offers 100 percent and 50 percent solar electricity source options for customers.

Under a joint exercise of powers agreement, Placer County and the cities of Auburn, Colfax, Lincoln, Loomis, and Rocklin (Members) have established a joint powers authority called Pioneer Community Energy (Pioneer). Currently, Pioneer provides a Community Choice Aggregation program, which acts as an alternative electricity supplier to PG&E. The electric power is transmitted over PG&E transmission and delivery infrastructure. PG&E continues to own its transmission and delivery infrastructure and remains responsible for maintaining and servicing these systems. Customers may choose to receive both transmission/delivery and electric generation service of PG&E, or to receive electric power from Pioneer. Pioneer's Community Choice Aggregation program currently serves 90 percent of customers within its territory. The program's portfolio emissions profile is dependent upon whether Pioneer's Governing Board decides to alter its resource mix to exceed state requirements for renewable energy, and what percentage of customers and potential customers opted out and chose to choose to remain with PG&E.

### 3.6.3 Environmental Impacts and Mitigation Measures

#### *Methods and Assumptions*

The proposed project construction activities would consume energy in the form of diesel and gasoline fuels to power construction-related equipment and on-road vehicles, as well as on-site electricity to power construction-related facilities prior to project operations. Project operational energy requirements would be limited to transportation energy for operations and maintenance crews traveling to and from the site, fuel to power the periodic use of maintenance equipment, and diesel fuel in the case of use of emergency generators, the use of which would be infrequent and temporary. The proposed project would also result in the generation of 748,944 megawatt hours of electricity per year.

Inputs to the energy consumption estimates are the same as explained in Section 3.3, “Air Quality,” of this EIR. Construction-related energy use (i.e., fuel consumption due to equipment and vehicle use) was estimated using the fuel consumption and annual activity data for each equipment type by horsepower bin from CARB’s the OFFROAD Emissions Inventory database to calculate a fuel consumption rate in gallons per horsepower-hour for each equipment type and size, as well as fuel consumption from onsite Utility Terrain Vehicle use. Similarly, the fuel consumption rate from CARB’s EMFAC Emissions Rate database was used to estimate fuel use by vehicle category for on-site vehicle use and construction worker, vendor, and haul truck trips to and from the site. The respective fuel consumption rates for each equipment type and vehicle category were multiplied by the project-specific equipment and vehicle activity data to estimate total fuel consumption from construction equipment and vehicle use. Operational fuel consumption would be limited to that associated with up to two site workers visiting the project site daily and intermittent maintenance worker trips to the site and on-site equipment use. Operational fuel consumption was estimated from the greenhouse gas operational emissions estimate outputs from CalEEMod version 2020.4.0 using the average carbon dioxide emissions coefficients for diesel and gasoline to calculate annual gallons of fuel use per year. See Appendix A for a detailed summary of energy calculations and assumptions.

#### *Thresholds of Significance*

Based on Appendix G of the State CEQA Guidelines, implementation of the proposed project would result in a potentially significant impact on energy if it would result in any of the conditions listed below.

- Wasteful, inefficient, or unnecessary consumption of energy resources during proposed Project construction or operations.
- Conflict with or obstruction of a state or local plan for renewable energy or energy efficiency.

Appendix F of the CEQA Guidelines provides guidance on determining whether a project would result in wasteful, inefficient, or unnecessary consumption of energy resources. As stated in Appendix F, the goal of conserving energy implies the wise and efficient use of energy, and the means of achieving this goal includes the following.

- Decreasing overall per capita energy consumption.
- Decreasing reliance on fossil fuels such as coal, natural gas, and oil.
- Increasing reliance on renewable energy sources.

### *Impact Analysis*

#### **Impact 3.6-1. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?**

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Construction of the proposed project would result in the consumption of energy in the form of transportation fuels (diesel and gasoline) during the construction phase, as well as electricity to support temporary on-site construction trailers. Fuel consuming activities would include the use of heavy-duty construction equipment, vendor and haul truck trips for materials transport, and worker commute trips to and from the project site. Table 3.6-1 summarizes the estimated construction-related energy consumption that would occur over the anticipated construction duration. See Appendix A for energy consumption inputs, assumptions, and calculations.

**Table 3.6-1. Construction Energy Use**

<b>Energy Consuming Component</b>	<b>Diesel (gallons)</b>	<b>Gasoline (gallons)</b>
Equipment Use	637,889	0
On-Site Vehicle Use	49,464	47,942
Off-site On-road Vehicles	45,452	225,577
<b>Total</b>	<b>732,805</b>	<b>273,519</b>

Notes to Table 3.6-1: Total shown are for the duration of construction.  
Source: Modeled by AECOM in 2022 (see Appendix A)

Fuel consumption rates would vary over the construction duration depending on the intensity of construction-related activities in terms of amount and duration of equipment use and number of vehicle trips serving each particular construction phase. As noted, minor electrical consumption would also be required to provide power to on-site construction trailers. On-site construction trailers would reduce the travel to and from the site that would be otherwise required of on-site supervisors utilizing the trailers. The proposed construction-related activities and associated equipment use are considered to be necessary components of the construction phase of the project. Related fuel consumption and electricity use would be temporary, ceasing after the completion of construction, and would not represent a significant demand on available fuel, beyond normal construction fuel usage. In addition, the proposed project is sited to be adjacent

to existing transmissions lines, thereby decreasing the need for additional energy consumption for construction of transmission line extension. In addition, the proposed project is sited to be adjacent to existing transmissions lines, thereby decreasing the need for additional energy consumption for construction of transmission line extension. Based on these considerations, construction of the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy resources.

Once constructed, the proposed project would provide a PV solar power and battery storage facility and interconnection facilities, that would provide new power production capacity of up to 344 megawatt (MW) delivered at the point of interconnection with the grid managed by SMUD. Operational activities associated with the proposed project would include up to one on-site employee and intermittent monitoring, maintenance, and repair staff. Pickup trucks and flatbeds, forklifts, and loaders may be used for normal maintenance. Large, heavy-haul, transport equipment would be occasionally used to repair or replace equipment, which would be anticipated to be required less than once per year. A backup generator would be on-site, but use would be limited to emergency backup requirements and required periodic testing. As detailed in Table 3.6-2, such activities could result in the consumption of up to 15,577 gallons of diesel and 1,781 gallons of gasoline per year; these totals represent a conservative worst-case year of vehicle and equipment use reflective of maximum daily operations and maintenance requirements, and typical annual vehicle trips and equipment use would be much lower. These operational and maintenance activities are considered necessary for the efficiency and reliable operations of the proposed facilities. In addition, the proposed project would increase SMUD's overall power generation capacity and portfolio of eligible renewable resources contributing to its overall power mix. When considered in the context of the proposed renewable resource power that would be generated as a result of the proposed project, the project will generate much more energy than would be required to run the operations and maintenance components of the proposed operations.

**Table 3.6-2. Operational Energy Use and Generation**

<b>Energy Consuming Component</b>	<b>Diesel (gallons)</b>	<b>Gasoline (gallons)</b>
Vehicle Use	1,821	1,781
Off-road Equipment Use	13,705	0
Backup Generator	51	0
<b>Total</b>	<b>15,577</b>	<b>1,781</b>

Notes to Table 3.6-2: Total shown are for a single year, assuming a 'worst-case' operational year of more intensive operational and maintenance requirements.

Source: Modeled by AECOM in 2022 (see Appendix A)

In summary, although project implementation would result in net energy consumption associated with the construction phase of the project, as well minor fuel consumption to support operational and maintenance activities, such activities are necessary and would be conducted in an efficient manner. In addition, once operational, the project's ultimate purpose is as a power generation facility which will increase SMUD's renewable power

resources and overall generation capacity, resulting in a net increase in energy resources. Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy, and this impact would be **less than significant**.

### **Impact 3.6-2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?**

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The federal government, the state, and local jurisdictions, including SMUD, have policies, regulations, and plans established to promote renewable energy and energy efficiency.

SMUD resource procurement plans have been developed to meet the directive by its Board of Directors to use dependable renewable resources to eliminate carbon emissions from its power supply by 2030, as described in SMUD's 2030 Zero Carbon Plan. This goal is consistent with Senate Bill 350, which was signed into law in 2015. Senate Bill 100 accelerated the deadline for reaching the 50 percent milestone to 2026, stepping to 60 percent by 2030. The law also establishes as state policy that renewable energy resources and zero-carbon resources are to supply 100 percent of retail sales of electricity to California end use customers by 2045. SMUD has the ambitious goal of becoming 100 percent carbon free by 2030, ahead of the state target.

As a solar facility generating renewable energy, the proposed project would serve to directly advance SMUD's resource procurement plans to meet and exceed state plans and regulations by providing an increase in renewable energy and would not affect any plans relating to energy efficiency.

Furthermore, the proposed project supports the Placer County Sustainability Plan's goal to reduce GHG emissions and supports Strategy E-23, which acknowledges intent to support local renewable energy generation. Therefore, the proposed project would not obstruct a state or local plan for renewable energy or energy efficiency, and this impact would be **less than significant**.

#### *Mitigation Measures*

No Mitigation is required.



### **3.7 Geology, Soils, and Paleontological Resources**

This section describes the existing geologic conditions of the project site, including geology, seismicity, and soils, and analyzes the potential hazards and impacts associated with project implementation. This section also provide a brief description of laws, regulations, and ordinances pertinent to the proposed project. The analysis describes seismic hazards, soil conditions, and other geotechnical considerations that could affect people and structures.

This section also provides an analysis of potential impacts on unique paleontological resources. Paleontological resources (fossils) are the remains of prehistoric plants and animals. Fossil remains such as bones, teeth, and wood are found in the geologic deposits (rock formations) in which they were originally buried. A paleontological sensitivity assessment, based on the rock formations at the project site, and the results of a records search, is included in this section. The analysis describes potential impacts on unique paleontological resources, and recommends mitigation measures.

#### **3.7.1 Regulatory Setting**

##### *Federal*

##### *Earthquake Hazards Reduction Act, Public Law 95–124*

In October 1977, the U.S. Congress passed the Earthquake Hazards Reduction Act to reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards reduction program. To accomplish this goal, the act established the National Earthquake Hazards Reduction Program. This program was substantially amended in November 1990 by the National Earthquake Hazards Reduction Program Act, which refined the description of agency responsibilities, program goals, and objectives.

The mission of the National Earthquake Hazards Reduction Program includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improved building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improved mitigation capacity; and accelerated application of research results. The National Earthquake Hazards Reduction Program Act designates the Federal Emergency Management Agency as the lead agency of the program and assigns several planning, coordinating, and reporting responsibilities. Other National Earthquake Hazards Reduction Program Act agencies include the National Institute of Standards and Technology, National Science Foundation, and U.S. Geological Survey (USGS).

*State**Alquist-Priolo Earthquake Fault Zoning Act, California Public Resources Code Sections 2621–2630*

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (California Public Resources Code Sections 2621–2630) was passed in 1972 to reduce the hazard of surface faulting on structures designed for human occupancy. The main purpose of the law is to prevent the construction of structures used for human occupancy on the surface trace of active faults. The law addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Alquist-Priolo Act requires the State Geologist to establish regulatory zones known as Earthquake Fault Zones around the surface traces of active faults and to issue appropriate maps. Earthquake Fault Zones are generally one-quarter mile wide or less (i.e., approximately 650 feet on both sides of the actual fault trace). The maps are distributed to all affected cities, counties, and state agencies for their use in planning efforts. Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, cities and counties must require a geologic investigation to demonstrate that proposed structures would not be constructed across active faults.

*Seismic Hazards Mapping Act, California Public Resources Code Sections 2690–2699.6*

The Seismic Hazards Mapping Act of 1990 (California Public Resources Code Sections 2690–2699.6) addresses earthquake hazards from non-surface fault rupture, including liquefaction and seismically induced landslides. The act established a mapping program for areas that have the potential for liquefaction, landslide, strong ground shaking, or other earthquake and geologic hazards. The act also specifies that respective cities or counties with jurisdiction over a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

*National Pollutant Discharge Elimination System*

In California, the State Water Resources Control Board (SWRCB) administers regulations promulgated by the U.S. Environmental Protection Agency (55 Code of Federal Regulations 47990) requiring the permitting of stormwater-generated pollution under the National Pollutant Discharge Elimination System (NPDES). In turn, the SWRCB's jurisdiction is administered through nine regional water quality control boards. Under these federal regulations, an operator must obtain a general permit through the NPDES Stormwater Program for all construction activities with ground disturbance of 1 acre or more. SWRCB's statewide storm water general permit for construction activity (Order 2009-009-DWQ as amended by Order No. 2012-0006-DWQ) requires the implementation of best management practices (BMPs) to reduce sedimentation into surface waters and to control erosion. One element of compliance with the NPDES permit is preparation of a storm water pollution prevention plan (SWPPP) that

addresses control of water pollution, including sediment, in runoff during construction. (See Section 3.8 of this Draft EIR, “Hydrology and Water Quality,” for more information about the NPDES permit program and SWPPPs.)

*California Building Standards Code, California Code of Regulations Title 24*

The California Building Standards Commission is responsible for coordinating, managing, adopting, and approving building codes in California. The State of California provides minimum standards for building design through the California Building Standards Code (CBC) (California Code of Regulations [CCR] Title 24). Where no other building codes apply, Chapter 29 of the CBC also regulates excavation, foundations, and retaining walls. The CBC applies to building design and construction in the state and is based on the Federal Uniform Building Code used widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The CBC has been modified for California conditions with numerous more detailed or more stringent regulations.

The state earthquake protection law (California Health and Safety Code Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. The CBC requires an evaluation of seismic design that falls into Categories A–F (where F requires the most earthquake-resistant design) for structures designed for a project site. The CBC philosophy focuses on “collapse prevention,” meaning that structures are designed for prevention of collapse for the maximum level of ground shaking that could reasonably be expected to occur at a site. Chapter 16 of the CBC specifies exactly how each seismic design category is to be determined on a site-specific basis through the site-specific soil characteristics and proximity to potential seismic hazards.

Chapter 18 of the CBC regulates the excavation of foundations and retaining walls. This chapter regulates the preparation of a preliminary soil report, engineering geologic report, geotechnical report, and supplemental ground-response report. Chapter 18 also regulates analysis of expansive soils and the determination of the depth to groundwater table. For Seismic Design Category C, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading. For Seismic Design Categories D, E, and F, Chapter 18 requires these same analyses plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also requires mitigation measures to be considered in structural design. Mitigation measures may include ground stabilization, selection of appropriate foundation type and depths, selection of appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions. Peak ground acceleration must be determined from a site-specific study, the contents of which are specified in CBC Chapter 18.

Finally, Appendix Chapter J of the CBC regulates grading activities, including drainage and erosion control and construction on unstable soils, such as expansive soils and areas subject to liquefaction.

#### Onsite Wastewater Treatment Systems

The SWRCB adopted a statewide, “Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems (OWTS).” The OWTS Policy became effective May 13, 2013, conditionally waiving the requirement for owners of OWTS’ to apply for and receive Waste Discharge Requirements (WDRs) in order to operate their systems as long as the conditions set forth in the OWTS Policy are satisfied. Local agencies, such as cities and counties, may apply for and receive WDRs following submittal of an approved Local Agency Management Program.

#### Public Resources Code Section 5097.5 – Paleontological Resources

California Public Resources Code (PRC) Section 5097.5 prohibits excavation or removal of any “...vertebrate paleontological site, including fossilized footprints...or any other archaeological, paleontological, or historical feature situated on public lands, except with the express permission of the public agency having jurisdiction over such lands.” Section 5097.5 also states that any unauthorized disturbance or removal of archaeological, historical, or paleontological materials or sites located on public lands is a misdemeanor. Public lands are defined to include lands owned by or under the jurisdiction of the state or any city, county, district, authority, or public corporation, or any agency thereof. SMUD is a public corporation.

#### *Local*

#### Placer County General Plan

The *Placer County General Plan* (2013, 2021) includes the following policies that apply to the proposed project.

#### **Health and Safety Element**

**Policy 8.A.1.1:** The County shall require the preparation of a soils engineering and geologic-seismic analysis prior to permitting development in areas prone to geological or seismic hazards (e.g., ground shaking, landslides, liquefaction, critically expansive soils, avalanche), prepared by a California registered civil engineer and based upon adequate test borings as needed.

**Policy 8.A.1.2:** The County shall require submission of a preliminary soils report, prepared by a California registered civil engineer and based on upon adequate test borings, for every major subdivision and for each individual lot where critically expansive soils have been identified or are expected to exist.

**Policy 8.A.1.3:** The County shall prohibit the placement of habitable structures or

individual sewage disposal systems on or in critically expansive soils unless suitable mitigation measures are incorporated to prevent the potential risks of these conditions.

**Policy 8.A.1.5:** The County shall require that the location, design, and construction of any new buildings, facilities, or other development in areas subject to seismic activity minimize exposure to danger from earthquake-induced liquefaction or fault rupture or creep.

#### **Recreation and Cultural Resources Element**

**Policy 5.D.2:** The County shall solicit the cooperation of the owners of cultural and paleontological resources, encourage those owners to treat these resources as assets rather than liabilities, and encourage the support of the general public for the preservation and enhancement of these resources.

**Policy 5.D.6:** The County shall require that discretionary development projects identify and protect from damage, destruction, and abuse, important historical, archaeological, paleontological, and cultural sites and their contributing environment. Such assessments shall be incorporated into a Countywide cultural resource data base, to be maintained by the Division of Museums.

**Policy 5.D.7:** The County shall require that discretionary development projects are designed to avoid potential impacts to significant paleontological or cultural resources whenever possible. Unavoidable impacts, whenever possible, shall be reduced to a less than significant level and/or shall be mitigated by extracting maximum recoverable data. Determinations of impacts, significance, and mitigation shall be made by qualified archaeological (in consultation with recognized local Native American groups), historical, or paleontological consultants, depending on the type of resource in question.

**Policy 5.D.8:** The County shall, within its power, maintain confidentiality regarding the locations of archaeological sites in order to preserve and protect these resources from vandalism and the unauthorized removal of artifacts.

#### **Public Facilities and Services Element**

**Policy 4.D.11:** The County shall permit on-site sewage treatment and disposal on parcels where all current regulations can be met and where parcels have the area, soils, and other characteristics that permit such disposal facilities without threatening surface or groundwater quality or posing any other health hazards.

**Policy 4.D.12:** The County shall require that the on-site treatment, development, operation, and maintenance of disposal systems complies with the requirements and standards of the County Environmental Health Division.

**Policy 4.D.13:** The County shall continue use of current technically-based criteria in

review and approval of septic tank/leachfield systems for rural development.

*Placer County Grading, Erosion, and Sediment Control Ordinance*

Placer County Municipal Code Article 15.48 contains the provisions of the county's Grading, Erosion, and Sediment Control Ordinance. This ordinance regulates grading on property in the unincorporated area of Placer County to safeguard property and public welfare; to avoid pollution of watercourses with hazardous materials, nutrients, sediments, or other earthen materials generated on or caused by surface runoff on or across the permit area; and to ensure that the intended use of a graded site is consistent with the Placer County General Plan, any adopted specific plans, and other applicable Placer County ordinances including the zoning ordinance, flood damage prevention ordinance, environmental review ordinance, Placer County Conservation Program (PCCP), and applicable chapters of the CBC.

The Improvement Plan (Grading Permit) application must include grading plans and specifications prepared by a civil engineer, including a drainage report, demonstrating that the project meets the following County requirements:

1. Mitigation of adverse environmental impacts as disclosed by any environmental document findings.
2. Improvement of any existing grading to comply with the standards of this article.
3. Requirements for fencing or other protection of grading that would otherwise be hazardous.
4. Requirements for dust, erosion, sediment and noise control, and hours of operation and season of work, weather conditions, sequence of work, access roads, and haul routes.
5. Requirements for safeguarding watercourses and aquatic resources, whether natural or man-made, from excessive deposition of fill, sediment, or debris in quantities exceeding natural levels.
6. Requirements for avoiding, minimizing, and mitigating impacts to natural resources in accordance with Article 19.10 (Placer County Conservation Program).
7. Requirements for safeguarding areas reserved for on-site sewage disposal.
8. Assurance that the land area in which grading is proposed and for which habitable structures are proposed is not subject to hazards of land slippage or significant settlement or erosion, and that the hazards of flooding can be eliminated or adequately reduced.

In addition, a soils or geotechnical investigation is required as part of the Improvement Plan (Grading Permit) application where any of the following conditions are present: (1)

the proposed grading includes a cut or fill exceeding 10 feet in depth; (2) when highly expansive soils are present; or (3) in areas of known or suspected geological hazards.

The PCCP implementing ordinance (Municipal Code Article 19.10) requires the submittal of PCCP authorization applications (Section 19.10.080) for grading projects that are covered activities under the PCCP. Any required review for a take authorization or authorization to impact aquatic resources must be completed before a permit application for grading that is authorized under Section 15.48.055 (Stream system grading permit) or 15.48.060 (Grading permit required) will be deemed complete (Municipal Code Section 15.48.215).

#### *Placer County Land Development Manual*

The *Placer County Land Development Manual* (Placer County 2016) contains specifications and standards related to engineering and design of roadways, drainage, wastewater, and domestic water supply. In addition, the Manual also includes the Placer County Design Guidelines Manual and Landscape Design Guidelines, and BMPs for Stormwater Discharges. The County requires that BMPs be implemented to reduce pollutants in stormwater discharges. Both source control BMPs and treatment control BMPs are required. BMPs must be included on improvement plans and approved by the County.

#### *Placer County Local Agency Management Program (Wastewater)*

Septic systems (also known as Onsite Wastewater Treatment Systems, or OWTS) in Placer County are regulated under the Placer County Local Agency Management Program (LAMP), as approved by the Central Valley Regional Water Quality Control Board (RWQCB) in 2017. The LAMP includes the County OWTS requirements contained in Placer County Municipal Code Article 8.24 and in the County's the *On-Site Sewage Manual* (Placer County 2017).

Placer County Municipal Code Article 8.24 contains regulations related to the installation and use of on-site septic systems. Section 8.24.070 states that prior to receiving approval, a land use project proposing to utilize on-site sewage disposal must complete the Placer County Department of Health and Human Services, Division of Environmental Health Services site evaluation process as described below and in the *On-Site Sewage Manual* (Placer County 2017) to determine the suitability of on-site sewage disposal, as part of the septic system permit application process.

Each project must include soils testing that includes soil profile excavations and a percolation rate determination. A site evaluation report must be prepared that verifies all of the following minimum site characteristics:

1. Vertical separation of not less than 24 inches;
2. Slope no greater than 30 percent;
3. Percolation rate between 1.0 and 120 minutes per inch.

The site evaluation report must include the required minimum useable sewage disposal area in accordance with the criteria listed in Section 8.24.070.

Once constructed, septic systems are subject to the County's Operation, Maintenance, and Monitoring Program as specified in the *On-Site Sewage Manual* (see also EIR Section 3.19, "Utilities and Service Systems").

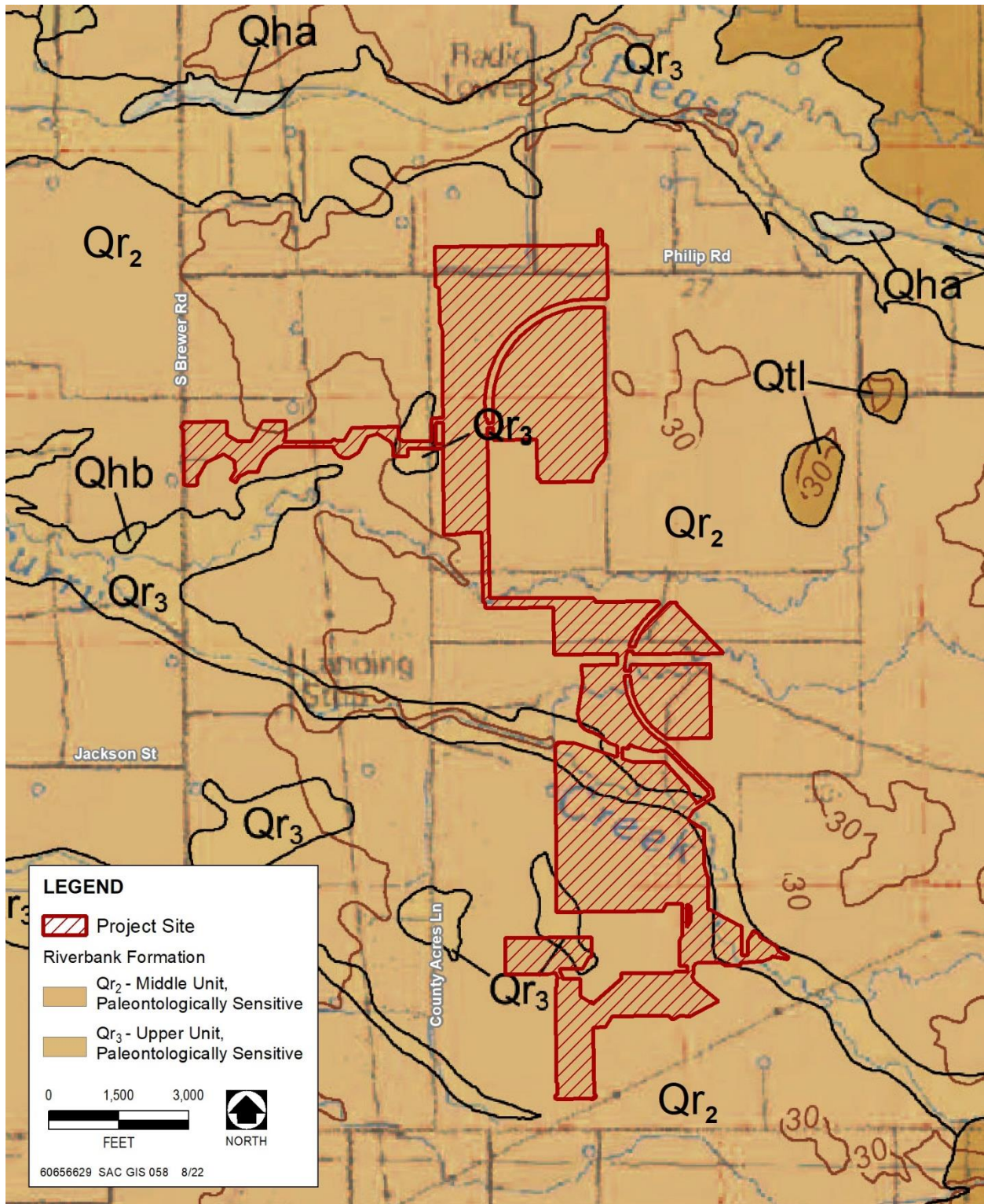
### 3.7.2 Environmental Setting

#### *Geology*

The project site is located on a broad, flat alluvial plain at the eastern edge of the Sacramento Valley, within the Great Valley Geomorphic Province. The Great Valley is a forearc basin composed of thousands of feet of sedimentary deposits that has undergone periods of subsidence and uplift over millions of years. Overlying the thick sequence of sedimentary rock units that form the deeply buried bedrock units in the mid-basin areas of the valley are shallower Holocene (11,700 years Before Present [B.P.] to Present Day) and Pleistocene-age (2.8 million years B.P. to 11,700 years B.P.) alluvial deposits. At the project site, the alluvium is composed of sediments from the Sierra Nevada to the east, which were carried by water and deposited on the valley floor.

The project site is underlain by the Pleistocene-age Riverbank Formation (Gutierrez 2011) (see Exhibit 3.7-1). The Riverbank Formation is composed of weathered reddish gravel, sand, and silt forming clearly recognizable alluvial terraces and fans. The Riverbank Formation stands topographically above the younger alluvial terraces formed by the Modesto Formation, but below the older alluvial terraces formed by the Turlock Lake Formation. In the Sacramento Valley, the Riverbank Formation contains more mafic igneous rock fragments, as composed to the more arkosic nature of this formation in the San Joaquin Valley. The age of the Riverbank Formation ranges from approximately 130,000 to 450,000 years B.P. (Helley and Harwood 1985). This formation has been variously divided into two (Helley and Harwood 1985) or three units (Gutierrez 2011, Atwater and Marchand 1980, and Marchand and Allwardt 1981). As shown in Exhibit 3.7-1, the project site lies primarily within the middle unit (Qr2), but a few areas are within the upper unit (Qr3). The upper unit is the youngest and is generally confined to modern drainages, such as the upper reach of Curry Creek shown in Exhibit 3.7-1. The hardpans formed in soils within the middle unit are thicker and more strongly cemented, and the soil profiles have a more reddish color and are richer in clay, as compared to the upper unit (Marchand and Allwardt 1981).





Source: Gutierrez 2011

**Exhibit 3.7-1. Geologic Formations and Paleontological Sensitivity**

*Paleontological Resources**Paleontological Sensitivity Assessment Criteria*

A paleontologically sensitive geologic formation is one that is rated high for potential paleontological productivity (i.e., the recorded abundance and types of fossil specimens, and the number of previously recorded fossil sites) and is known to have produced unique, scientifically important fossils. Exposures of a specific geologic formation at any given project site are most likely to yield fossil remains representing particular species or quantities similar to those previously recorded from that geologic formation in other locations. Therefore, the paleontological sensitivity determination of a rock formation is based primarily on the types and numbers of fossils that have been previously recorded from that formation.

In its standard guidelines for assessment and mitigation of adverse impacts on paleontological resources, the Society of Vertebrate Paleontology (SVP 2010) established four categories of sensitivity for paleontological resources: high, low, no, and undetermined. Areas where fossils have been previously found are considered to have a high sensitivity and a high potential to produce fossils. Areas that are not sedimentary in origin and that have not been known to produce fossils in the past typically are considered to have low sensitivity. Areas consisting of high-grade metamorphic rocks (e.g., gneisses and schists) and plutonic igneous rocks (e.g., granites and diorites) are considered to have no sensitivity. Areas that have not had any previous paleontological resource surveys or fossil finds are considered to be of undetermined sensitivity until surveys are performed. After reconnaissance surveys, a qualified paleontologist can determine whether the area of undetermined sensitivity should be categorized as having high, low, or no sensitivity. In keeping with the SVP significance criteria, all vertebrate fossils are generally categorized as being of potentially significant scientific value.

*Paleontological Sensitivity Assessment*

As noted above, the project site is underlain by the Riverbank Formation. A records search of the U.C. Berkeley Museum of Paleontology (UCMP) was performed by AECOM in January 2022; there are no recorded fossil localities within the project site (UCMP 2022).

Remains of land mammals have been found at several localities in alluvial deposits referable to the Riverbank Formation in the Sacramento and San Joaquin Valleys. Jefferson (1991a, 1991b) compiled a database of California Late Pleistocene vertebrate fossils from published records, technical reports, unpublished manuscripts, information from colleagues, and inspection of paleontological collections at more than 40 public and private museums. Jefferson (1991b) and UCMP (2022) list several Pleistocene vertebrate fossil localities in Roseville and Rocklin; however, these localities are within the older Turlock Lake Formation. Jefferson also lists a variety of different fossils localities in the Sacramento and San Joaquin Valleys that are referable to the Riverbank

Formation. For example, the Teichert Gravel Pit, along State Route 16 in Sacramento, yielded specimens of broad-footed mole, Harlan's ground sloth, rabbit, California ground squirrel, Botta's pocket gopher, pocket mouse, groove-toothed harvest mouse, woodrat, vole, coyote, dire wolf, mammoth, horse, western camel, deer, antique bison, fish (carps and minnows), frog, snake, Pacific pond turtle, and the family Anatidae (ducks, geese, and swans).

Other fossil localities in the Riverbank Formation in Sacramento County include Pleistocene-age mammoth remains that were discovered in 2004 during excavation of a Sacramento Municipal Utility District (SMUD) trench in Elk Grove (Kolber 2004). UCMP locality V-74086, located in south Sacramento at Ehrhardt Avenue, also contained fossilized Rancholabrean-age mammoth remains. The other UCMP sites in Sacramento—localities V-6747, V-6846, V-68141, V-69129, and V-75126—contained remains of Rancholabrean-age bison, camel, coyote, horse, Harlan's ground sloth, mammoth, woodrat, fish, mole, snake, and gopher. Pleistocene-age fossils were recovered from the Riverbank Formation at the ARCO Arena site (Hilton et al. 2000); those fossils included remains of Harlan's ground sloth, bison, coyote, horse, camel, squirrel, antelope or deer, and mammoth.

Several localities near the cities of Davis and Woodland have yielded the remains of Rancholabrean-age rodents, snakes, horses, antelope, Harlan's ground sloth, mammoth, and saber-toothed tiger from sediments referable to the Riverbank Formation (Hay 1927; UCMP 2022). Three sites in Sutter County have yielded Rancholabrean vertebrate fossils recovered from Pleistocene-age sediments, which may be referable to the Riverbank Formation (UCMP 2022). UCMP locality V-4043 in the Sutter Buttes yielded remains from a Pleistocene-age horse in sediments referable to the Riverbank Formation.

Fossil specimens from the Riverbank Formation have been reported by Marchand and Allwardt (1981) near the type locality in the city of Riverbank. Fossil specimens from sediments referable to the Riverbank Formation have been reported at several other locations in the San Joaquin Valley (UCMP 2022), including Lathrop, Modesto, Stockton, Tracy (along the Delta-Mendota Canal), Manteca, and Merced.

Because of the large number of vertebrate fossils that have been recovered from the Riverbank Formation, it is considered to be of high paleontological sensitivity.

### *Seismic Hazards*

#### *Fault Ground Rupture*

Geologists have determined that the greatest potential for surface fault rupture and strong seismic ground shaking is from active faults, that is, faults with evidence of activity during the Holocene epoch (the last 11,700 years). Surface rupture is an actual cracking or breaking of the ground along a fault during an earthquake. Structures and underground pipelines that are built over a fault can be torn apart if surface ground rupture occurs. Faults that are the most likely to result in surface rupture are classified

under the Alquist-Priolo Earthquake Fault Zoning Act (see Section 3.7.1, “Regulatory Setting,” above). The project site is not located in or near an Alquist-Priolo Earthquake Fault Zone (California Geological Survey [CGS] 2021). The nearest fault zoned under the Alquist-Priolo Act is the Cleveland Hills Fault, approximately 45 miles north of the project site, near Lake Oroville (CGS 2021).

### Seismic Ground Shaking

Ground shaking—motion that occurs as a result of energy released during faulting—could potentially result in the damage or collapse of buildings and other structures, depending on the magnitude of the earthquake, the distance to the epicenter, and the character and duration of the ground motion. Other important factors to be considered are the characteristics of the underlying soil and rock and, where structures exist, the building materials used and the workmanship of the structures.

The Sacramento Valley has historically not been seismically active. The nearest active faults are the Cleveland Hills Fault approximately 45 miles north of the project site, and several faults in the Coast Ranges, more than 50 miles west of the project site (CGS 2021). The Foothills Fault System is approximately 23 miles east of the project site, but faults in this area east of the project site are not classified as active (Jennings and Bryant 2010).

The intensity of ground shaking depends on the distance from the earthquake epicenter to the site, the magnitude of the earthquake, and site soil conditions. Calculations of earthquake shaking hazard for California are part of a cooperative project between the USGS and CGS, and are part of the National Seismic Hazard Mapping program. Earthquake shaking hazards are calculated by projecting earthquake rates based on earthquake history and fault slip rates, the same data used for calculating earthquake probabilities. Fault parameters are developed for these calculations by the Working Group on California Earthquake Probabilities. A probabilistic seismic hazard map is a map that shows the hazard from earthquakes that geologists and seismologists agree could occur in California. It is “probabilistic” in the sense that the analysis takes into consideration the uncertainties in the size and location of earthquakes and the resulting ground motions that can affect a particular site. The 2016 map showing the probabilistic *Earthquake Shaking Potential for California* (digitized by the California Department of Conservation in 2018) indicates that the project site is the lowest potential shaking hazard intensities. Regions in the low intensity categories are distant from known, active faults and are projected to experience lower levels of shaking less frequently. In most earthquakes, only weaker, masonry buildings would be damaged. However, very infrequent large magnitudes earthquakes could still cause strong ground shaking (Branum, et al. 2016). The seismic design parameters calculated by Wallace Kuhl & Associates (Wallace Kuhl 2022) for the preliminary geotechnical report prepared for the proposed project also indicate that a low level of seismic shaking would be anticipated at the project site.

### Landslides

The project site is located within the USGS Pleasant Grove 7.5-Minute Quadrangle. Topography in the study area is generally flat (0–5 percent). The elevation varies between approximately 58 and 100 feet above mean sea level (msl). There are no landslide hazard areas either within or near the project site.

### Liquefaction and Lateral Spreading

Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and become fluid, similar to quicksand. The liquefaction potential depends on the type of soil, the level and duration of seismic ground motions, and the depth to groundwater. The locations that are most susceptible to liquefaction-induced damage have loose, water-saturated, granular sediment that is within 40 feet of the ground surface. Liquefaction poses a hazard to engineered structures, such as buildings, bridges, and underground utility pipelines, because the loss of soil strength can result in bearing capacity insufficient to support foundation loads and increased lateral pressure on retaining walls.

Liquefaction-induced lateral spreading consists of the horizontal movement or spreading of upper soil layers (riding on top of liquefied soil) toward an open face, such as a streambank, the open side of fill embankments, or the sides of levees.

The depth to groundwater at the project site in the spring of 2021 ranged from 75 to 100 feet below the ground surface (California Department of Water Resources 2021). Groundwater was not encountered in soil borings at the project site to the maximum depth explored of 64 feet below the ground surface. The project site is composed of well-consolidated older Pleistocene-age deposits, and active seismic sources are at least 45 miles away. Therefore, it is unlikely that the project site would be subject to liquefaction in the event of a large magnitude earthquake (Wallace Kuhl 2022). Because liquefaction is unlikely, liquefaction-induced lateral spreading is also unlikely.

### Soils

A review of U.S. National Resources Conservation Service (NRCS 2021) soil survey data indicates that near-surface soils at the project site consist of the following (see Exhibit 3.7-2):

- Alamo-Fiddymment Complex, 0–5 percent slopes;
- Cometa-Fiddymment Complex, 1–5 percent slopes;
- Fiddymment loam, 1–8 percent slopes;
- Fiddymment-Kaseberg loams, 2–9 percent slopes;
- San Joaquin-Cometa sandy loams, 1–5 percent slopes; and

- Xerofluvents, hardpan substratum<sup>1</sup>.

### Soil Properties

Soil properties influence the development of building sites, including the engineering design, construction techniques, and site maintenance. Soil borings conducted for the preliminary geotechnical report encountered undocumented sandy clay fill in the top 2–8 feet of soil, underlain by interbedded layers of native and sandy silts, silty sands, clayey sands, sandy clays. Discontinuous layers of moderate to well cemented clayey to sandy silts and silty sands (i.e., a cemented hardpan) were encountered to the maximum depths explored of 64 feet below the ground surface. Finally, relatively soft, loose, undocumented fill material was encountered in borings along the Curry Creek channel, which is likely related to channel realignment that occurred sometime between 1975 and 1984 (Wallace Kuhl 2022).

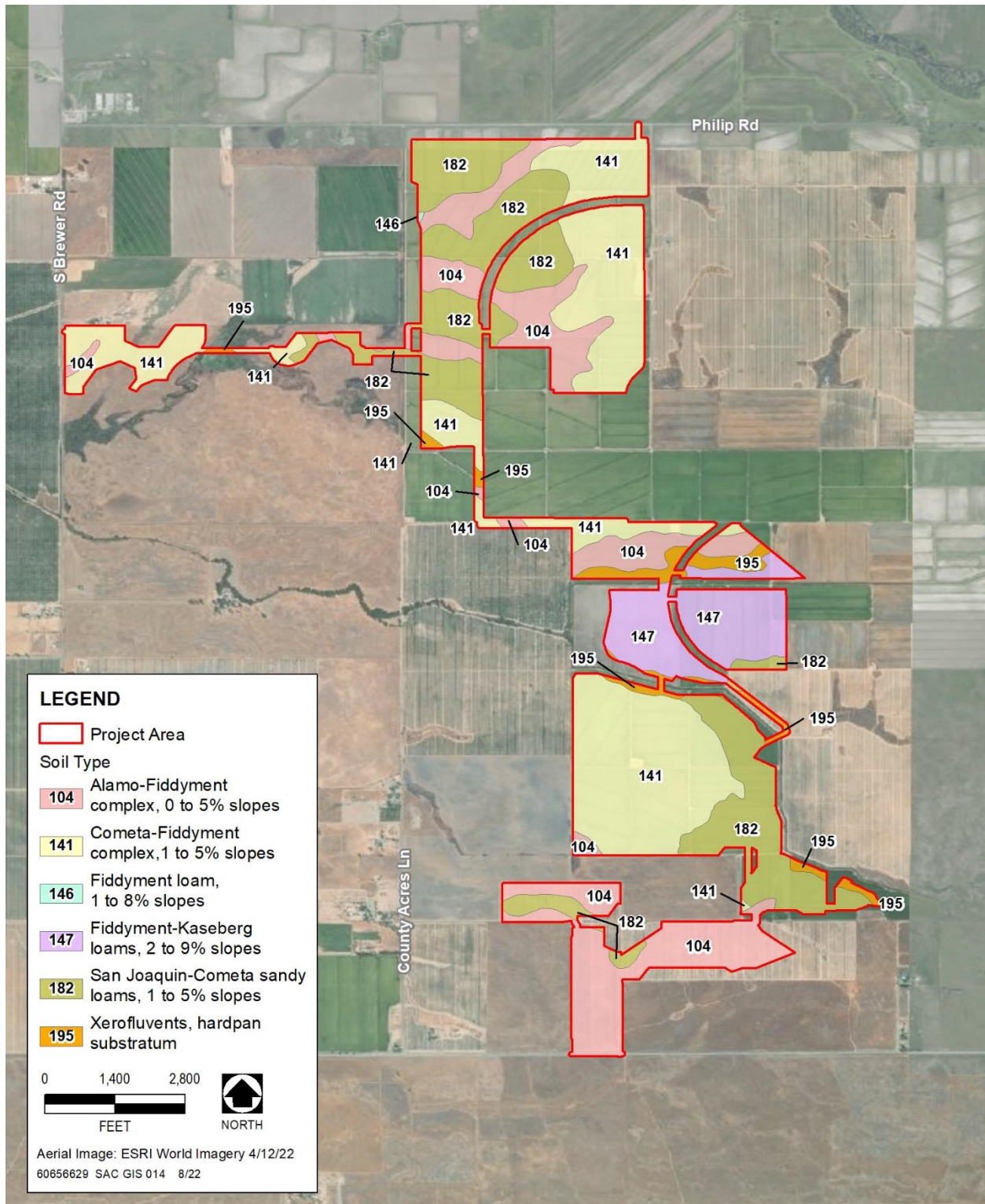
### **Expansion and Soil Bearing Capacity**

Expansive soils are composed largely of clays, which greatly increase in volume when saturated with water and shrink when dried (referred to as “shrink-swell” potential). Soils with a moderate to high expansion potential can result in cracked foundations, structural distortions, and warping of doors and windows. Underground pipelines can also be damaged. Wallace Kuhl (2022) noted that discontinuous clay layers are present throughout the project site. Laboratory test results of the discontinuous layers of lean clay and elastic silt, encountered at various locations and depths throughout the site, indicate these materials possess low to moderate plasticity. Therefore, the clay layers in the subgrade may experience volume changes (i.e., expansion and

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<sup>1</sup> At the project site, xerofluvents are composed of stratified loam to clay loam, formed from alluvium deposited on flood plains. A moderately cemented clay layer (hardpan) is present approximately 40 inches below the ground surface.





Source: NRCS 2020

### Exhibit 3.7-2. Soil Types

contraction) with increasing and decreasing soil moisture. However, the *Preliminary Geotechnical Report* includes appropriate recommendations for soil treatment to reduce the expansion potential.

Based on laboratory testing results, Wallace Kuhl (2022) indicated that the existing undocumented fill material of which the existing dirt agricultural roads are composed is not suitable for load bearing and necessary pavement areas for use by construction equipment and vehicles associated with the proposed project. However, the *Preliminary Geotechnical Report* includes appropriate recommendations for properly engineered and compacted fill material and aggregate road base.

Based on the results of the site-specific *Preliminary Geotechnical Report*, Wallace Kuhl (2022) indicated that conventional shallow spread, continuous, and/or drilled pier foundations constructed on undisturbed native soils or on properly placed engineered fill are capable of supporting the planned infrastructure, solar arrays, and associated construction.

### **Erosion and Stormwater Runoff**

The Fiddymment loam soils have a high water erosion hazard, while the other soil types have a moderate water erosion hazard. The San Joaquin-Cometa sandy loams and Cometa-Fiddymment Complex soils have a high susceptibility to wind erosion, while the other soil types have a moderate to low wind erosion hazard (NRCS 2021).

Most soils can be categorized into hydrologic soil groups (which apply only to surface soil layers) based on runoff-producing characteristics. Hydrologic soil groups are factored into calculations of erosion and stormwater runoff potential when drainage plans are prepared for new development. Soils are assigned to groups A, B, C, or D. The Alamo-Fiddymment Complex, Cometa-Fiddymment Complex, Fiddymment loam, and San Joaquin-Cometa sandy loams are assigned to Hydrologic Group D (NRCS 2021). Group D soils have a very slow water infiltration rate and a very high stormwater runoff potential. The Fiddymment-Kaseberg loams are assigned to Hydrologic Group C, which consists of soils with a slow water infiltration rate and a high stormwater runoff potential. Where Xerofluvents have been drained, they are assigned to Hydrologic Group B (moderate water infiltration rate/stormwater runoff potential); undrained Xerofluvents are assigned to Hydrologic Group D.

### **Suitability for Septic Systems**

For a septic system to function properly, soils must percolate (or “perc”) properly—that is, a certain volume of wastewater must flow through the soil in a certain time period, as determined by a licensed geotechnical engineer. Wastewater is “treated” as soil bacteria feed on the waste material and in the process, breaking down the material into more basic elements that are dispersed into the lower layers of the soil horizon. If wastewater percolates through the soil too quickly, there is insufficient time for the bacteria to digest this material. Conversely, if wastewater percolates through the soil too slowly, the bacteria die from oxygen deprivation.



A review of NRCS soil survey data (NRCS 2021) indicates that all of the project site soils are rated as very limited for use with septic systems because of a slow rate of water transmission through the soil, shallow depth to bedrock, shallow depth to a thin cemented hardpan, and high flooding potential.

### 3.7.3 Environmental Impacts and Mitigation Measures

#### *Methods and Assumptions*

The paleontological resources analysis prepared for this EIR relied on published geologic literature and maps, and a paleontological records search performed at the University of California Museum of Paleontology (UCMP). The geology and soils analysis relied on published seismic, geologic, and groundwater data and maps; NRCS soil survey data; and the site-specific *Preliminary Geotechnical Report* (Wallace Kuhl 2022). The information obtained from these sources was reviewed and summarized to present the existing conditions and to identify potential environmental impacts, based on the thresholds of significance presented in this section. Impacts associated with geology, soils, and paleontological resources that could result from project implementation were evaluated based on existing conditions; expected construction and operational practices; and the materials, locations, and duration of potential construction, operational, and maintenance activities.

#### *Thresholds of Significance*

Based on Appendix G of the CEQA Guidelines, the proposed project would have a significant impact related to geology, soils, or paleontological resources if it would:

- directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - 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;
  - strong seismic ground shaking;
  - seismic-related ground failure, including liquefaction; or
  - landslides;
- result in substantial soil erosion or the loss of topsoil;
- 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; or
- be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property;

- 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; or
- directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

### Paleontological Resources

Based on Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on paleontological resources if it would directly or indirectly destroy a unique paleontological resource or site. A “unique paleontological resource or site” is one that is considered significant under the following professional paleontological standards.

An individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved, and it meets one of the following criteria:

- a type specimen (i.e., the individual from which a species or subspecies has been described);
- a member of a rare species;
- a species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and important information regarding life history of individuals can be drawn;
- a skeletal element different from, or a specimen more complete than, those now available for its species; or
- a complete specimen (i.e., all or substantially all of the entire skeleton is present).

The value or importance of different fossil groups varies, depending on several factors: the age and depositional environment of the rock unit that contains the fossils; their rarity; the extent to which they have already been identified and documented; and the ability to recover similar materials under more controlled conditions (such as for a research project). Marine invertebrates generally are common, the fossil record is well developed and well documented, and they would generally not be considered a unique paleontological resource. Identifiable vertebrate marine and terrestrial fossils generally are considered scientifically important because they are relatively rare.

### *Issues Not Discussed Further*

**Expose People or Structures to Hazards from Surface Fault Rupture**—The project site is not located within or near an Alquist-Priolo Earthquake Fault Zone, and the nearest known active faults are approximately 45 miles to the north near Lake Oroville (CGS 2021, Jennings and Bryant 2010). Therefore, no impacts related to loss, injury, or

death involving rupture of a known earthquake fault would occur, and this issue is not addressed further in this EIR.

**Expose People or Structures to Hazards from Liquefaction**—Since active seismic sources are a relatively long distance away; the project site is composed of stable, Pleistocene-age rock formations; and the depth to groundwater ranges from 75 to 100 feet below the ground surface, seismically-induced liquefaction or lateral spreading at the project site is unlikely (Wallace Kuhl 2022). Therefore, no impact would occur, and this issue is not addressed further in this EIR.

**Expose People or Structures to Hazards from Landslides**—The project site is characterized by nearly flat topography with slopes ranging from 0 to 5%, and there are no off-site areas of steep slopes that could affect the project site. Therefore, landslides would not represent a hazard and there would be no impact. This issue is not addressed further in this EIR.

**Expose People or Structures to Hazards from Unstable Soils**—Wallace Kuhl (2022) determined that conventional shallow spread, continuous, and/or drilled pier foundations constructed on undisturbed native soils or on properly placed engineered fill are capable of supporting the planned infrastructure, solar arrays, and associated construction. The *Preliminary Geotechnical Report* (Wallace Kuhl 2022) contains appropriate recommendations for engineering of artificial fills, pavement and roadways, and structural foundations. Thus, there would be no impact and this issue is not addressed further in this EIR.

**Destroy a Unique Geologic Feature**—A unique geologic feature consists of a major natural element that stands out in the landscape, such as a large and scenic river, gorge, waterfall, volcanic cinder cone, lava field, or glacier. There are no unique geologic features at the project site or within the project viewshed. Thus, there would be no impact and this issue is not addressed further in this EIR.

### *Impact Analysis*

#### **Impact 3.7-1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:**

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##### **Strong seismic ground shaking?**

The Sacramento Valley has historically experienced very low levels of seismic activity. Known active faults that pose a hazard for strong seismic ground shaking are located approximately 45 miles north near Lake Oroville, and within the Coast Ranges approximately 50 miles west of the project site. Faults in the Foothills Fault System, approximately 20 miles to the east, are not classified as active (Jennings and Bryant 2010). The intensity of ground shaking depends on the distance from the earthquake epicenter to the site, the magnitude of the earthquake, and site soil conditions. As discussed above in the Environmental Setting, the project site is located in an area

where the potential for strong seismic ground shaking is very low, although it may still occur during the lifespan of the proposed project (Branum, et al. 2016; Wallace Kuhl 2022).

Development of the proposed project is required by law to comply with seismic safety standards of the CBC. The CBC philosophy focuses on “collapse prevention,” meaning that structures are designed for prevention of collapse for the maximum level of ground shaking that could reasonably be expected to occur at a site. Based on the seismic design category, the CBC requires an analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also requires that measures to reduce damage from seismic effects be incorporated in structural design. Measures may include ground stabilization, selection of appropriate foundation type and depths, selection of appropriate structural systems to accommodate anticipated displacements, or any combination of these measures.

A site-specific *Preliminary Geotechnical Report* (Wallace Kuhl 2022) has been prepared according to CBC and County requirements (including County Municipal Code Article 15.48 related to grading), which contains appropriate engineering and design recommendations related to seismic, soils, and other geologic considerations at the project site. The geotechnical report has been submitted to the County for review. SMUD is required by law to design and construct all buildings in compliance with the CBC (CCR Title 24), which includes implementing the recommendations contained in the geotech report to comply with CBC provisions that are specifically designed to prevent the collapse of structures during seismic ground shaking. Therefore, impacts from strong seismic ground shaking would be **less than significant**.

#### Mitigation Measures

No mitigation measures are required.

#### **Impact 3.7-2. Result in substantial soil erosion or the loss of topsoil?**

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The Fiddymment loam soils have a high water erosion hazard, while the other soil types at the project site have a moderate water erosion hazard. The San Joaquin-Cometa sandy loams and Cometa-Fiddymment Complex soils have a high susceptibility to wind erosion, while the other soil types have a moderate to low wind erosion hazard (NRCS 2021).

The project site soils are assigned to either Hydrologic Group C or D, which have high to very high stormwater runoff potentials due to their slow water infiltration rates (NRCS 2021).

The construction process associated with development of the proposed project would require a variety of earthmoving activities, including drilling, excavating, trenching,

grading, and compacting. For purposes of this analysis, grading activities are assumed to potentially occur over the entire project site. Construction-related earthmoving activities would expose soils to potential erosion from wind and water. Earthmoving activities during the winter months would expose soils to rain events, which could mobilize loose soil and result soil erosion. Subsequent soil transport during storm events could result in sedimentation within and downstream of the project site. Furthermore, earthmoving activities during the summer months could result in wind erosion.

However, prior to the start of earthmoving activities, applicants must obtain Improvement Plans (Grading Permit) approval from the County as required by Municipal Code Article 15.48, and must demonstrate that all appropriate measures to reduce soil erosion would be implemented. Municipal Code Section 15.48.320 requires preparation and submittal of a detailed erosion and sediment control plan including specific locations, construction details, and supporting calculations for temporary and permanent sediment control structures and facilities; and a revegetation plan, including temporary erosion control plantings, permanent slope plantings, replacement of temporary groundcover, and irrigation facilities.

Furthermore, project applicants are required by law to comply with the provisions of the SWRCB's *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated With Construction and Land Disturbance Activities* (Order 2009-009-DWQ as amended by Order 2012-0006-DWQ) (Construction General Permit). The Construction General Permit regulates stormwater discharges for construction activities under the CWA, and applies to all land-disturbing construction activities that would disturb 1 acre or more. Project applicants must submit a notice of intent to discharge to the Central Valley RWQCB, and must prepare and implement a SWPPP that includes site-specific BMPs to minimize construction-related soil erosion. Construction techniques that could be implemented to reduce the potential for stormwater runoff and sediment transport may include minimizing site disturbance, controlling water flow over the construction site, stabilizing bare soil, and ensuring proper site cleanup. BMPs that could be implemented to reduce erosion may include silt fences, staked straw bales/wattles, silt/sediment basins and traps, geofabric, trench plugs, terraces, water bars, soil stabilizers and re-seeding and mulching to revegetate disturbed areas. All NPDES permits also have inspection, monitoring, and reporting requirements.

In addition, compliance with the *Placer County Land Development Manual* (Placer County 2016), requires submittal of Improvement Plans and identification of BMPs that would be implemented to protect stormwater quality. Compliance with existing laws, regulations, and ordinances ensures that the short-term, temporary construction impacts from soil erosion would be **less than significant**. (Impacts from project construction and operation on water quality are evaluated in Section 3.10, "Hydrology and Water Quality.")

Mitigation Measures

No mitigation measures are required.

**Impact 3.7-3. 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?**

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Expansive soils shrink and swell as a result of moisture change. These volume changes can result in damage to building foundations and exterior concrete flatwork (such as sidewalks and roads) if they are not designed and constructed appropriately to resist the damage associated with changing soil conditions. Laboratory test results of the discontinuous layers of lean clay and elastic silt that were encountered in soil borings at various locations and depths throughout the site, indicate these materials possess low to moderate plasticity. Therefore, the clay layers in the subgrade may experience volume changes (i.e., expansion and contraction) with increasing and decreasing soil moisture.

The CBC includes engineering practices that require special design and construction methods to reduce or eliminate hazards from construction in expansive soil. SMUD is required by law to comply with the CBC, which that ensures appropriate design and construction of building foundations to resist soil movement would be implemented. In addition, the CBC also contains drainage-related requirements to reduce seasonal fluctuations in soil moisture content. Construction in soils of low strength is also addressed in the CBC through implementation of soil engineering tests and amending and compacting soils.

As required by the CBC, and County Municipal Code Article 15.48 (related to grading and drainage for Improvement Plans), the *Preliminary Geotechnical Report* includes appropriate recommendations for soil treatment to reduce the expansion potential. These recommendations include design and construction techniques such as post-tensioned building foundation systems, soil treatment with lime, or excavation of expansive soil and replacement with engineered fill material. Therefore, the impact from construction and operation in expansive soils is considered less **than significant**.

Mitigation Measures

No mitigation measures are required.

**Impact 3.7-4. 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?**

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During the project's construction phases, temporary portable restrooms would be used at the project site. The construction contractor would contract with a portable restroom supplier to provide facilities and to pump wastewater for off-site disposal. Thus, there

would be **no impact** related to soil suitability for septic systems during the project's construction phases.

The proposed project would include construction of permanent restrooms for use of employees during the project's operational phase. These restroom facilities would require installation of two small, on-site septic systems: one for the switch station and one for the substation. Based on a review of U.S. Natural Resources Conservation Service (NRCS 2021) soil survey data, all soils at the project site are rated as "very limited" for septic tank absorption fields. The NRCS ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health.

SMUD would be required to follow the Placer County Department of Health and Human Services, Division of Environmental Health Services septic system permitting process. This process includes a site-specific soil investigation, including a perc test, the results of which will be used to inform an appropriate engineered septic system design, which may include the use of seepage pits with supplemental treatment. The on-site septic systems must meet the engineering and design requirements that are specified in County Municipal Code Article 8.24 and the County's *On-Site Sewage Manual* (Placer County 2017), along with County General Plan Policies related to septic systems. Therefore, appropriate on-site septic systems would be designed and installed to meet County requirements to protect human health and the environment. Thus, the impact related to soil suitability for septic systems as designed and engineered for long-term use during the project's operational phase would be **less than significant**.

#### Mitigation Measures

No mitigation measures are required.

#### **Impact 3.7-5. Directly or indirectly destroy a unique paleontological resource or site?**

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The project site is located in the Riverbank Formation. As discussed in detail in Section 3.7.2, "Environmental Setting," the Riverbank Formation is considered to be of high paleontological sensitivity, because numerous vertebrate fossil specimens have been recovered from this formation throughout the Sacramento and San Joaquin valleys. This formation is present both at and beneath the surface throughout the project site. Although much of the project site has been disturbed as a result of previous agricultural operations, excavation and drilling for project-related solar array foundations, building foundations, utility trenches, and roadways would encounter undisturbed native soils. Therefore, construction-related earthmoving activities throughout the project site could result in accidental damage to or destruction of unique paleontological resources, and this impact is considered **potentially significant**.

Mitigation Measures**Mitigation Measure 3.7-5: Avoid Impacts to Unique Paleontological Resources.**

To minimize the potential for destruction of or damage to previously unknown unique, scientifically important paleontological resources during earthmoving activities at the project site, SMUD shall do the following:

- Prior to the start of earthmoving activities, retain either a qualified archaeologist or paleontologist to inform all construction personnel involved with earthmoving activities regarding the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and proper notification procedures should fossils be encountered.
- If paleontological resources are discovered during earthmoving activities, the construction crew shall immediately cease work in the vicinity of the find and notify SMUD and the County. SMUD shall retain a qualified paleontologist to evaluate the resource and prepare a recovery plan. The recovery plan may include, but is not limited to, a field survey, construction monitoring, sampling and data recovery procedures, museum curation for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by SMUD and the County to be necessary and feasible shall be implemented before construction activities can resume at the site where the paleontological resource or resources were discovered.

Significance after Mitigation

Implementation of Mitigation Measure 3.7-5 would reduce project-related impacts on unique paleontological resources to a **less-than-significant** level because construction workers would be alerted to the possibility of encountering paleontological resources and, in the event that resources were discovered, fossil specimens would be recovered and recorded and would undergo appropriate curation.



### 3.8 Greenhouse Gas Emissions

This section provides background information about greenhouse gas (GHG) emissions and climate change. Emissions of GHGs have the potential to adversely affect the environment because such emissions contribute cumulatively to global climate change. Cumulative emissions from many projects and activities affect global GHG concentrations and the climate system. Unlike criteria air pollutants and toxic air contaminants that tend to have more localized or regional impacts, GHG emissions tend to disperse more broadly and are more of a global concern because of their relatively longer atmospheric lifetimes compared to air pollutant emissions. Therefore, the total amount and types of GHG emissions, regardless of their location, have the most significant effect on climate change globally.

#### 3.8.1 Regulatory Setting

While most do not directly inform proposed project implementation or impact determination, federal, state, regional, and local GHG-related plans, policies, and regulations are helpful for understanding the overall context for GHG emissions impacts and strategies to reduce GHG emissions.

##### *Federal*

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for implementing the federal Clean Air Act (CAA). On April 2, 2007, the U.S. Supreme Court held that the EPA must consider regulation of motor vehicle GHG emissions. In *Massachusetts v. Environmental Protection Agency et al.*, 12 states and cities (including California) along with several environmental organizations sued to require EPA to regulate GHGs as pollutants under the CAA (127 S. Ct. 1438 [2007]). The Supreme Court ruled that GHGs fit within the CAA's definition of a pollutant and that EPA had the authority to regulate GHGs.

##### *U.S. Environmental Protection Agency "Endangerment" and "Cause or Contribute" Findings*

On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- *Endangerment Finding:* The current and projected concentrations of the six key GHGs—carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>)—in the atmosphere threaten the public health and welfare of current and future generations.
- *Cause or Contribute Finding:* The combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

### Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, EPA released its final Greenhouse Gas Reporting Rule (Reporting Rule). The Reporting Rule is a response to the fiscal year 2008 Consolidated Appropriations Act (House of Representatives Bill 2764; Public Law 110-161), which required EPA to develop "...mandatory reporting of GHGs above appropriate thresholds in all sectors of the economy...." The Reporting Rule applies to most entities that emit 25,000 metric tons of carbon dioxide equivalents (MT CO<sub>2</sub>e) or more per year. Since 2010, facility owners have been required to submit an annual GHG emissions report with detailed calculations of the facility's GHG emissions. The Reporting Rule also mandates compliance with recordkeeping and administrative requirements to enable EPA to verify annual GHG emissions reports.

### Council on Environmental Quality Guidance

The Council on Environmental Quality (CEQ) is a division of the Executive Office of the President that coordinates federal environmental efforts, policies, and initiatives to protect public health and the environment. CEQ released its initial draft National Environmental Policy Act (NEPA) guidance in 2010 for Federal agencies' consideration of the effects of GHG emissions and climate in their evaluation of proposals for Federal actions under NEPA. Several iterative reviews and revisions to this guidance have taken place since the release of this initial guidance. Currently, pursuant to President Biden's Executive Order 13990 "*Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*," CEQ is reviewing, for revision and update, the 2016 *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews*. Prior 2019 draft guidance was rescinded and the 2016 Final Guidance, although under review, is considered the most current available guidance. Review and revisions to these guidance documents do not change any law, regulation, or other legally binding requirement, and agencies may consider other available tools and resources to assess GHG impacts, including the 2016 updated guidance (CEQ 2021).

### *State*

The legal framework for GHG emission reductions has come about through Executive Orders, legislation, and regulations. The major components of California's climate change initiatives are outlined below.

### Executive Order S-3-05

Executive Order S-3-05, issued in recognition of California's vulnerability to the effects of climate change, set forth the following target dates by which statewide GHG emissions would be progressively reduced: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

*Assembly Bill 32 and the State Climate Change Scoping Plan*

In 2006, California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500, et seq.). AB 32 further details and puts into law the mid-term GHG reduction target established in Executive Order S-3-05: reduce GHG emissions below 1990 levels by 2020. AB 32 also identifies CARB as the State agency responsible for the design and implementation of emissions limits, regulations, and other measures to meet the target.

In December 2008, CARB adopted the Climate Change Scoping Plan (Scoping Plan), which contains the main strategies California will implement to achieve the required GHG reductions required by AB 32 (CARB 2008). The Scoping Plan also includes CARB-recommended GHG reductions for each emissions sector of California's GHG inventory. CARB acknowledges that land use planning decisions will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emissions sectors. The Scoping Plan details the regulations, alternative compliance mechanisms, voluntary actions and incentives, etc. proposed to meet the target emission reduction levels.

The Scoping Plan differentiates between “capped” and “uncapped” strategies. Capped strategies are subject to the proposed Cap-and-Trade Program, discussed further below. The Scoping Plan states that the inclusion of these emissions within the Cap-and-Trade Program will help ensure that the emission targets in AB 32 are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Uncapped strategies that will not be subject to the Cap-and-Trade Program are provided as a margin of safety by accounting for additional GHG emission reductions (CARB 2008).

CARB is required to update the Scoping Plan at least once every five years to evaluate progress and develop future inventories that may guide this process. CARB approved the first update to the Climate Change Scoping Plan: Building on the Framework in June 2014 (CARB 2014). The Scoping Plan Update includes a status of the 2008 Scoping Plan measures and other federal, State, and local efforts to reduce GHG emissions in California, and potential actions to further reduce GHG emissions by 2020. The Scoping Plan Update determined that the State was on schedule to achieve the 2020 target (i.e., 1990 levels by 2020). However, an accelerated reduction in GHG emissions is required to achieve the S-3-05 2050 reduction target of 80 percent below 1990 levels by 2050.

The statewide measures adopted under the direction of AB 32, and as outlined in the Scoping Plan, would reduce GHG emissions associated with existing development, as well as new development. CARB has released the 2030 Target Scoping Plan Update Concept Paper to initiate a discussion regarding how to most effectively achieve a 40 percent reduction in GHG emissions by 2030 as compared to 1990 statewide GHG emissions (consistent with SB 32 and Executive Order B-30-15, outlined below) (CARB 2016). This Concept Paper was followed by the release of the 2017 Scoping Plan Update: *California's 2017 Climate Change Scoping Plan*, which establishes a proposed

framework of action for California to reduce statewide emissions by 40 percent by 2030 compared to 1990 levels (CARB 2017).

#### Executive Order B-30-15

In April 2015, Governor Edmund Brown issued an executive order establishing a statewide GHG reduction goal of 40 percent below 1990 levels by 2030. The emission reduction target acts as an interim goal between the AB 32 goal (i.e., achieve 1990 emission levels by 2020) and Governor Brown's Executive Order S-3-05 goal of reducing statewide emissions 80 percent below 1990 levels by 2050. In addition, the executive order aligns California's 2030 GHG reduction goal with the European Union's reduction target (i.e., 40 percent below 1990 levels by 2030) that was adopted in October 2014.

#### Senate Bill 32

Approval of SB 32 in September 2016 extended the provisions of AB 32 from 2020 to 2030 with a new target of 40 percent below 1990 levels by 2030. The companion bill, AB 197, adds two non-voting members to the CARB, creates the Joint Legislative Committee on Climate Change Policies consisting of at least three Senators and three Assembly members, requires additional annual reporting of emissions, and requires Scoping Plan updates to include alternative compliance mechanisms for each statewide reduction measure, along with market-based compliance mechanisms and potential incentives.

#### Senate Bill 1078 (2002), Senate Bill 100 (2021) – California Renewable Portfolio Standard

Established in 2002 by SB 1078, California's Renewables Portfolio Standard (RPS) requires electricity providers (i.e., utilities, cooperatives, and community choice aggregators) to provide a specified minimum portion of their electricity supply from eligible renewable resources by milestone target years. Since 2002, state legislative actions have modified and accelerated the RPS several times, resulting in one of the most ambitious renewable energy standards in the country. As of December 2021, per SB 100, the RPS requires retail sellers of electricity to serve 60 percent of their electric load with renewable energy by 2030 with new interim targets of 44 percent by 2024 and 52 percent by 2027, as well as requiring that all of the state's electricity come from carbon-free resources (not only RPS-eligible ones) by 2045.

#### Mandatory Reporting of Greenhouse Gas Emissions (17 CCR §95100 to 95158)

This rule applies to entities of certain sources categories, including suppliers of transportation fuels and generators of electricity. However, no specific reporting requirements apply to electric power generation from solar resources.

California Code of Regulations Title 17 CCR §95350 et seq.

Adopted in 2010, the purpose of this regulation is to achieve GHG emissions reductions by reducing SF<sub>6</sub> emissions from electric power system gas-insulated switchgear. Owners of such switchgear must not exceed maximum allowable annual emissions rates, which as of 2020 and each year thereafter is 1.0 percent. Owners of such switchgear must annually report SF<sub>6</sub> emissions, determine the emission rate relative to the SF<sub>6</sub> capacity of the switchgear, provide a complete inventory of all gas-insulated switchgear and their SF<sub>6</sub> capacities, provide a SF<sub>6</sub> gas container inventory, and keep all information current for CARB enforcement staff inspection and verification. Existing and new electric transmission facilities and switchgear associated with renewable energy generation would be subject to this regulation.

In September 2020, CARB adopted Resolution 20-28, to amend the current regulation. Under this resolution, CARB developed a timeline for phasing out SF<sub>6</sub> equipment in California in stages between 2025 and 2033, and will be creating incentives to encourage owners to replace SF<sub>6</sub> equipment. The Resolution was approved by the California Office of Administrative Law and filed with the Secretary of State on December 30, 2021, and the amendments became effective January 1, 2022.

*Local*

Placer County Air Pollution Control District

In October 2016, the Placer County Air Pollution Control District (PCAPCD) Board of Directors adopted the Review of Land Use Projects under CEQA, which is a policy document that established thresholds of significance for GHG emissions and criteria air pollutants for projects under CEQA review in Placer County. The document serves as guidance for both the PCAPCD's review of project impacts and lead agencies when analyzing a project's impacts related to the generation of GHG emissions. In the development of these thresholds, the PCAPCD Board considered statewide regulations to accomplish statewide emissions reduction targets for GHGs, including those established under AB 32 and SB 32. PCAPCD has prepared a CEQA Thresholds of Significance Justification Report, which contains the rationale, modeling analyses, and factual data to justify the thresholds of significance that have been established (PCAPCD 2016).

Placer County Sustainability Plan

Placer County adopted its first Sustainability Plan in January 2020. While the plan is focused on overall opportunities to reduce GHG emissions, several of the actions focus specifically on energy efficiency, energy conservation, and opportunities for renewable energy generation and use. Strategies include replacing natural gas use with electricity as a cleaner energy source, replacement of appliances and equipment with more energy-efficient models, retrofits to existing buildings to improve heating, ventilation, and air conditioning and shell/envelope systems, adoption of California Green Building Standards (CALGreen) Tier 1 standards and increased zero-net energy in new

construction, on-site renewable energy generation and storage systems, and education of community members with regard to energy efficiency and conservation opportunities. Strategy E-23 specifically acknowledges intent to support local renewable energy generation:

- **Strategy E-23.** Support efforts on suitable land to increase renewable and carbon-free energy generation including wind, solar, and biomass, to supply the needs of Pioneer Community Energy, Liberty Utilities, and other local providers.

#### SMUD Resource Planning Report

SMUD adopted an Integrated Resource Plan in 2018, supplemented by the Resource Planning Report adopted in 2019 (SMUD 2019), consistent with requirements under the Clean Energy and Pollution Reduction Act (SB 350) to adopt an Integrated Resource Plan (IRP) that met specific RPS procurement and GHG reduction goals, while considering other goals, such as reliability, ratepayer impacts, and effects on disadvantaged communities. The Resource Planning Report provides guidance for serving the needs of residents and businesses within its service area, while fulfilling regulatory requirements. The report contains the following objectives that are relevant to the proposed project.

- Provide dependable renewable resources to meet 33 percent of SMUD's retail sales by 2020, 44 percent by 2024, 52 percent by 2027, and 60 percent of its retail sales by 2030 and thereafter, excluding additional renewable energy acquiring for certain customer programs.
- In meeting GHG reduction goals, SMUD shall emphasize local and regional environmental benefits.
- SMUD will continue exploring additional opportunities to accelerate and reduce carbon in [its] region beyond the GHG goals in this policy.

#### SMUD 2030 Zero Carbon Plan

The 2030 Zero Carbon Plan is SMUD's strategy to eliminate carbon emissions from its power supply by 2030. SMUD's 2030 Zero Carbon Plan is a road map to achieve the zero carbon goal while ensuring that all customers and communities SMUD serves reap the benefits of decarbonization. To achieve zero carbon, SMUD is focused on four main areas: repurposing existing natural gas generation power plants to eliminate GHG emissions; using proven clean technologies including solar, wind, and geothermal energy and battery storage; testing pilot projects and programs to test and prove new and emerging technologies; and identifying savings and pursuing partnerships and grants that support the Zero Carbon Plan (SMUD 2021).

### 3.8.2 Environmental Setting

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space through the atmosphere. However, infrared radiation is selectively absorbed by GHGs in the atmosphere. As a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on Earth. Anthropogenic (e.g., human caused) emissions of GHGs lead to atmospheric levels in excess of natural ambient concentrations and have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change.

The Intergovernmental Panel on Climate Change (IPCC) concluded that variations in natural phenomena, such as solar radiation and volcanoes, produced most of the warming of the earth from pre-industrial times to 1950. Some variations in natural phenomena also had a small cooling effect. From 1950 to the present, increasing GHG concentrations resulting from human activity, such as fossil fuel burning and deforestation, have been responsible for most of the observed temperature increase (IPCC 2021).

Global surface temperature has increased by approximately 1.96 degrees Fahrenheit (°F) over the last 140 years (IPCC 2021); the likely total human-caused global surface temperature increase is 1.93°F. The rate of increase in global average surface temperature has not been consistent; the last four decades have warmed at a much faster rate per decade (IPCC 2021).

During the same period when increased global warming has occurred, many other changes have occurred in other natural systems. Sea levels have risen; precipitation patterns throughout the world have shifted, with some areas becoming wetter and others drier; snowlines have increased elevation, resulting in changes to the snowpack, runoff, and water storage; and numerous other conditions have been observed. Although it is difficult to prove a definitive cause-and-effect relationship between global warming and other observed changes to natural systems, there is a high level of confidence in the scientific community that these changes are a direct result of increased global temperatures caused by the increased presence of GHGs in the atmosphere (IPCC 2021).

#### *Principal Greenhouse Gases and Sources*

GHGs are present in the atmosphere naturally, are released by natural and anthropogenic (human-caused) sources, and are formed from secondary reactions taking place in the atmosphere. Natural sources of GHGs include the respiration of humans, animals, and plants; decomposition of organic matter; volcanic activity; and

evaporation from the oceans. Anthropogenic sources include the combustion of fossil fuels by stationary and mobile sources, waste treatment, and agricultural processes. The following are the principal GHG pollutants that contribute to climate change and their primary emission sources:

- Carbon Dioxide (CO<sub>2</sub>): Natural sources of CO<sub>2</sub> include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; and evaporation from oceans. Anthropogenic (human) sources include burning of coal, oil, natural gas, and wood.
- Methane (CH<sub>4</sub>): CH<sub>4</sub> is emitted during the production and transport of coal, natural gas, and oil. CH<sub>4</sub> emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- Nitrous Oxide (N<sub>2</sub>O): N<sub>2</sub>O is produced by both natural and human-related sources. Primary human-related sources of N<sub>2</sub>O are agricultural soil management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. N<sub>2</sub>O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests.
- Fluorinated gases: These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes called High Global Warming Potential (High GWP) gases. These High GWP gases include:
  - Chlorofluorocarbons (CFCs): These GHGs are used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants.
  - Perfluorinated Chemicals (PFCs): PFCs are emitted as by-products of industrial processes and are also used in manufacturing.
  - Sulfur hexafluoride (SF<sub>6</sub>): This is a strong GHG used primarily as an insulator in electrical transmission and distribution systems.
  - Hydrochlorofluorocarbons (HCFCs): These have been introduced as temporary replacements for CFCs and are also GHGs.
  - Hydrofluorocarbons (HFCs): These were introduced as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are GHGs emitted as by-products of industrial processes and are also used in manufacturing.

GHGs are not monitored at local air pollution monitoring stations and do not represent a direct impact to human health. Rather, GHGs generated locally contribute to global concentrations of GHGs, which result in changes to the climate and environment.



*Global Warming Potential*

GWP is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time the gas remains in the atmosphere (its “atmospheric lifetime”). The GWP of each gas is measured relative to CO<sub>2</sub>. Therefore, CO<sub>2</sub> has a GWP of 1. GHGs with lower emissions rates than CO<sub>2</sub> may still contribute to climate change because they are more effective at absorbing outgoing infrared radiation than CO<sub>2</sub> (i.e., high GWP). For example, SF<sub>6</sub>, while comprising a relatively small fraction of the total GHGs emitted annually worldwide, has a GWP of 22,800, meaning that 1 ton of SF<sub>6</sub> has the same contribution to the greenhouse effect as approximately 22,800 tons of CO<sub>2</sub>. The concept of CO<sub>2</sub> equivalence (CO<sub>2</sub>e) is used to account for the different GWP potentials of GHGs. GHG emissions are typically measured in terms of pounds or tons of CO<sub>2</sub>e, and are often expressed in MT CO<sub>2</sub>e.

Climate change is a global issue because GHGs can have global effects, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern (see Section 3.3 “Air Quality”). Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years), or long enough to be dispersed around the globe.

*Potential Effects of Climate Change*

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The IPCC’s 2021 Synthesis Report indicated that warming of the climate system is unequivocal and, since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC 2021).

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. As noted in the Sacramento Valley Regional Report of the California’s Fourth Climate Change Assessment, in which the western portion of Placer County is a part of the Sacramento Valley region, climate change is expected to make the Sacramento region hotter, drier, and increasingly prone to extremes like megadroughts, flooding, and large wildfires. These changing conditions are likely to affect water and energy availability, agricultural systems, plants and wildlife, public health, housing, and quality of life. In Placer County, potential hazards (or exposures) related to climate change have also been analyzed as part of a vulnerability assessment for the County (Placer County 2018). Findings indicated that the most prominent localized effects of climate change include increased risks associated with agriculture and forestry pests and disease, avalanche (specific to higher elevation areas in the

northeastern portion of the county), drought, extreme heat, flooding, fog, human health hazards, landslides, severe winter weather, and wildfire. These secondary effects related to climate change are summarized briefly below.

**Agriculture.** Some of the specific challenges faced by the agricultural sector and farmers include more drastic and unpredictable precipitation and weather patterns; extreme weather events; significant shifts in water availability and water quality; changes in pollinator lifecycles; temperature fluctuations; increased risks from invasive species and weeds, agricultural pests, and plant diseases; and disruptions to the transportation and energy infrastructure supporting agricultural production.

**Biodiversity and Habitat.** Specific climate change challenges to biodiversity and habitat include species migration, range shift, and novel combinations of species; pathogens, parasites, and disease; invasive species; extinction risks; changes in the timing of seasonal life-cycle events; food web disruptions; and threshold effects (i.e., a change in the ecosystem that results in a “tipping point” beyond which irreversible damage or loss occurs).

**Energy.** Specific climate change challenges for the energy sector include temperature, fluctuating precipitation patterns, increasing extreme weather events, and sea level rise. Increasing temperatures and reduced snowpack negatively affect the availability of a steady flow of snowmelt to hydroelectric reservoirs. Higher temperatures also reduce the capacity of thermal power plants since power plant cooling is less efficient at higher ambient temperatures. Natural gas infrastructure in coastal California is threatened by sea level rise and extreme storm events.

**Forestry.** The most significant climate change–related risk to forests is accelerated risk of wildfire and more frequent and severe droughts. Droughts have resulted in more large-scale mortalities and, combined with increasing temperatures, have led to an overall increase in wildfire risks. Increased wildfire intensity subsequently increases public safety risks, property damage, fire suppression and emergency response costs, watershed and water quality impacts, and vegetation conversions. These factors contribute to decreased forest growth, geographic shifts in tree distribution, loss of fish and wildlife habitat, and decreased carbon absorption.

**Ocean and Coastal Ecosystems and Resources.** Sea level rise, changing ocean conditions, and other climate change stressors are likely to exacerbate longstanding challenges related to ocean and coastal ecosystems in addition to threatening people and infrastructure located along the California coastline and in coastal communities.

**Public Health.** Climate change can affect public health through various environmental changes and is the largest threat to human health in the 21st century. Changes in precipitation patterns affect public health primarily through potential for altered water supplies and extreme events such as heat, floods, droughts, and wildfires. Increased frequency, intensity, and duration of extreme heat and heat waves is likely to increase the risk of mortality due to heat-related illness, as well as exacerbate existing chronic

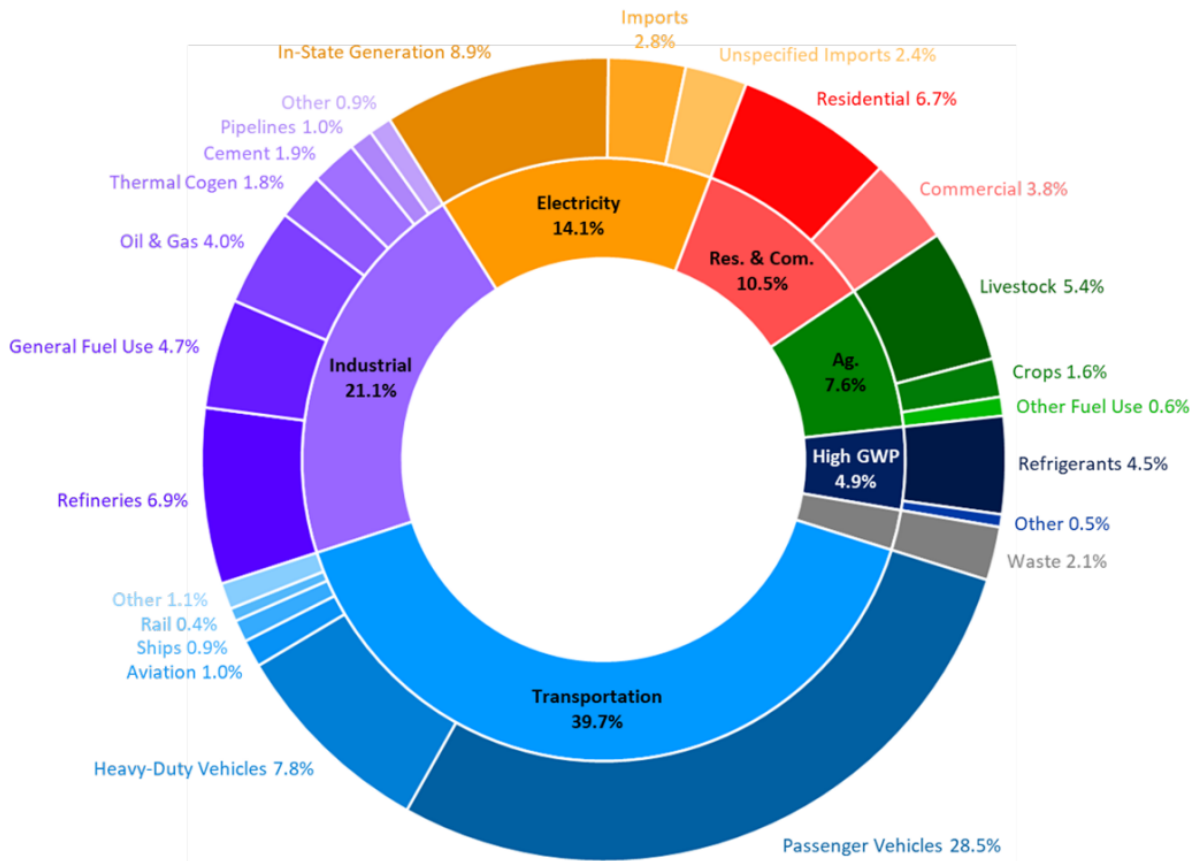
health conditions. Other extreme weather events are likely to negatively affect air quality and increase or intensify respiratory illness such as asthma and allergies.

**Transportation.** The transportation industry is vulnerable to climate change risks, including sea level rise and erosion, which threaten many coastal California roadways, airports, seaports, transit systems, bridge supports, and energy and fueling infrastructure. Increasing temperatures and extended periods of extreme heat threaten the integrity of the roadways and rail lines. Other forms of extreme weather events, such as extreme storm events, can negatively affect infrastructure, which can impair movement of people and goods, or potentially block evacuation routes and emergency access roads. Increased wildfires, flooding, erosion risks, landslides, mudslides, and rockslides can all profoundly affect the transportation system and pose a serious risk to public safety.

**Water.** Climate change could seriously affect the timing, form, amount of precipitation, runoff patterns, and frequency and severity of precipitation events. Higher temperatures reduce the amount of snowpack and lead to earlier snowmelt, which can affect water supply availability, natural ecosystems, and winter recreation. Water supply availability during the intense dry summer months is heavily dependent on the snowpack accumulated during the wintertime. Increased risk of flooding has a variety of public health concerns including water quality, public safety, property damage, displacement, and post-disaster mental health problems. Prolonged and intensified droughts can also negatively affect groundwater reserves and result in increased overdraft and subsidence.

### *State Greenhouse Gas Emissions Inventory and Trends*

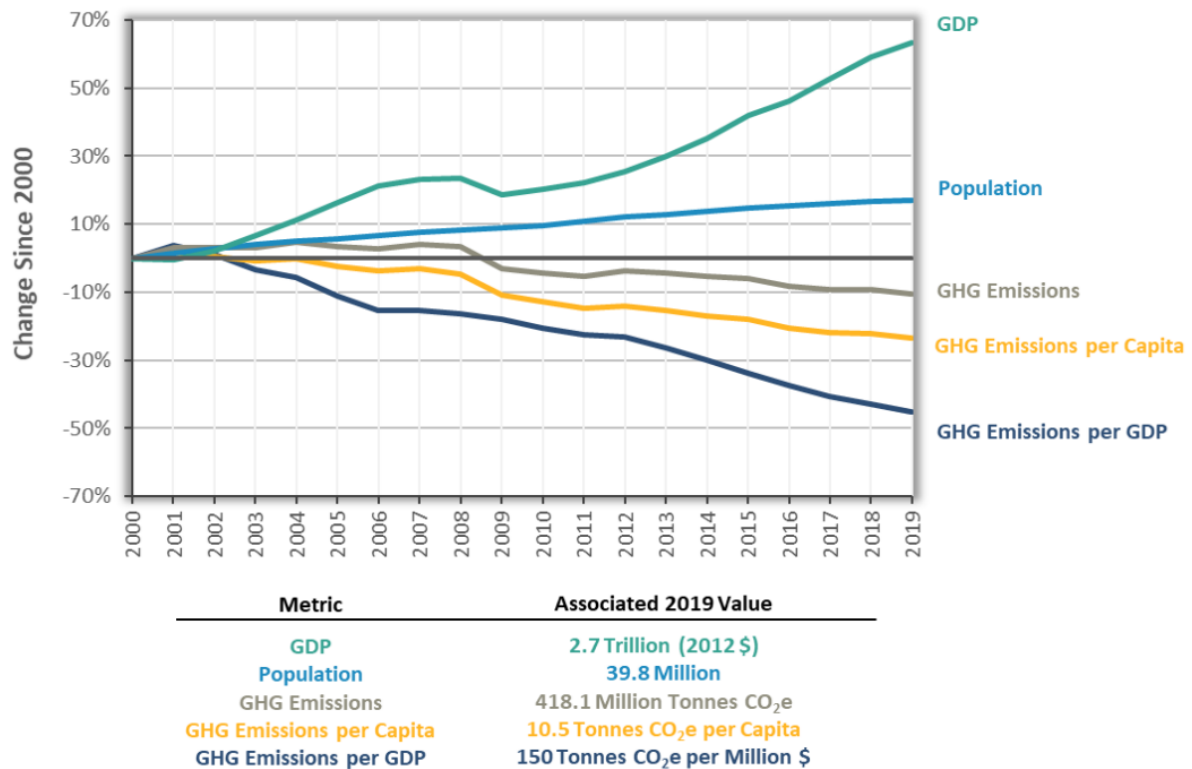
The CARB prepares an annual inventory of statewide GHG emissions. GHGs are typically analyzed by sector, a term that refers to the type of activity. As shown in Exhibit 3.8-1, 418.2 million MT CO<sub>2e</sub> in 2019. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2019, accounting for 40 percent of total GHG emissions. Transportation was followed by industry, which accounted for 21 percent, and then the electric power sector (including in-state and out-of-state sources), which accounted for 14 percent of total GHG emissions (CARB 2021).



Source: CARB 2021

### Exhibit 3.8-1. 2019 California Greenhouse Gas Emissions Inventory by Sector

California has implemented several programs and regulatory measures to reduce GHG emissions. Exhibit 3.8-2 demonstrates California's progress in reducing statewide GHG emissions. Since 2007, California's GHG emissions have been declining, even as population and gross domestic product have increased. Per-capita GHG emissions in 2019 were 25 percent lower than the peak per-capita GHG emissions recorded in 2001. Similarly, GHG emissions per million dollars of gross domestic product have decreased by 47 percent since the peak in 2001.



Source: CARB 2021

### Exhibit 3.8-2. Trends in California Greenhouse Gas Emissions (Years 2000 to 2019)

## 3.8.3 Environmental Impacts and Mitigation Measures

### *Methods and Assumptions*

Short-term construction activities and long-term operations of the proposed project would generate GHG emissions. Construction-related and operational mobile sources (both off-road and on-road) of GHG emissions were modeled using the same methods and assumptions as those described in Section 3.3 “Air Quality,” of this EIR. In addition to those sources identified in the air quality analysis that would contribute to regional criteria air pollutant emissions, operations may also include the use of SF<sub>6</sub>, which is a High-GWP GHG. Potential MT CO<sub>2</sub>e of SF<sub>6</sub> that could result from annual project operations were estimated based on the annual SF<sub>6</sub> requirements (in pounds per year) for the Generation Substation and Switch Station, as estimated by the project engineering team, a maximum fugitive emissions rate of one percent based on current California Code of Regulations Title 17 CCR §95350 et seq., and a GWP of 22,800 for SF<sub>6</sub> compared to CO<sub>2</sub>, consistent with Federal Code of Regulations Title 40, Appendix Table A-1 Subpart A of Part 98. Recently adopted Resolution 20-28 to amend the current regulation could result in the use of alternative technologies and no SF<sub>6</sub> for the proposed project. However, project implementation may occur prior to the initial year of phase-out requirements under this Resolution, and it was considered conservative to

assume use of SF<sub>6</sub> and estimate emissions based upon the current CARB fugitives emissions rate limit (i.e., one percent). The analysis also considered the net GHG emissions benefit that the proposed project could contribute due to the production of energy from a GHG-free source.

Appendix A provides the detailed calculation inputs, assumptions, and outputs.

### *Thresholds of Significance*

GHG emissions have the potential to adversely affect the environment because such emissions contribute cumulatively to global climate change. It is unlikely that a single project will contribute significantly to climate change, but cumulative emissions from many projects could affect global GHG concentrations and the global climate system. Therefore, impacts are analyzed within the cumulative context of the project's potential contribution to the significant impact of global climate change.

Based on Appendix G of the CEQA Guidelines, implementation of the proposed project would result in a cumulatively considerable contribution to the significant impact of climate change if it would:

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

Section 15064.4(b) of the CEQA Statute and Guidelines, concerning determining the significance of impacts from GHG emissions, states that a lead agency may consider the following three factors in assessing the significance of impacts from GHG emissions.

- The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting.
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- 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 GHG emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

As stated in Appendix G of the CEQA Guidelines, the significance criteria established by the applicable air quality management district may be relied on to make the above determinations. On October 13, 2016, the PCAPCD Board of Directors adopted the Review of Land Use Projects under CEQA Policy, which established thresholds of significance for GHG emissions designed to analyze a project's compliance with applicable State laws, including AB 32 and SB 32 (PCAPCD 2016). In developing the thresholds, the district took into account the significance thresholds adopted by other air districts, historical CEQA project review data in Placer County, statewide regulations to achieve GHG emission reduction targets, and the geographic and land use features of Placer County. Specifically, the PCAPCD adopted a tiered approach to GHG significance thresholds, as detailed below, to help determine the significance of a project's GHG emissions.

- Tier 1, a 'bright-line' threshold of 10,000 MT CO<sub>2</sub>e per year during construction and operational phases of land-use development and stationary source projects. The bright-line threshold represents the level at which a project's GHG emissions would be substantially large enough to contribute to cumulative impacts and mitigation to lessen the emissions would be mandatory.
- Tier 2, an efficiency matrix (shown in Table 3.8-1) to evaluate a land use project's operational-phase emissions, when such emissions exceed the Tier 3 'de minimis' screening level threshold below. A land use project with GHG emissions that are between The Tier 1 bright-line threshold and Tier 3 de minimis screening level would be considered less than cumulatively considerable if its GHG efficiency does not exceed the criteria in the efficiency matrix. The per square-foot GHG efficiency threshold for rural projects is considered the applicable efficiency threshold to the proposed project.

**Table 3.8-1. PCAPCD GHG Efficiency Thresholds for Project Operations**

Urban Residential GHG Efficiency (MT CO <sub>2</sub> e per capita)	Rural Residential GHG Efficiency (MT CO <sub>2</sub> e per capita)	Urban Non-Residential GHG Efficiency (MT CO <sub>2</sub> e per square foot)	Rural Non-Residential GHG Efficiency (MT CO <sub>2</sub> e per square foot)
4.5	5.5	26.5	27.5

Source: PCAPCD 2017

Notes: GHG = Greenhouse gas; MT CO<sub>2</sub>e = metric tons of carbon dioxide equivalents; PCAPCD = Placer County Air Pollution Control District

- Tier 3, a 'de minimis' screening-level threshold of 1,100 MT CO<sub>2</sub>e per year for the operational phase of a project. Any project that would not exceed these emissions would be considered to have a less-than-cumulatively considerable contribution to the significant impact of climate change and would not conflict with any State or regional GHG reduction targets.

*Impact Analysis***Impact 3.8-1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

The fundamental purpose of the proposed project is to reduce GHG emissions produced as a result of electricity generation associated with SMUD's power mix that serves Sacramento and Placer counties. However, GHGs would also be emitted as a result of short-term project construction activities and long-term operations and maintenance activities.

During construction, the use of off-road equipment and on-site vehicles, as well as construction-related vehicle trips to and from the site, would generate GHG emissions. Depending on the activities occurring for each phase of construction, GHG emissions would vary substantially depending on the intensity of equipment use throughout each phase and the overlap of various construction phases occurring concurrently on-site. To estimate GHG emissions, while project phasing was taken into account, the equipment and vehicle activity use is based on anticipated maximum use, particularly for on-site equipment and vehicle use, and therefore represents a worst-case scenario of short-term emissions that would be generated as a result of construction of the proposed project. While likely a conservative estimate, total worst-case, construction related GHG emissions were used to evaluate the significance of the proposed project's construction emissions on the cumulative impact of global climate change. Construction-related GHG emissions estimates by phase are shown in Table 3.8-2.

**Table 3.8-2. Proposed Project Construction-Related GHG Emissions by Phase**

<b>Proposed Project Construction Phase</b>	<b>Total GHG Emissions (MT CO<sub>2</sub>e)</b>
Material Procurement & Delivery	406
Mobilization	59
Solar Construction	9,621
Storage Construction	1,070
Substation Construction (Includes Transmission Line)	183
Switchyard Construction (Includes Loop Inline)	326
<b>Total</b>	<b>11,664</b>
<b>Maximum Year</b>	<b>8,938</b>
<b>PCAPCD Threshold</b>	<b>10,000</b>

Source: Modeled by AECOM in 2022 (see Appendix A for detailed calculations)

Notes: GHG = Greenhouse gas; MT CO<sub>2</sub>e = metric tons of carbon dioxide equivalents; PCAPCD = Placer County Air Pollution Control District

Over the two-year construction period, a maximum of approximately 11,664 MT CO<sub>2</sub>e would be generated by construction-related equipment and vehicle use. Based upon the anticipated construction schedule and phasing, the most intensive construction activities



and overlap of construction phases would occur in the year 2023, during which time approximately 76 percent of the construction duration, accounting for overlapping phases, could take place. Considering construction phasing and more intensive equipment and vehicle use in this single year, approximately 8,938 MT CO<sub>2e</sub> would be generated in the most intensive year of construction. Again, these emissions estimates assume the peak daily equipment and vehicle use would occur throughout each subphase, which is not typical of construction implementation. Regardless, even with this conservative assumption, the maximum annual emissions would not exceed PCAPCD's threshold of 10,000 MT CO<sub>2e</sub> per year and the proposed project's construction-related emissions would not be considered to have a cumulatively considerable contribution to the significant impact of global climate change. This impact for construction would be **less than cumulatively considerable**.

After construction, the proposed project would require minor operations and maintenance activities that would include up to two full-time staff visiting the site daily, intermittent trips to and from the site by other maintenance workers, and intermittent use of various equipment. Maximum annual GHG emissions from project operations were estimated assuming the maximum daily vehicle and equipment activity would occur year-round, which is a conservative estimate of such activity, which may only occur for periods of days to weeks throughout the year. Operational GHG emissions estimates by emissions source are shown in Table 3.8-3.

**Table 3.8-3. Proposed Project Operational GHG Emissions in the First Operational Year**

Proposed Project Operational Emissions Source	Total GHG Emissions (MT CO <sub>2e</sub> per year)
Area	0.00002
Energy	0.00
Mobile	34
Offroad	139
Stationary <sup>a</sup>	251
<b>Total Annual Emissions <sup>b</sup></b>	<b>425</b>
<b>PCAPCD Threshold (de minimis)</b>	<b>1,100</b>

Source: Modeled by AECOM in 2022 (see Appendix A for detailed calculations)

Notes: GHG = Greenhouse gas; MT CO<sub>2e</sub> = metric tons of carbon dioxide equivalents; PCAPCD = Placer County Air Pollution Control District; SF<sub>6</sub> = sulfur hexafluoride.

<sup>a</sup>. Stationary sources include up to 50 hours per year of backup generator operations and fugitive emissions at a maximum rate of 1 percent) of SF<sub>6</sub> from the Generation Substation and Switch Station.

<sup>b</sup>. Totals do not add due to rounding.

Total annual GHG emissions that would be generated as a result of operations and maintenance activities would be less than 425 MT CO<sub>2e</sub> per year. When considering that this estimate reflects a conservative assumption of peak maintenance activities occurring year-round and does not consider future emissions reductions in vehicle and equipment operations due to increasing regulatory requirements and implementation of

cleaner technology, long-term annual operations and maintenance emissions would likely be even less than estimated. These operational GHG emissions would be less than the PCAPCD *de minimis* screening level and the proposed project's operational emissions would not be considered to have a cumulatively considerable contribution to the significant impact of global climate change. This impact for operations would be **less than cumulatively considerable**.

While proposed construction and operations would be less than cumulatively considerable, as detailed above, the proposed project's contribution as a GHG-free energy resource is important to acknowledge as a valuable long-term benefit of the proposed project. As a GHG-free energy resource, the proposed project operations would also serve to increase SMUD's renewable energy supply and help reduce GHG emissions associated with SMUD's power generation.

The project's 344 MW capacity was estimated by SMUD to generate approximately 748,944 megawatt hours per year. SMUD's most recently published 2020 power content label and reported GHG emissions intensity factor of 358 MT CO<sub>2e</sub> per megawatt-hour for the year 2021 were used to calculate the proposed project's net emissions benefit for an initial operational year of 2025, assuming a linear progress of SMUD's incorporation of GHG-free energy resources into its power mix to meet its internal goal of 100 percent carbon-free energy by 2030. demonstrating the emissions that could be avoided through the use of this GHG-free energy resource compared to the same amount of energy from the current SMUD General Power Mix. The proposed project's operations would provide a benefit of approximately 61,453 MT CO<sub>2e</sub> avoided in the first year of operations; this conservatively assumes that the power provided by the proposed project would otherwise be supplied by SMUD with a CO<sub>2e</sub> intensity factor from an 82 percent renewable energy portfolio, which is a more aggressive incorporation of renewable energy than otherwise mandated.

The average GHG emissions intensity factor for SMUD's overall power mix will decrease over time as the percentage of renewable energy resources contributing to the power mix increases. SB 100 requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 60 percent of their supply from renewable sources by the year 2030, and 100 percent by the year 2045; SMUD's 2030 Zero Carbon Plan strategy has a target of eliminating carbon emissions from its power supply by 2030, which is more aggressive than the current regulatory requirements. As the regional power mix continues to become increasingly dominated by GHG-free energy sources, the relative GHG emissions benefit potential of the project could be considered to diminish. However, GHG emissions generated by vehicle and equipment exhaust would also likely decrease over time due to increased regulatory requirements and improved (i.e., less emitting) technology. Neither these reduced emissions rates associated with operational vehicle and equipment use, nor the declining GHG intensity of the energy power source mix are not accounted for over the proposed project's operational horizon, as they are speculative. Although the quantifiable GHG emissions offsets would diminish over time when considering the overall shift toward a 100 percent renewable energy power mix, this does not negate

the overall benefit of the project. The development of renewable energy sources, such as the proposed project, are a necessity to meet the State Renewable Portfolio Standard requirements, realizing a 100 percent renewable energy power mix, and achieving overall state GHG emissions reduction targets.

*Mitigation Measures*

No mitigation is required.

**Impact 3.8-2. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

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The project would provide a potential reduction in GHG emissions each year of operation if the electricity generated by the project's solar energy facilities were to be used instead of electricity generated by fossil-fuel sources. Several regulatory measures have been adopted to increase renewable energy in California. SB 100 requires all electricity retailers in the state, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators, to achieve Renewable Portfolio Standards of 60 percent renewable energy by 2030 and requires that all of the state's electricity come from carbon-free resources by 2045. The project would provide a source of renewable energy to achieve the Renewable Portfolio Standards' target of 60 percent by 2030 set by SB 100 and help the state reach its goal to be carbon neutral by 2045, as well as contribute toward SMUD's more aggressive goal of a 100 percent renewable energy power supply by the year 2030. In addition, the project would comply with all current and future regulations, including California Code of Regulations Title 17 CCR §95350 et seq. for reducing GHG emissions from gas-insulated equipment, such as switch gears used in solar power generation facilities like the proposed project. Therefore, the proposed project would be consistent with and would not conflict with applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of greenhouse gases. This impact would be **less than significant**.

*Mitigation Measures*

No mitigation is required.

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### 3.9 Hazards and Hazardous Materials

This section summarizes the regulatory setting and describes the environmental setting and impacts related to hazards and hazardous materials. For the purposes of this analysis, the term “hazards” refers to risk associated with such issues as fires, explosions, and exposure to hazardous materials. Impacts related to hazardous emissions (i.e., toxic air contaminants) are evaluated in Section 3.3, “Air Quality,” and potential effects of hazardous materials on water quality are evaluated in Section 3.10, “Hydrology and Water Quality.”

#### 3.9.1 Regulatory Setting

##### *Federal*

##### Management of Hazardous Materials

Various federal laws address the proper handling, use, storage, and disposal of hazardous materials, and require implementation of cleanup measures if such materials are accidentally released. The U.S. Environmental Protection Agency (EPA) is the agency primarily responsible for enforcing and implementing federal laws and regulations regarding hazardous materials. Applicable federal regulations pertaining to hazardous materials are contained mainly in Code of Federal Regulations (CFR) Titles 29, 40, and 49. Hazardous materials, as defined in the code, are listed in 49 CFR 172.101. Management of hazardous materials is governed by the following laws, among others:

- The Toxic Substances Control Act of 1976 (Title 15, Section 2601 and following sections of the U.S. Code [15 USC 2601 et seq.]) regulates the manufacturing, inventory, and disposition of industrial chemicals, including hazardous materials.
- The Resource Conservation and Recovery Act of 1976 (42 USC 6901 et seq.) established an all-encompassing federal regulatory program for hazardous substances that is administered by EPA. Under the Resource Conservation and Recovery Act, EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous substances.
- The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also called the Superfund Act or CERCLA) (42 USC 9601 et seq.) created a trust fund to provide broad federal authority for releases or threatened release of hazardous substance that could endanger public health or the environment.
- The Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499; 42 USC 116), also known as SARA Title III or the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), establishes requirements for federal, state, and local governments, Indian Tribes, and

industry regarding emergency planning and Community Right-to-Know reporting on hazardous and toxic chemicals. SARA Title III requires states and local emergency planning groups to develop community emergency response plans for protection from a list of Extremely Hazardous Substances (40 CFR Appendix B). The Community Right-to-Know provisions help increase the public's knowledge of and access to information on chemicals at individual facilities, their uses, and their release into the environment.

### Transport of Hazardous Materials

The U.S. Department of Transportation regulates transport of hazardous materials in commerce between states. The federal hazardous materials transportation law, 49 USC 5101 et seq. (formerly the Hazardous Materials Transportation Act, 49 USC 1801 et seq.) is the basic statute regulating transport of hazardous materials in the United States. The Federal Highway Administration, U.S. Coast Guard, Federal Railroad Administration, and Federal Aviation Administration (FAA) enforce hazardous materials transport regulations.

### Worker Safety

The federal Occupational Safety and Health Administration (OSHA) is responsible for assuring worker safety in the handling and use of chemicals identified in the Occupational Safety and Health Act of 1970 (Public Law 91-596, 29 USC 651 et seq.). OSHA has adopted numerous regulations pertaining to worker safety, contained in CFR Title 29. These regulations set standards for safe workplaces and work practices, including standards for handling hazardous materials and for excavation and trenching.

### Emergency Planning and Community Right-to-Know Act

In California, both federal and state community right-to-know laws are coordinated through the Governor's Office of Emergency Services. Included under the Superfund Amendments and Reauthorization Act (SARA), the federal law is commonly referred to as SARA Title III. SARA Title III supports emergency planning efforts at the state and local levels and enables information sharing with local governments and the public regarding potential chemical hazards in individual communities. Under community right-to-know laws, information is collected from facilities that handle (e.g., produce, use, store) hazardous materials exceeding certain quantities and is made available to the public. The provisions of EPCRA apply to the following major categories:

- Emergency planning
- Emergency release notification
- Reporting of hazardous chemical storage
- Inventory of toxic chemical releases

*State**Hazardous Materials Business Plan*

The California Health and Safety Code Chapter 6.95 (Hazardous Materials Release Response Plans and Inventory) requires qualifying businesses to prepare a hazardous materials business plan. The plan must include procedures for managing hazardous materials and hazardous waste. In addition, the plan must describe emergency response procedures and include a list of emergency spill cleanup supplies and equipment. Before an applicant may use hazardous materials at certain defined federal and/or state thresholds, the applicant must submit a Hazardous Material Business Plan to the administering agency.

*California Department of Toxic Substances Control*

The Department of Toxic Substances Control (DTSC) has primary regulatory responsibility, with delegation of enforcement to local jurisdictions that enter into agreements with the State agency, for the management of hazardous materials and the generation, transport and disposal of hazardous waste under the authority of the Hazardous Waste Control Law. Since August 1, 1992, DTSC has been authorized to implement the state's hazardous waste management program for California Environmental Protection Agency (CalEPA).

*State Water Resources Control Board*

The SWRCB was established in 1967. The Central Valley RWQCB is authorized by the SWRCB to enforce provisions of the Porter-Cologne Water Quality Control Act of 1969. This act gives the Central Valley RWQCB authority to require groundwater investigations when the quality of groundwater or surface waters of the state is threatened and to require remediation of the site, if necessary.

*Cortese List, California Government Code Section 65962.5*

The provisions of Section 65962.5 of the California Government Code are commonly referred to as the "Cortese List" (after the legislator who authored the legislation that enacted it). The Cortese List is a planning document used by state and local agencies to comply with CEQA's requirement to provide information about the location of hazardous-materials release sites. Government Code Section 65962.5 requires CalEPA to develop an updated Cortese List at least annually. DTSC is responsible for a portion of the information contained on the Cortese List. Other state and local government agencies, including the SWRCB and RWQCBs, are required to provide additional information for the Cortese List about releases of hazardous materials.

In addition, Section 65962.5 requires all project applicants to consult the Cortese List and determine whether any site-specific project is within a hazardous materials site on the list. If so, the project applicant is required to notify the lead agency in writing prior to the issuance of a building permit, so the lead agency can determine the appropriate

course of action (which generally would include preparation of Phase I and (if necessary) Phase II environmental site assessment, along with site-specific remediation).

#### California Department of Conservation, Geologic Energy Management Division

The California Department of Conservation, Geologic Energy Management Division (CalGEM) Division of Oil, Gas, and Geothermal Resources, oversees the drilling, operation, maintenance, and plugging and abandonment of oil, natural gas, and geothermal wells. The regulatory program emphasizes the wise development of oil, natural gas, and geothermal resources in the state through sound engineering practices intended to protect the environment, prevent pollution, and ensure public safety.

#### Wildland Fire Hazard Mapping

The California Department of Forestry and Fire Protection (CAL FIRE) maintains maps of fire hazard severity zones for local and state responsibility areas. These areas are mapped based on fuels, terrain, weather, and other relevant factors. These hazard zones are rated based on their potential to expose structures to wildfire. A discussion related to wildland fire hazards is contained in EIR Section 3.20, "Wildfire."

#### Transport of Hazardous Materials

The State of California has adopted U.S. Department of Transportation regulations for the movement of hazardous materials originating within and passing through the state. State regulations are contained in Division 26, Title 13 of the California Code of Regulations. The California Highway Patrol and Caltrans have primary responsibility for enforcing state regulations and responding to hazardous materials transportation emergencies. Together, these agencies determine the container types used and issue licenses to hazardous waste haulers to transport hazardous waste on public roads.

#### Hazardous Materials Emergency Response Plan

California has developed an emergency response plan to coordinate emergency services provided by the federal, state, and local governments and private agencies. Response to hazardous materials incidents is one part of the plan. The plan is managed by the California Governor's Office of Emergency Services, which coordinates the responses of other agencies in the project area.

#### Worker Safety

The California Division of Occupational Safety and Health (Cal/OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace in California. Cal/OSHA standards are typically more stringent than federal OSHA regulations. Under Cal/OSHA rules, an employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (California Code of Regulations Title 8, Sections 337–340). The regulations specify requirements



for employee training, availability of safety equipment, accident-prevention programs, and warnings regarding exposure to hazardous substances.

*Local*

*Placer County General Plan*

The following policies excerpted from the Health and Safety Element of the current General Plan pertain to hazards and hazardous materials (Placer County 2021): These include

**Policy 8.E.1.1:** The County shall continue to maintain, periodically update, and test the effectiveness of its Emergency Operations Plan.

**Policy 8.E.1.6:** The County shall continue to coordinate emergency preparedness, response, recovery, and mitigation activities with special districts, service agencies, voluntary organizations, cities within the County, surrounding cities and counties, and state and federal agencies.

**Policy 8.F.1:** The County shall review all proposed development projects that manufacture, use, or transport hazardous materials for compliance with the County's Hazardous Waste Management Plan (CHWMP). Such projects shall provide a buffer zone, to be determined by the County, between the installation and property boundaries sufficient to protect public safety.

**Policy 8.F.3:** The County shall require that applications for discretionary development projects that will generate hazardous wastes or utilize hazardous materials include detailed information on hazardous waste reduction, recycling, and storage.

**Policy 8.F.5:** The County shall strictly regulate the storage of hazardous materials and wastes and shall require secondary containment and period examination for all such materials.

**Policy 8.F.8:** The County shall ensure that the use and disposal of hazardous materials in the County complies with local, state, and federal safety standards.

**Policy 8.F.11:** The County shall work with local fire protection and other agencies to ensure an adequate Countywide response capability to hazardous materials emergencies.

*Placer County Local Hazard Mitigation Plan*

The Placer County 2021 Local Hazard Mitigation Plan Update (Placer County 2021b), in accordance with the Disaster Mitigation Act of 2000, identifies potential hazards and mitigation actions and strategies to reduce or eliminate long-term risk to people and property from natural and human-caused hazards, such as wildfires. The plan provides

goals, policies, objectives, and feasible implementation measures related to avoiding or minimizing wildfire hazards associated with new uses of land, developing adequate infrastructure for new development in State Responsibility Areas (SRAs) or Very High Fire Hazard Severity Zones (VHFHSZs), and working with public agencies responsible for fire protection.

#### Placer County Office of Emergency Services

The Placer County Office of Emergency Services, in cooperation with local cities, special districts, and fire and law enforcement agencies, provides emergency management services to Placer County.

### 3.9.2 Environmental Setting

#### *Definition of Terms*

For purposes of this section, the term “hazardous materials” refers to both hazardous substances and hazardous wastes. The Code of Federal Regulations defines a “hazardous material” as “a substance or material that ... is capable of posing an unreasonable risk to health, safety, and property when transported in commerce” (49 CFR 171.8). Section 25501 of the California Health and Safety Code defines a hazardous material as follows:

“Hazardous material” means any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. “Hazardous materials” include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

Section 25141(b) of the California Health and Safety Code defines “hazardous wastes” as wastes that:

... because of their quantity, concentration, or physical, chemical, or infectious characteristics, [may either] cause, or significantly contribute to an increase in mortality or an increase in serious illness [or] pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

#### Project Materials

The project would use crystalline silicon bifacial module PV panels. The main component within these PV panels is crystalline silicon (c-Si) which is a semiconductor used in solar cells to convert solar energy into electricity. Crystalline silicon PV panels may include small amounts of solid materials considered to be hazardous. A crystalline

silicon bifacial PV module is composed of silicon solar cells, metal contacts between the cells, an encapsulation layer that encloses the cells, a front glass plate, and a second glass plate on the back side. Often the module is framed with aluminum and contains a contact box. The solar cells themselves represent only about 4 percent of the mass of a finished module and are in a solid and non-leachable state and do not endanger public health (NC Clean Energy Technology Center 2017). To reduce the amount of light reflected by the solar cell, an antireflective coating, often made of titanium dioxide or silicon nitride is deposited on the silicon surface (DOE 2022).

The project would use lithium iron phosphate technology for energy storage. Lithium iron phosphate batteries are a variation of a lithium ion battery. These rechargeable batteries are commonly used for vehicles and backup power. The cathode is comprised of LiFePO<sub>4</sub> and the anode is comprised of a carbon electrode with a metallic current collector grid. Compared to other lithium ion battery options, lithium iron phosphate is more difficult to ignite, and thus, more resilient in high temperatures (Battery Recyclers of America 2022). Disposal of these batteries must comply with California's Universal Waste Rule.

Electrical equipment used by the project, such as inverters and transformers, typically contain dielectric insulating fluid. The insulating fluid, which would be formulated from either vegetable or mineral oil, would be contained in the equipment and not routinely handled by operations and maintenance staff.

#### Known Hazardous Materials Sites

Several publicly available databases maintained under Public Resources Code Section 65962.5 (i.e., the "Cortese List") were reviewed to determine whether any known hazardous materials release sites are present either at or within 0.5 mile of the project site. The Hazardous Waste and Substances Site List (the "EnviroStor" database) is maintained by DTSC. The SWRCB maintains the GeoTracker database, an information management system for groundwater. In addition, AECOM performed a search of the USEPA's National Priorities List (Superfund) database.

There are no hazardous materials sites within 0.5 miles of the project site (DTSC 2022a, SWRCB 2022). The nearest known hazardous materials site is approximately 0.68 miles southeast of the project site, south of Baseline Road. At this Department of Defense Site (DOD), DTSC raised concerns related to potential asbestos contamination from an existing building. However, after conferring with DOD, it was determined that no release had occurred, and therefore no further action was required as of April 8, 2014 (DTSC 2022b). Additionally, there is an oil and gas well (Diamond K Ranch/Plateau Oil & Gas Co.) on the northern portion of the site, approximately 0.15 miles south of Phillips Road. However, the well was plugged and abandoned following applicable State regulations in 1956 (CDOC 2005).

There are no sites on the National Priorities List (i.e., Superfund) within 1 mile; the nearest such site is approximately 6.7 miles to the south (USEPA 2022).

A Phase I Environmental Site Assessment (ESA) was performed by AECOM on behalf of SMUD for the Country Acres Solar Project (AECOM 2022). The Phase I ESA covered 13 parcels of farmland totaling approximately 2,281 acres east of South Brewer Road and north of Baseline Road. According to the Phase I ESA, the project site was mostly undeveloped or used for cattle grazing or farmland with various crops (mostly rice paddies and row-crops) from back as far as at least 1937, and has been used for agriculture through the present time. The Phase I ESA identified the following recognized environmental conditions (RECs) in connection with the project site:

- Multiple full and partially-full 5-gallon buckets and 55-gallon drums of used motor oil were observed located in the northeast quadrant of parcel APN 017-090-056 at the time of AECOM's site reconnaissance. The containers did not have secondary containment, and light to moderate staining was observed in the soil around the containers. These improperly stored containers of used motor oil and the nearby soil stains are a REC for the subject property. However, these improperly stored containers and nearby soil stains are not located within the proposed project boundary and therefore were not included as an area that should be further investigated.
- Moderate staining was observed in an approximately 20-foot by 20-foot area of surface soil on the south side of the chemical distribution tank for mixed soil amendments near the pump on parcel APN 017-130-061. The staining appeared to be from a diesel spill, but the source and depth of contamination could not be determined. These stains in the surface soil are considered a REC and should be further investigated.
- Moderate to heavy diesel staining was observed in an approximately 10-foot by 10-foot area of surface soil and partially filling a 5-gallon bucket of diesel beneath the diesel aboveground storage tank (AST) on parcel APN 017-130-061. The staining appeared to be from a leak from a hose connection on the AST. These stains in the surface soil are considered a REC and should be further investigated.

In addition to the above conditions, the Phase I ESA identified one de minimis condition (DMC). DMC's are those situations that do not present a material risk of harm to public health or the environment, and generally would not be subject to enforcement action if brought to the attention of the regulating authority. During a site visit, AECOM observed minor motor oil stains on the concrete well pads beneath several pumps. The stains did not significantly extend to the ground surface around the well pads at any of the locations observed. Therefore, at the present time, the minor staining does not constitute a recognized environmental conditions for the subject property but can be considered a DMC for the subject property.

The Phase I ESA did not identify any controlled recognized environmental conditions or historical recognized environmental conditions.

### Schools

There are no K–12 schools within 0.25 mile of the project site. The closest K–12 school is Orchard Ranch Elementary School, approximately 0.8 miles to the east.

### Airports

The nearest airports to the site are the Rio Linda Airport and Sacramento McClellan Airport, both of which are approximately 5 miles to the south.

### *Wildfire*

Please see Section 3.21., “Wildfire,” of this EIR for a discussion of wildland fire hazards.

## 3.9.3 Environmental Impacts and Mitigation Measures

### *Methods and Assumptions*

The evaluation of potential impacts of the proposed project regarding hazards and hazardous materials was based on a desktop survey of the project area land uses and a Phase I ESA prepared by AECOM (AECOM 2022). The analysis also considered known hazardous materials sites listed in DTSC’s EnviroStor and SWRCB’s GeoTracker databases. The impact analysis considered the potential for changes in the nature or extent of hazardous conditions to occur as a result of project construction and operation, including increased potential for exposure to hazardous materials and hazardous conditions. Potential for hazards and hazardous conditions were reviewed in light of existing hazardous materials management plans and policies, emergency response plans, and applicable regulatory requirements.

### *Thresholds of Significance*

Based on Appendix G of the State CEQA Guidelines, the proposed project would result in a potentially significant impact related to hazards and hazardous materials if it would do the following.

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- 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.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.

- 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, create a significant hazard to the public or the environment.
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

Issues related to wildland fire hazards are addressed in EIR Section 3.20, "Wildfire."

#### *Issues Not Discussed Further*

#### **Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school—**

Since there are no existing or proposed schools within 0.25 mile of the project location, there would be **no impact**, and this issue is not addressed further in this EIR.

**Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5—**As discussed above in the Regulatory Setting, the project site is not on a list of identified hazardous material sites pursuant to Government Code section 65962.5 (Cortese List). Furthermore, the nearby closed site south of Baseline Road and the abandoned oil and gas well site did not involve any groundwater or soil contamination that could have affected the project site. Therefore, **no impact** would occur, and this issue is not addressed further in this EIR.

**Be 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—**The project would not be located within an airport land use plan or within an identified public or private airport/airstrip safety zone. The nearest airports to the site are the Rio Linda Airport and Sacramento McClellan Airport approximately 5 miles to the south. Therefore, the project would not result in a safety hazard for people residing or working in the vicinity of an airport/airstrip and there would be **no impact**. This issue is not addressed further in this EIR.

#### *Impact Analysis*

#### **Impact 3.9-1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?**

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Project-related construction and decommissioning activities would involve the use, temporary storage, and transport of small amounts of hazardous substances, such as fuels, lubricants, oils, and paint. All materials must be used and stored in compliance with federal, state, and local ordinances, laws, regulations and policies related to hazardous materials, including the County's requirements for handling and transport of hazardous materials. None of the substances would be acutely hazardous. The proposed project would not include any usual conditions related to use, storage, or transport of minor amounts of hazardous materials such that an increased likelihood for accidental spills would occur. The PV panels used at the project site would not contain Cadmium telluride. Pesticide/herbicide use at the project site is not planned, other than occasional spraying of herbicides around the proposed buildings, inverters or transformers to control weeds. Handlers of hazardous materials such as herbicides are required by law to follow manufacturers' use, storage, and disposal instructions printed on the label which would ensure safe applications that would not cause a hazard to the public. As briefly described in Section 3.9.1, "Regulatory Setting," there is an established, comprehensive framework independent of the CEQA process that is intended to reduce the risks associated with the use, transport, and disposal of hazardous materials. The use, transportation, and disposal of hazardous materials is heavily regulated at both the federal and state level; these regulations are promulgated and enforced by agencies such as USEPA, SWRCB and DTSC, and local agencies such as PCAPCD and Placer County.

Furthermore, because the proposed project would disturb more than 1 acre of land, the project applicant is required by law to develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which must contain provisions for notification and proper cleanup of spills if they do occur.

Finally, project-related decommissioning would involve the disposal of solar panels, which are considered a universal waste. Universal wastes include televisions, computers and other electronic devices, and photovoltaic modules, as well as batteries, fluorescent lamps, and mercury thermostats, among others. California's Universal Waste Rule (CCR Title 22, Division 4.5, Chapter 23) allows individuals and businesses to transport, handle, and recycle certain common hazardous wastes, termed universal wastes, in a simplified manner that differs from the requirements for most hazardous wastes. The solar panels (which would not contain Cadmium telluride) would be transported via a licensed universal waste transporter to a licensed universal waste destination facility (i.e., a facility with a permit to treat, store, or dispose of universal hazardous wastes).

Therefore, for the reasons described above, this impact would be **less than significant**.

**Impact 3.9-2. 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?**

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Construction, operation, and decommissioning of the proposed project would involve the storage, transport, and handling of hazardous materials. Construction and decommissioning equipment would use small quantities of various hazardous materials (e.g., diesel fuel, oil, solvents). The PV panels are a universal waste, and would not contain Cadmium telluride. None of the substances used at the project site would be acutely hazardous. The potential for accidental releases of hazardous materials, primarily fuel and lubricants, could result from construction and decommissioning activities including equipment fuel leaks, fuel spills, and other events. An accidental release of a hazardous material could have a significant impact on the environment, particularly to the seasonal wetlands and intermittent drainages that are present throughout the surrounding area.

As discussed in more detail in Section 3.10, “Hydrology and Water Quality,” coverage under the SWRCB’s Construction General Permit would be obtained for the project, which would require preparation and implementation of a SWPPP. The SWPPP would include best management practices, and is required by SWRCB to include measures to minimize the risk of accidental spills of hazardous materials during construction. These measures would include: proper maintenance of vehicles and equipment; refueling and equipment washing only in designated areas where a spill would not flow into drainages; and prompt cleanup and disposal at a licensed facility if any spills do occur.

The project would include engineered methods for containing and controlling an oil release, including a water-collection system and retention pond equipped with an oil/water separator. Additionally, oil-absorbent material, tarps, and storage drums will be present on-site to contain and control any minor releases. If the project facilities have an aboveground oil storage capacity greater than 1,320 gallons, SMUD will prepare a Spill Prevention Control and Containment Plan (SPCC Plan) for operations that would describe oil handling operations, spill prevention practices, discharge or drainage controls, and the personnel, equipment and resources at the facility that are used to prevent oil spills from reaching navigable waters or adjoining shorelines. While each SPCC Plan is unique to each facility, elements that must be described in the Plan include: operating procedures at the facility to prevent oil spills; control measures (such as secondary containment) installed to prevent oil spills from entering navigable waters or adjoining shorelines; and countermeasures to contain, cleanup, and mitigate the effects of an oil spill that has impacted navigable waters or adjoining shorelines (EPA 2010).

Hazardous waste would be properly stored and disposed of in accordance with federal, state, and local regulations. All hazardous wastes would be transported offsite in accordance with the Department of Transportation, CFR Title 49, Subtitle B, Chapter I and CCR, Title 13, Division 2.

The project developer and its construction contractors would be required to comply with the California EPA’s Unified Program (e.g., hazardous materials release response plans and inventories, California Uniform Fire Code hazardous materials management plans and inventories). The federal and state Department of Transportation (through the



Hazardous Materials Transportation Act) and other regulatory agencies provide standards designed to avoid releases, including provisions regarding securing materials and container design.

Facilities that would use hazardous materials on site would be required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases and protect the public health. Regulated activities would be managed by the Placer County Environmental Management Department, and would be required to comply with CCR Title 8, "Industrial Relations," for workplace regulations addressing hazardous materials, as well as Title 26, "Toxics." Title 26, Division 6 contains requirements for CHP enforcement of hazardous materials storage and rapid-response cleanup in the event of a leak or spill.

Compliance with State, federal, and regional/local regulations, which are presented in detail in Subsection 3.9.1, "Regulatory Setting," would reduce the risk or severity of an accident from project construction and operation. For example, federal regulations such as RCRA, CERCLA, the Clean Air Act, SARA Title III, and OSHA. In addition, State regulations enforced by CalEPA, CalOSHA, Department of Pesticide Regulation (DPR), SB 1082, and State and Local Hazard Mitigation Plans are all designed to reduce the risk of hazardous materials release from upset and accident conditions. Compliance with these regulations would reduce the potential for accidental release of hazardous materials during future construction and operation and to minimize both the frequency and the magnitude if such a release occurs. In addition, Placer County would enforce its General Plan policies and Municipal Code requirements through project conditions of approval.

As discussed above, the Phase I identified three RECs in connection with the project site. Therefore, due to the existing contamination observed onsite, this impact is considered **potentially significant**.

#### Mitigation Measures

##### **Mitigation Measure 3.9-1: Conduct Phase II Environmental Site Assessment and Implement Remedial Measures**

To reduce health hazards associated with potential exposure to hazardous substances, SMUD shall implement the following measures before the start of ground-disturbing activities:

- Retain a certified environmental professional to conduct a Phase II ESA that includes appropriate soil and/or groundwater testing. Recommendations in the Phase II ESA to address any contamination that is found shall be implemented before ground-disturbing activities can resume in the areas where contamination is identified, including at the two REC areas in the Phase I ESA recommended for further investigation.

- Notify the appropriate federal, State, and local agencies if evidence of previously undiscovered soil or groundwater contamination (e.g., stained or odoriferous soil or groundwater) or if previously undiscovered underground storage tanks are encountered during construction activities. Any contaminated areas shall be remediated in accordance with recommendations made by the Placer County Department of Health and Human Services-Division of Environmental Health Services, Central Valley RWQCB, DTSC, and/or other appropriate Federal, state, or local regulatory agencies.
- Remove all surface debris such as the used tires, tractor trailers, recreational vehicles, Polyvinyl chloride (PVC) piping, and soil piles observed within the proposed project boundaries during the site visit conducted in January 2022, and dispose of such materials at an appropriately permitted off-site disposal facility.

#### Significance after Mitigation

Implementation of Mitigation Measure 3.9-1 would reduce potential impacts to workers and the environment associated with contaminated soils to a **less-than-significant** level because any necessary clean-up actions would be implemented, in conjunction with the appropriate regulatory agency, prior to the start of construction activities in the identified areas.

#### **Impact 3.9-3. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

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Primary access to the project site would be provided by an entry road from Baseline Road to the south, South Brewer Road to the west, and Phillip Road to the north. All construction and decommissioning materials and equipment would be staged on the project site. Access to the project site during construction, operation, and decommissioning would be provided by existing, or newly constructed, paved, graveled, or dirt roads extending to the project site from Baseline Road, South Brewer Road, and Phillip Road. The access from Baseline Road, South Brewer Road, and Phillip Road would provide appropriate emergency ingress and egress per Placer County requirements. While the County does not have a formally identified evacuation network, I-80 and SR-65, approximately 8.4 miles southeast and 9.0 miles east respectively, would help meet evacuation needs from different neighborhoods and communities, including the project site (Placer County 2021). Therefore, project construction, operation, and decommissioning would not impede emergency vehicles or adopted emergency evacuation plans, and this impact would be **less than significant**.

### **3.10 Hydrology and Water Quality**

This section provides a brief description of laws, regulations, and ordinances pertinent to the proposed project. Next, a description is provided of the existing hydrologic and hydraulic conditions of the project site, including watersheds, drainage, water quality standards and pollutants, and flooding, along with groundwater basin information related to water-bearing formations, groundwater quality, subsidence, recharge, and sustainability. The analysis describes impacts related to surface water and groundwater quality, groundwater recharge and sustainability, stormwater runoff, and flooding. Feasible mitigation measures are recommended, where necessary.

Impacts related to water supply and water treatment are discussed in Section 3.19, “Utilities and Service Systems,” of this EIR.

#### **3.10.1 Regulatory Setting**

##### *Federal*

##### Clean Water Act

The Clean Water Act of 1972 (CWA) (33 U.S.C. Section 1251 et seq.) is the primary federal law that governs and authorizes water quality control activities by the U.S. Environmental Protection Agency (EPA), the lead federal agency responsible for water quality management. By employing a variety of regulatory and non-regulatory tools, including establishing water quality standards, issuing permits, monitoring discharges, and managing polluted runoff, the CWA seeks to restore and maintain the chemical, physical, and biological integrity of surface waters to support the protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water.

##### **Water Quality Criteria and Standards**

Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the CWA, water quality standards consist of two elements: (1) designated beneficial uses of the water body in question, and (2) criteria that protect the designated uses. Section 304(a) requires EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. Section 303(d) requires states to develop lists of the water bodies and associated pollutants that exceed water quality criteria.

##### **National Pollutant Discharge Elimination System Permit Program, Section 402**

The National Pollutant Discharge Elimination System (NPDES) permit program was established as part of the CWA to regulate municipal and industrial discharges to surface waters of the U.S. Federal NPDES permit regulations have been established for broad categories of discharges, including point source municipal waste discharges and

nonpoint source stormwater runoff. NPDES permits generally identify limits on the concentrations and/or mass emissions of pollutants in effluent discharged into receiving waters; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities.

In November 1990, EPA published regulations establishing NPDES permit requirements for municipal and industrial stormwater discharges. Phase I of the permitting program applied to municipal discharges of stormwater in urban areas where the population exceeded 100,000 persons.<sup>1</sup> Phase II of the NPDES stormwater permit regulations became effective in March 2003 and required NPDES permits be issued for construction activity for projects that disturb between one and five acres. Phase II of the municipal permit system (i.e., known as the NPDES General Permit for Small Municipal Separate Storm Sewer Systems [Small MS4s], Order No. 2003-0005-DWQ as amended by 2013-0001-DWQ) required small municipality areas of less than 100,000 persons (hereinafter called Phase II communities) to develop stormwater management programs.

California's RWQCBs are responsible for implementing the NPDES permit system (refer to additional details in the subsection "State Regulations," below).

### **Section 303(d) Impaired Waters List**

Under Section 303(d) of the CWA, states are required to develop lists of water bodies that would not attain water quality objectives after implementation of required levels of treatment by point source dischargers (municipalities and industries). Section 303(d) requires that the state develop a total maximum daily loads (TMDL) for each of the listed pollutants. The TMDL is the amount of loading that the water body can receive and still be in compliance with water quality objectives. The TMDL is also a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. The goal of the TMDL program is that, after implementation of a TMDL for a given pollutant on the 303(d) list, the causes that led to the pollutant's placement on the list would be remediated.

### **Federal Antidegradation Policy**

The federal antidegradation policy (40 CFR 131.12) is designed to protect existing water uses, water quality, and national water resources. The federal policy directs states to adopt a statewide policy to protect and maintain water quality for existing in-stream uses and waters of exceptional recreational or ecological significance.

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<sup>1</sup> Phase I also applies to storm water discharges from a large variety of industrial activities, including general construction activity if the project would disturb more than 5 acres.

*Federal Emergency Management Agency National Flood Insurance Program*

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP, 42 U.S.C. 4016[a]) to provide flood insurance to individuals within communities that adopt and enforce NFIP regulations that limit development in floodplains. Federally-backed flood insurance is only available within NFIP communities. FEMA also develops and issues Flood Insurance Rate Maps (FIRMs) that identify which land areas are subject to flooding. Flood hazard zones in the community are identified within the FIRMs for the 1-in-100 annual exceedance probability flood event and sometimes other flood events. The design standard for flood protection covered by the FIRMs is established by FEMA with the minimum level of flood protection for new development determined to be the 1-in-100 annual exceedance probability (AEP) (i.e., the 100-year flood event).

*State**Porter-Cologne Water Quality Control Act*

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) of 1969 is California's statutory authority for the protection of water quality. Under the Act, the State must adopt water quality policies, plans, and objectives that protect the State's waters for the use and enjoyment of the people. Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The RWQCBs are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. The Porter-Cologne Act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update water quality control plans (basin plans). The Central Valley RWQCB regulates water quality in western Placer County, including the project site.

Basin plans are the regional water quality control plans required by both the CWA and Porter-Cologne Act in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The act also requires waste dischargers to notify the RWQCBs of such activities through the filing of Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, CWA Section 401 water quality certifications, or other approvals. The RWQCBs also have authority to issue waivers to WDRs for broad categories of "low threat" discharge activities that have minimal potential for adverse water quality effects when implemented according to prescribed terms and conditions.

*State Water Resources Control Board*

SWRCB and its nine RWQCBs administer water rights and enforce pollution control standards throughout the state. SWRCB is responsible for granting of water right permits and licenses through an appropriation process following public hearings and appropriate environmental review by applicants and responsible agencies. In granting water right permits and licenses, SWRCB must consider all beneficial uses, including

water for downstream human and environmental needs. In addition to granting the water right permits needed to operate new water supply projects, SWRCB also issues water quality-related certifications to developers of water projects under Section 401 of the CWA.

*Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan)*

The *Water Quality Control Plan for the Sacramento and San Joaquin River Basins* (Central Valley RWQCB 2018) (Basin Plan) identifies the beneficial uses of water bodies and provides water quality objectives and standards for waters of the Sacramento and San Joaquin hydrologic regions. State and federal laws mandate protecting designated “beneficial uses” of water bodies (Water Code Section 13050[f]). The Basin Plan describes a set of designated beneficial uses for each water body. Beneficial uses help to define the resources, services, and qualities of the aquatic systems. Beneficial uses also serve as a basis for establishing water quality objectives and discharge prohibitions. The Basin Plan contains specific numeric water quality objectives that are applicable to each water body or portions of water bodies. Objectives have been established for bacteria, dissolved oxygen, pH, pesticides, electrical conductivity, total dissolved solids, temperature, turbidity, and trace elements. Numerous narrative water quality objectives have also been established. Finally, the Basin Plan contains a set of implementation plans, which represent the Central Valley RWQCB’s programs and specific plans of action for meeting water quality objectives and protecting beneficial uses.

*National Pollutant Discharge Elimination System Permit System*

**Waste Discharge Requirements for Construction**

The SWRCB’s statewide stormwater general permit for construction activity (Order 2009-009-DWQ as amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ) is applicable to all construction activities that would disturb 1 acre of land or more (SWRCB 2012). Construction activities subject to the general construction activity permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters.

Through the NPDES and WDR process, SWRCB seeks to ensure that the construction and post-construction conditions at a project site do not cause or contribute to direct or indirect impacts on water quality (i.e., pollution and/or hydromodification) upstream and downstream. To comply with the requirements of the Construction General Permit, project applicants must file a notice of intent with the SWRCB to obtain coverage under the permit; prepare a SWPPP; and implement inspection, monitoring, and reporting requirements appropriate to the project’s risk level as specified in the SWPPP. The SWPPP includes a site map, describes construction activities and potential pollutants, and identifies BMPs that would be employed to prevent soil erosion and discharge of

other construction-related pollutants that could contaminate nearby water resources, such as petroleum products, solvents, paints, and cement. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters. The permit also requires dischargers to consider the use of post-construction permanent BMPs that will remain in service to protect water quality throughout the life of the project. All NPDES permits also have inspection, monitoring, and reporting requirements.

#### **Municipal Regional Stormwater Discharge (MS4) Permit**

Western Placer County and the City of Truckee are co-permittees to the NPDES Phase II Small MS4 permit issued and enforced by the SWRCB (NPDES Permit No. CAS000004, WDR Order No. 2013-0001-DWQ as amended in 2019). The MS4 Permit specifies the actions necessary to reduce the discharge of pollutants in stormwater to the maximum extent practicable, in a manner designed to achieve compliance with water quality standards and objectives, and methods to effectively prohibit non-stormwater discharges into municipal storm drain systems and watercourses within the permittees' jurisdictions. The MS4 Permit is implemented through County and project applicant compliance with the *Placer County Land Development Manual* (Placer County 2016), *West Placer County Storm Water Quality Design Manual* (cbec eco engineering and CDM Smith 2018), and site-specific Storm Water Quality Plans (discussed in detail below under the Local Regulatory Setting).

#### *Sustainable Groundwater Management Act*

In 2014, the California Legislature enacted a three-bill law (Assembly Bill-1739, Senate Bill [SB]-1168, and SB-1319), known as the Sustainable Groundwater Management Act (SGMA). The SGMA was created to provide a framework for the sustainable management of groundwater supplies, and to strengthen local control and management of groundwater basins throughout the state with little state intervention. The SGMA is intended to empower local agencies to adopt groundwater sustainability plans that are tailored to the resources and needs of their communities, such that sustainable management would provide a buffer against drought and climate change, and ensure reliable water supplies regardless of weather patterns. The SGMA and corresponding regulations require that each high and medium priority groundwater basin is operated to a sustainable yield, balancing natural and artificial groundwater recharge with groundwater use to ensure undesirable results such as chronic lowering of groundwater levels, loss of storage, water quality impacts, land subsidence, and impacts to hydraulically connected streams do not occur. The SGMA is considered part of the statewide, comprehensive California Water Action Plan that includes water conservation, water recycling, expanded water storage, safe drinking water, and wetlands and watershed restoration. The SGMA protects existing surface water and groundwater rights and does not affect current drought response measures.

California's 515 groundwater basins are classified into one of four categories; high-, medium-, low-, or very low-priority based on components identified in the California

Water Code Section 10933(b). Basin priority determines which provisions of California Statewide Groundwater Elevation Monitoring (CASGEM) and the SGMA apply in a basin. In 2019, DWR completed its prioritization of the groundwater basins.

The SGMA requires that local agencies form one or more groundwater sustainability agencies (GSAs) within 2 years (i.e., by June 30, 2017). Agencies located within high- or medium-priority basins must adopt groundwater sustainability plans (GSP) by January 31, 2020 or January 31, 2022.<sup>2</sup> The time frame for basins determined by DWR to be in a condition of “critical overdraft” is by January 31, 2020, all other high and medium priority basin have until January 31, 2022. Local agencies will have 20 years to fully implement GSPs after the plans have been adopted. Intervention by the SWRCB would occur if a GSA is not formed by the local agencies, and/or if a GSP is not adopted or implemented.

The SGMA requires local agencies to develop and implement groundwater sustainability plans in high and medium priority groundwater basins throughout the State of California. Groundwater sustainability plans are not required for low or very low priority basins.

#### Irrigated Lands Regulatory Program

A variety of pollutants can be found in runoff from irrigated lands, such as pesticides, fertilizers, salts, pathogens, and sediment. At high enough concentrations, these pollutants can harm aquatic life or make water unusable for drinking water or agricultural uses. The Irrigated Lands Regulatory Program (ILRP) was initiated in 2003 to prevent agricultural runoff from impairing surface waters, and in 2012 groundwater regulations were added to the program. Waste Discharge Requirements (also known as “WDRs”), which protect both surface water and groundwater, address irrigated agricultural discharges throughout the Central Valley. The ILRP applies to commercial cropland that is “irrigated land”<sup>3</sup> (irrigated either by surface water or groundwater), and which is not covered by another separate Central Valley RWQCB order (Central Valley RWQCB 2022).

#### *Local*

#### Placer County General Plan

The *Placer County General Plan* (2013, 2021) includes the following policies that apply to the proposed project.

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<sup>2</sup> Unless the local agency has submitted an Alternative as defined in the SGMA which has been approved by DWR.

<sup>3</sup> Land irrigated to produce crops or pasture for commercial purposes, including lands that are planted to commercial crops that are not yet marketable (e.g., vineyards and tree crop). Irrigated lands also include nurseries, and privately and publicly managed wetlands.



**Natural Resources Element**

**Policy 6.A.1:** The County shall require the provision of sensitive habitat buffers which shall, at a minimum, be measured as follows: 100 feet from the centerline of perennial streams, 50 feet from centerline of intermittent streams, and 50 feet from the edge of sensitive habitats to be protected, including riparian zones, wetlands, old growth woodlands, and the habitat of special status, threatened or endangered species... Based on more detailed information supplied as a part of the review for a specific project or input from state or federal regulatory agency, the County may determine that such setbacks are not applicable in a particular instance or should be modified based on the new information provided.

**Policy 6.A.2:** The County shall require all development in the 100-year floodplain to comply with the provisions of the Placer County Flood Damage Prevention Ordinance.

**Policy 6.A.4:** Where stream protection is required or proposed, the County should require public and private development to:

- a. Preserve stream zones and stream setback areas through easements or dedications. Parcel lines (in the case of a subdivision) or easements (in the case of a subdivision or other development) shall be located to optimize resource protection. If a stream is proposed to be included within an open space parcel or easement, allowed uses and maintenance responsibilities within that parcel or easement should be clearly defined and conditioned prior to map or project approval;
- b. Designate such easement or dedication areas (as described in a. above) as open space;
- c. Protect stream zones and their habitat value by actions such as: 1) providing an adequate stream setback, 2) maintaining creek corridors in an essentially natural state, 3) employing stream restoration techniques where restoration is needed to achieve a natural stream zone, 4) utilizing riparian vegetation within stream zones, and where possible, within stream setback areas, 5) prohibiting the planting of invasive, non-native plants (such as Vinca major and eucalyptus) within stream zones or stream setbacks, and 6) avoiding tree removal within stream zones;
- d. Provide recreation and public access near streams consistent with other General Plan policies;
- e. Use design, construction, and maintenance techniques that ensure development near a creek will not cause or worsen natural hazards (such as erosion, sedimentation, flooding, or water pollution) and will include erosion and sediment control practices such as: 1) turbidity screens and other management practices, which shall be used as necessary to minimize

siltation, sedimentation, and erosion, and shall be left in place until disturbed areas; and/or are stabilized with permanent vegetation that will prevent the transport of sediment off site; and 2) temporary vegetation sufficient to stabilize disturbed areas.

- f. Provide for long-term stream zone maintenance by providing a guaranteed financial commitment to the County which accounts for all anticipated maintenance activities.

**Policy 6.A.5:** The County shall continue to require the use of feasible and practical best management practices (BMPs) to protect streams from the adverse effects of construction activities and urban runoff and to encourage the use of BMPs for agricultural activities.

**Policy 6.A.6:** The County shall require development projects to comply with the municipal and construction stormwater permit requirements of the Federal Clean Water Act National Pollutant Discharge Elimination System (NPDES) Phase I and II programs and the State General Municipal and Construction permits. Municipal requirements affecting project design and construction practices are enacted through the County's Stormwater Quality Ordinance. Separate construction permits may be required by and obtained through the State Water Resources Control Board.

**Policy 6.A.7:** All new development and redevelopment projects shall be designed so as to minimize the introduction of pollutants into stormwater runoff, to the maximum extent practicable, as well as minimize the amount of runoff through the incorporation of appropriate Best Management Practices.

**Policy 6.A.8:** The County shall support implementation of Low Impact Development site design and Watershed Process Management requirements for new and redevelopment projects in accordance with the NPDES Phase I and II programs, and applicable NPDES permits.

**Policy 6.A.10:** The County shall discourage grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of creeks and damage to riparian habitat.

**Policy 6.A.11:** Where the stream zone has previously been modified by channelization, fill, or other human activity, the County shall require project proponents to restore such areas by means of landscaping, revegetation, or similar stabilization techniques as a part of development activities.

**Policy 6.A.13:** The County shall protect groundwater resources from contamination and further overdraft by pursuing the following efforts:

- a. Identifying and controlling sources of potential contamination;

- b. Protecting important groundwater recharge areas;
- c. Encouraging the use of surface water to supply major municipal and industrial consumptive demands;
- d. Encouraging the use of treated wastewater for groundwater recharge; and
- e. Supporting major consumptive use of groundwater aquifer(s) in the western part of the County only where it can be demonstrated that this use does not exceed safe yield and is appropriately balanced with surface water supply to the same area.

**Policy 6.B.3:** The County shall discourage direct runoff of pollutants and siltation into wetland areas from outfalls serving nearby urban development. Development shall be designed in such a manner that pollutants and siltation will not significantly adversely affect the value or function of wetlands.

**Policy 6.C.3:** The County shall encourage the control of residual pesticides to prevent potential damage to water quality, vegetation, fish, and wildlife.

**Policy 6.E.1:** The County shall support the preservation and enhancement of natural land forms, natural vegetation, and natural resources as open space to the maximum extent feasible. The County shall permanently protect, as open space, areas of natural resource value, including wetlands, riparian corridors, unfragmented woodlands, and floodplains.

### **Health and Safety Element**

**Policy 8.B.1.1:** The County shall require flood proofing of new and substantially improved structures in areas subject to flooding to be built in accordance with the Flood Damage Prevention Ordinance (Placer County Code Chapter 15, Article 15.52).

**Policy 8.B.1.2:** The County shall prohibit the construction of projects, including public facilities and other facilities essential for emergencies and large public assembly, within the County's Regulatory Floodway, unless the structure and access to the structure is adequately protected from flood hazards, incorporates all required flood protection specific to that area in accordance with County ordinances and guidelines, and will not result in any significant adverse impacts.

**Policy 8.B.1.3:** The County shall require evaluation of potential flood hazards prior to approval of a discretionary or ministerial permit that would result in the construction or modification of structures, to determine whether the proposed project is consistent with the protection standards for the County Regulatory Floodplain. The County will not approve any discretionary project or any ministerial permit that would result in the construction or modification of structures for any property within the County Regulatory Floodplain, unless the

required flood protection specific to that area has been demonstrated in accordance with County ordinances and guidelines.

**Policy 8.B.1.4:** New construction shall not be permitted within 100 feet of the centerline of permanent streams and within 50 feet of intermittent streams, or within the 100-year floodplain, whichever distance is greater (see Chapter 2 “Project Description” for a discussion of a General Plan Amendment to this policy).

**Policy 8.B.1.5:** The County shall maintain natural conditions within the County’s Regulatory Floodplain except where work is required to manage and maintain the natural drainage characteristics as determined by Placer County and where such work is done in accordance with the Placer County Flood Damage Prevention Ordinance, while allowing for limited crossings and improvements for public roads, trails, and utilities.

**Policy 8.B.1.6:** The County shall ensure new development projects incorporate design strategies and features to reduce the area of impervious surfaces.

**Policy 8.B.1.10:** The County shall continue to administer the Flood Damage Prevention Ordinance (Placer County Code Article 15.52) for properties located in unincorporated Placer County to minimize public and private losses due to flood conditions. This program is established by the Ordinance and provides for flood hazard mitigation. This includes permitting and compliance for watercourse alteration, and restrictions on development within floodplains.

**Policy 8.B.2.1:** The County shall promote flood-control measures that maintain natural conditions within the County’s Regulatory Floodplain of rivers and streams.

**Policy 8.B.2.2:** The County shall implement the adaptation strategies as contained in the Placer County Sustainability Plan necessary to ensure that natural systems and flood control infrastructure can handle floodwater year-round.

#### **Public Facilities and Services Element**

**Policy 4.C.1:** The County shall require proponents of new development to demonstrate the availability of a long-term, reliable water supply. The County shall require written certification from the service provider that either existing services are available or needed improvements will be made prior to occupancy. Where the County will approve groundwater as the domestic water source, test wells, appropriate testing, and/or report(s) from qualified professionals will be required substantiating the long-term availability of suitable groundwater.

**Policy 4.C.4:** The County shall require that water supplies serving new development meet state water quality standards.

**Policy 4.C.6:** The County shall promote efficient water use and reduced water demand by:

- a. Requiring water-conserving design and equipment in new construction;
- b. Encouraging water-conserving landscaping and other conservation measures;
- c. Encouraging retrofitting existing development with water-conserving devices; and,
- d. Encouraging water-conserving agricultural irrigation practices.

**Policy 4.E.1:** The County shall encourage the use of natural stormwater drainage systems to preserve and enhance natural features.

**Policy 4.E.4:** The County shall ensure that new storm drainage systems are designed in conformance with the Placer County Flood Control and Water Conservation District's Stormwater Management Manual and the County Land Development Manual.

**Policy 4.E.5:** The County shall continue to implement and enforce its Grading, Erosion and Sediment Control Ordinance and Flood Damage Prevention Ordinance.

**Policy 4.E.7:** The County shall prohibit the use of underground storm drain systems in rural and agricultural areas, unless no other feasible alternatives are available for conveyance of stormwater from new development or when necessary to mitigate flood hazards.

**Policy 4.E.9:** The County shall encourage good soil conservation practices in agricultural and urban areas and carefully examine the impact of proposed urban developments with regard to drainage courses.

**Policy 4.E.10:** The County shall strive to improve the quality of runoff from urban and suburban development through use of appropriate site design measures including, but not limited to vegetated swales, infiltration/sedimentation basins, riparian setbacks, oil/grit separators, rooftop and impervious area disconnection, porous pavement, and other best management practices (BMPs).

**Policy 4.E.11:** The County shall require new development to adequately mitigate increases in stormwater peak flows and/or volume. Mitigation measures should take into consideration impacts on adjoining lands in the unincorporated area and on properties in jurisdictions within and immediately adjacent to Placer County.

**Policy 4.E.12:** The County shall encourage project designs that minimize drainage concentrations and impervious coverage and maintain, to the extent feasible, natural site drainage conditions.

**Policy 4.E.13:** The County shall require that new development conforms with the applicable programs, policies, recommendations, and plans of the Placer County Flood Control and Water Conservation District.

**Policy 4.E.14:** The County shall require projects that have significant impacts on the quantity and quality of surface water runoff to allocate land as necessary for the purpose of detaining post-project flows, evapotranspiration, infiltrating, harvesting/using, and biotreating stormwater, and/or for the incorporation of mitigation measures for water quality impacts related to urban runoff.

**Policy 4.E.20:** The County shall continue to implement and enforce its Stormwater Quality Ordinance.

**Policy 4.F.1:** The County shall require that arterial roadways and expressways, residences, commercial and industrial uses and emergency facilities be protected, at a minimum, from a 100-year storm event.

**Policy 4.F.2:** The County shall recognize floodplains as a potential public resource to be managed and maintained for the public's benefit.

**Policy 4.F.4:** The County shall require evaluation of potential flood hazards prior to approval of development projects. The County shall require proponents of new development to submit accurate topographic and flow characteristics information and depiction of the 100-year floodplain boundaries under fully developed, unmitigated runoff conditions.

**Policy 4.F.5:** The County shall attempt to maintain natural conditions within the 100-year floodplain of all rivers and streams except under the following circumstances:

- a. Where work is required to manage and maintain the stream's drainage characteristics...

**Policy 4.F.10:** The County shall preserve or enhance the aesthetic qualities of natural drainage courses in their natural or improved state compatible with flood control requirements and economic, environmental, and ecological factors.

**Policy 4.F.12:** The County shall promote the use of natural or non-structural flood control facilities, including off-stream flood control basins, to preserve and enhance creek corridors.

*Western Placer County Groundwater Sustainability Agency*

The project site is situated within the boundaries of the West Placer County Groundwater Sustainability Agency, which is one of five Groundwater Sustainability Agencies (GSAs) in the North American groundwater subbasin. The five GSAs (West

Placer, Sacramento, South Sutter, Sutter County, and Recreation District 1001) have worked together to jointly prepare one GSP for the entire North American subbasin.

A Groundwater Sustainability Plan (GSP) is the plan developed by a groundwater sustainability agency that provides for sustainably managed groundwater that meets the requirements of the SGMA (discussed above). GSAs in high- and medium-priority groundwater basins are required to submit a GSP to DWR. The plan must define the sustainable yield of the basin, identify what would constitute undesirable results in the basin, and what projects and actions including monitoring will be implemented to ensure the basin is managed to avoid undesirable results. DWR will evaluate the GSP and provide the GSA with an assessment of the plan and any necessary recommendations every five years following its establishment. Annual reports that included monitoring data and information are due annually to DWR. Subbasins that are not in critical overdraft, such as the North American subbasin, must complete the GSP and begin implementation by January 31, 2022. A GSP for the North American Subbasin, (which includes the project site) has been prepared and was submitted to DWR in January 2022 (GEI Consultants [GEI] 2021). DWR is accepting comments on the plan until April 2022.

#### Placer County Grading, Erosion, and Sediment Control Ordinance

Placer County Municipal Code Article 15.48 regulates grading on property in the unincorporated area of Placer County, and requires that project-specific grading is consistent with the Placer County General Plan, any adopted specific plans, and other applicable Placer County ordinances including the zoning ordinance, flood damage prevention ordinance, environmental review ordinance, Placer County Conservation Program (PCCP), and applicable chapters of the CBC.

The grading permit application must include grading plans and specifications prepared by a civil engineer, including a drainage report, demonstrating that the project meets a variety of County requirements designed to prevent erosion and protect water quality (discussed in more detail in EIR Section 3.7, “Geology, Soils, and Paleontological Resources”).

The PCCP implementing ordinance (Municipal Code Article 19.10) requires the submittal of PCCP authorization applications (Section 19.10.080) for grading projects that are covered activities under the PCCP. Any required review for a take authorization or authorization to impact aquatic resources must be completed before a permit application for grading that is authorized under Section 15.48.055 (Stream system grading permit) or 15.48.060 (Grading permit required) will be deemed complete (Municipal Code Section 15.48.215).

#### Flood Damage Prevention Ordinance

The Placer County Flood Damage Prevention Ordinance (Placer County Municipal Code Chapter 15, Article 15.52) was enacted to protect human life, and to minimize

public and private losses due to flood conditions. The ordinance applies to all areas of special flood hazard zones in the county and includes methods and provisions for:

- A. Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increase in erosion or flood heights or velocities;
- B. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- C. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;
- D. Controlling fill, grading, dredging, and other development which may increase flood damage; and
- E. Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

Section 15.52.170 contains specific construction standards including the following (among others):

- All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic, impact and hydrostatic loads, including the effects of buoyancy.
- All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage; with materials and utility equipment resistance to flood damage; and constructed with electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
- Nonresidential structures must either be elevated at least 1 foot above the base flood elevation or:
  - be floodproofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water; and
  - have structural components capable of resisting impact, hydrostatic and hydrodynamic loads and effects of buoyancy.

Section 15.52.180 requires all new and replacement water supply and sanitary sewage systems to be designed to minimize or eliminate infiltration of floodwaters into the system and discharge from systems into floodwaters. Furthermore, on-site waste disposal systems (i.e., septic systems) must be located to avoid impairment to them or contamination from them during flooding.



Section 15.52.220 prohibits encroachments within a floodway, including fill, new construction, substantial improvements, and other new development unless certification by a California registered civil engineer is provided demonstrating that encroachments will not result in any increase in flood levels during the occurrence of the base flood discharge.

Section 15.52.240 requires preparation of an engineering study for a project with a FEMA Zone A flood hazard classification. The engineering study must demonstrate that the proposed structure will not aggravate flooding problems on adjacent properties. If a proposed structure does encroach into the 100-year floodplain, the engineering study must include the accompanying wind, hydrodynamic, hydrostatic, impact and buoyant forces, as they apply, on the structure. These forces must be included in the design of the structure.

### Stormwater Quality Ordinance

The Placer County Stormwater Quality Ordinance (Placer County Municipal Code Chapter 8, Article 8.28) was enacted to enhance and protect the quality of Waters of the State in Placer County by reducing pollutants in stormwater discharges to the maximum extent practicable and controlling non-stormwater discharges to the storm drain system. The ordinance applies to all unincorporated areas of the county. Section 8.28.150 requires the use of BMPs and, where applicable, requires implementation of strategies in the *West Placer Storm Water Quality Design Manual* to the maximum extent practicable to prevent and reduce water quality pollutants. Section 8.28.150 also requires the following:

- **Construction Activities.** Any person performing construction work within the county shall implement appropriate BMPs and, where applicable, strategies of the West Placer and East Placer Storm Water Quality Design Manuals to prevent the discharge from the site of soil or construction wastes or debris, including contaminants from construction materials, tools, and equipment to the stormwater drainage system.
- **Watercourse Protection.** Every person owning property through which a watercourse passes, or such person's lessee, shall keep and maintain that part of the watercourse within the property reasonably free of trash, debris, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. Any owner or lessee that conducts development as defined in this article shall maintain existing privately owned structures within or adjacent to a watercourse such that the effective functioning and physical integrity of the watercourse is protected, and in a manner which does not cause pollution and, where applicable, is consistent with the West Placer and East Placer Storm Water Quality Design Manuals.
- **Development.** The county may incorporate appropriate BMPs, including, where applicable, strategies set forth in the West Placer and East Placer Storm Water

Quality Design Manuals, to control the volume, rate, and potential pollutant loading of stormwater runoff from development. These required BMPs will be contained in any land use entitlement and construction or building-related permit to be issued relative to such development or redevelopment. The owner and developer shall comply with the terms, provisions, and conditions of such land use entitlements and building permits as required in this article.

- Paved Areas. Persons owning, operating, or maintaining a paved area, including the paved areas of a parking lot, gas station, paved private street, road, or driveway, and related storm drain systems shall clean those structures as frequently and as thoroughly as practicable in a manner that does not result in discharge of pollutants to the storm drain system.

#### Placer County Land Development Manual

The *Placer County Land Development Manual* (Placer County 2016) contains specifications and standards related to engineering and design of roadways, drainage, wastewater, and domestic water supply. In addition, the Manual also includes the Placer County Design Guidelines Manual and Landscape Design Guidelines, and Best Management Practices (BMPs) for Stormwater Discharges. The County requires that BMPs be implemented to reduce pollutants in stormwater discharges. Both source control BMPs and treatment control BMPs are required. BMPs must be included on improvement plans and approved by the County.

#### Placer County Flood Control and Water Conservation District

The Placer County Flood Control and Water Conservation District (PCFCWCD) was created by SB 1312, effective August 23, 1984. The PCFCWCD coordinates with the County and with incorporated cities to implement regional flood control projects; develop and implement master plans for selected watersheds in the county; provide technical support and information on flood control for the cities, the county, and the development community; operate and maintain an Alert flood warning system; review proposed developments projects to ensure they meet PCFCWCD standards; develop hydrologic and hydraulic models for county watersheds; and provide technical support for Office of Emergency Services activities.

#### Permanent Post-Construction Best Management Practices

Placer County and its cities are subject to phase II of the NPDES small municipal stormwater program (MS4 Permit). One of the program requirements is the application of post-construction BMPs (i.e., permanent long-term design elements to prevent or reduce stormwater pollution) to all new and redevelopment projects. Although any NPDES water quality program must emphasize source control measures to prevent pollution from occurring, treatment control sizing criteria are necessary to define volumetric and flow-based devices where source control measures are not sufficient to achieve water pollution reduction to the 'maximum extent practicable', a technology-based standard imposed upon the jurisdictions by the State regulations.

To standardize the design and engineering of post-construction BMPs, the Placer Regional Stormwater Coordination Group (2005) developed the *Guidance Document for Volume and Flow-Based Sizing of Permanent Post-Construction Best Management Practices for Stormwater Quality Protection*. The recommended volumetric sizing method is based on the California Stormwater Quality Association's (CASQA) *New and Redevelopment Stormwater Best Management Practice Handbook* "Method B" (CASQA 2003, updated in 2021 for CASQA subscribers only). This flow-based sizing method is based on the "Flow Based Treatment Control BMP" method from Attachment 4 of the State general permit, as applied by the CASQA BMP handbook.

#### *Placer County Stormwater Management Manual*

The *Placer County Stormwater Management Manual*, developed by PCFCWCD, presents policy, guidelines, and specific criteria for the development and management of natural resources, facilities, and infrastructure for stormwater management in the county (PCFCWCD 1990). The manual includes requirements related to the following aspects of stormwater management that are applicable to new development:

- Hydrology—Provides policies, guidelines, and criteria for determining flows and volumes of runoff.
- Drainage Systems—Provides policies, guidelines and criteria for the design of drainage systems and related facilities, including streets and gutters, pipes and culverts.
- Storage—Provides policies, guidelines and criteria for the planning and design of storage facilities.
- Streams and Channels—Provides policies, guidelines and criteria for planning, designing, and maintaining open channels, including both artificial and natural channels.
- Erosion and Sedimentation—Provides policies, guidelines and criteria for addressing erosion and sedimentation concerns in the development of drainage systems.

#### *West Placer County Storm Water Quality Design Manual*

The *West Placer County Storm Water Quality Design Manual* (cbec eco engineering and CDM Smith 2018) was developed cooperatively between Placer County, the Cities of Roseville, Lincoln, and Auburn, and the Town of Loomis to provide a consistent approach to address storm water management within the West Placer region. The manual provides specific guidance and Low Impact Development (LID) design standards to reduce runoff, treat storm water, and provide baseline hydromodification management, as required by the MS4 permit. The manual requires implementation of post-construction stormwater controls to reduce pollutants to the maximum extent practicable. The California Stormwater Quality Association (CASQA) Storm Water BMP

Handbooks provide recommended guidance for design of source control measures. CASQA (2021) has published several storm water BMP handbooks for various project applications and settings, and the source control measures identified in Appendix C of the manual reference fact sheets in one or more of these handbooks.

In addition, a Preliminary Storm Water Quality Plan (SWQP) must be developed and submitted as part of the project entitlement application package and entitlement approval process, followed by a Final SWQP prior to the approval of construction plans/improvement plans or the issuance of a building permit. The Preliminary SWQP must contain a site plan identifying selected BMPs, their locations, tributary drainage areas, preliminary sizing calculations, and preliminary inspection and maintenance documentation. The Final SWQP must include the Final Improvement Plans showing all BMPs and necessary design details on the appropriate sheets. The Final SWQP also must include final sizing calculations, inspection and maintenance schedules and procedures, identification of responsible parties, and all required signatures. The Final SWQP serves as the Project Maintenance Agreement between the owner and the permitting jurisdictional agency and provides permission to access for jurisdictional agency staff to conduct BMP inspections.

### 3.10.2 Environmental Setting

#### ***Surface Water Resources***

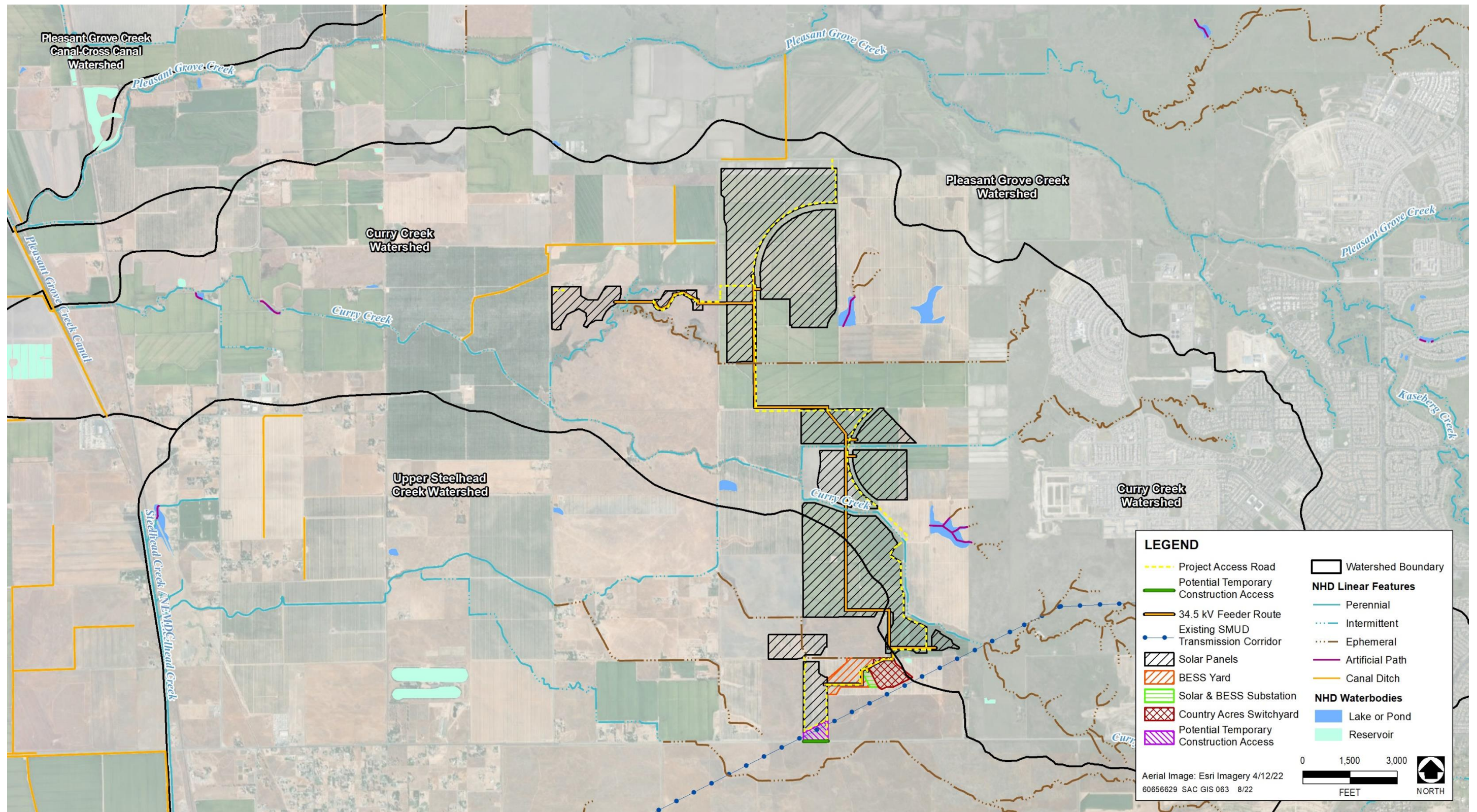
##### *Watersheds and Drainage*

The project region has a mild Mediterranean climate, with hot dry summers and cool wet winters. Most of the precipitation falls during the winter months, from November to April. Topography at the project site is generally flat (0–5%); the elevation varies between approximately 58 and 100 feet above mean sea level (msl).

At a regional level, the project site is within the Sacramento River Basin watershed, which covers approximately 26,500 square miles and is bounded by the Sierra Nevada to the east, the Coast Ranges to the west, the Cascade Range and Trinity Mountains to the north, and the Sacramento-San Joaquin Delta to the south.

There are 14 smaller watersheds in Placer County. As shown in Exhibit 3.10-1, most of the project site is located in the Curry Creek – Sacramento River subwatershed. The southern end of the project site is within the Upper Steelhead Creek subwatershed.





Sources: U.S. Geological Survey 2022, Natural Resources Conservation Service 2014

**Exhibit 3.10-1. Watersheds**



Although identified as a separate subwatershed, Curry Creek is considered to be a tributary of Pleasant Grove Creek. The Curry Creek subwatershed encompasses approximately 10,200 acres. Curry Creek discharges into the Pleasant Grove Creek Canal approximately 0.5 mile south of Pleasant Grove Creek in Sutter County, west of the project site (Exhibit 3.10-1). Water in the Pleasant Grove Creek Canal flows north, where it discharges into the Natomas Cross Canal (which flows southwest), and then discharges into the Sacramento River near Verona. Curry Creek was historically dry or very nearly dry in the summer months, but is now mostly perennial due to runoff from adjacent urban development and rice farming (Foothill Associates 2006, AECOM 2022a).

The Steelhead Creek watershed comprises approximately 25,000 acres in the greater Sacramento metropolitan area, including southwestern Placer County and northeastern Sacramento County. Steelhead Creek, also known as the Natomas East Main Drainage Canal (NEMDC), flows south from Placer County into Sacramento County to a point just above the American River, where it turns west paralleling the Garden Highway and discharges into the Sacramento River immediately upstream from the confluence of the American and Sacramento rivers.

As described in detail in the *Aquatic Resources Delineation Report* (AECOM 2022a) and shown on Exhibit 3.10-1, Curry Creek originates approximately 3 miles southeast of the project site in grassland habitat and flows west towards the project site as a relatively natural ephemeral drainage. The mainstem of Curry Creek flows through the middle portion of the project site in an east-west direction, where it is mapped as an intermittent drainage (AECOM 2022a). The two other unnamed tributaries to Curry Creek enter and cross through the project site to the north, and like Curry Creek, they both originate to the east as ephemeral drainages.

The project site is undeveloped, and therefore does not contain a stormwater drainage system. Due to ongoing agricultural operations (i.e., rice farming and almond orchards), the mainstem sections of Curry Creek and its two tributaries within the project site are primarily channelized and function like agricultural canals or ditches. A network of channelized drainages and interconnected ditches traverse the project area for conveyance of agricultural irrigation and tailwater through the project site. Drainage across the site flows from east to west.

### Surface Water Quality

Section 303(d) of the federal CWA requires each state to periodically prepare a list of all surface waters in the state for which beneficial uses of the water (e.g., drinking, recreation, aquatic habitat, and agricultural use) are impaired by pollutants. Beneficial uses for waters in the project region are contained in the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins* (Basin Plan), updated and adopted by the Central Valley RWQCB in 2018.

As described previously, Curry Creek and its tributaries discharge to the Pleasant Grove Creek Canal, then into the Natomas Cross Canal, and finally into the Sacramento River. The Basin Plan designates the following beneficial uses for Sacramento River water from the Colusa Basin Drain to the I Street Bridge: municipal and domestic supply, agricultural irrigation, contact and non-contact recreation, warm and cold freshwater habitat, warm and cold migration, warm and cold spawning, wildlife habitat, and navigation (Central Valley RWQCB 2018). Applying the Central Valley RWQCB's "tributary rule," the beneficial uses of any specifically identified water body generally also apply to all its tributaries, including all of the waterbodies listed above.

Section 303(d) of the CWA also requires states to identify waters where the permit standards, any other enforceable limits, or adopted water quality standards are still unattained. The law requires states to develop TMDLs to improve the water quality of impaired water bodies. TMDLs are the quantities of pollutants that can be safely assimilated by a water body without violating water quality standards. TMDLs are developed for impaired water bodies to maintain beneficial uses, achieve water quality objectives, and reduce the potential for future water quality degradation. NPDES permits for water discharges (for both construction and operation) must take into account the pollutants for which a water body is listed as impaired.

Table 3.10-1 lists impaired water bodies in the project region included in the SWRCB's 303(d) list that could receive runoff from the proposed project, the pollutants of concern, and whether they have approved TMDLs. Even if a specific stream is not included in the SWRCB's 303(d) list, any upstream tributary to a 303(d)-listed stream could contribute pollutants to the listed segment (for example, the Pleasant Grove Creek Canal).

**Table 3.10-1. Section 303(d) List of Impaired Water Bodies**

Impaired Water Body	Pollutant	Pollutant Source	TMDL Status
Curry Creek	Pyrethroids	Unknown	Approved in 2019
Curry Creek	Toxicity	Unknown	Expected in 2021; still in process
Natomas Cross Canal	Mercury	Gold mining settlements and local mercury mining (historic); erosion and drainage from abandoned mines (ongoing)	Expected in 2027
Sacramento River (Knights Landing to the Delta)	Chlordane	Unknown	Expected in 2021; still in process
Sacramento River (Knights Landing to the Delta)	Dichlorodiphenyltrichloroethane (DDT)	Unknown	Expected in 2027
Sacramento River (Knights Landing to the Delta)	Dieldrin	Unknown	Expected in 2022
Sacramento River (Knights Landing to the Delta)	Mercury	Gold mining settlements and local mercury mining (historic); erosion and drainage from abandoned mines (ongoing)	Expected in 2012; still in process
Sacramento River (Knights Landing to the Delta)	Polychlorinated biphenyls (PCBs)	Unknown	Expected in 2021; still in process
Sacramento River (Knights Landing to the Delta)	Toxicity	Unknown	Expected in 2027

Notes: TMDL = total maximum daily load

Source: SWRCB 2021a

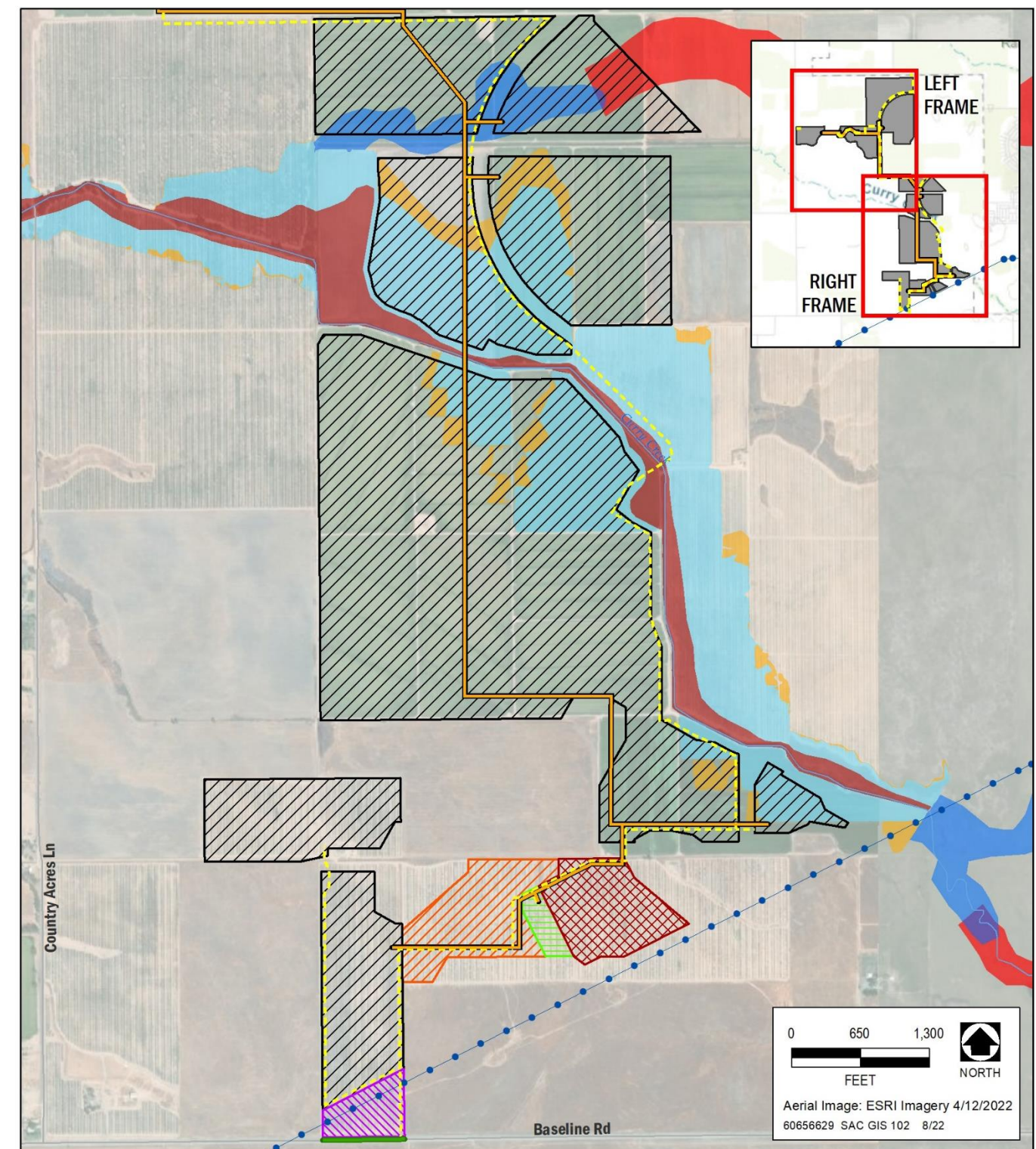
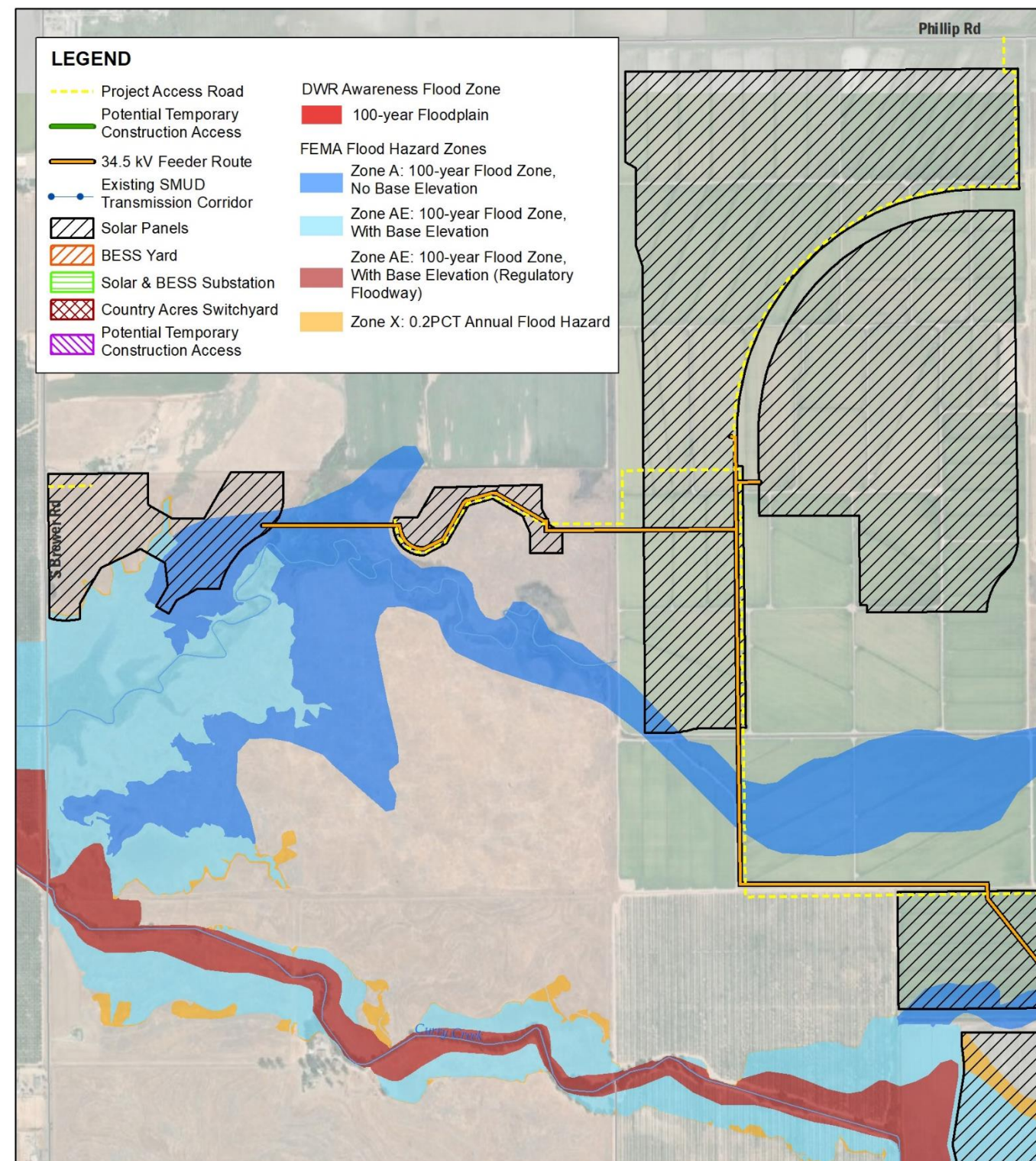
*Flooding*

The mainstem of Curry Creek is mapped as FEMA Zone AE and defined as a FEMA Regulatory Floodway<sup>4</sup> within a 100-year flood hazard zone, where the base flood elevations have been determined. Immediately adjacent to, but outside of, the FEMA Regulatory Floodway, are areas also mapped as Zone AE where the base flood elevation has been determined. Finally, there are several areas adjacent to Zone AE that are subject to a 500-year (0.2% chance) flood event (FEMA 2018). Exhibit 3.10-2 shows the location of the proposed project in relation to the existing FEMA Regulatory Floodway and other FEMA flood zones.

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<sup>4</sup> A "FEMA Regulatory Floodway" is the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.





Sources: FEMA 2018, DWR 2022

**Exhibit 3.10-2. FEMA and DWR Floodplain Mapping**



The two unnamed intermittent tributaries to Curry Creek to the north of the mainstem are also mapped as 100-year floodplains; however, FEMA (2018) has not determined the base flood elevations, and thus they are classified as Zone A. Finally, one of the intermittent tributaries that flows through a portion of the project site is also included in DWR Awareness Floodplain mapping as a potential 100-year flood zone. DWR Awareness Floodplains were developed using approximate methods; therefore, base flood elevations, depths, and velocities are not available (DWR 2022). FEMA and DWR floodplain mapping for both of the unnamed tributaries to Curry Creek is also shown on Exhibit 3.10-2.

Flood management for the Curry Creek and Pleasant Grove Creek watersheds is provided by Placer County and the PCFCWCD in the Placer County portions of the watershed, and Reclamation District No. 1000 for the Sutter County sections of the watershed (downstream and west of the project site). The lower watersheds flood regularly with water overtopping of the banks annually in some areas. This problem is caused by several factors that have occurred both locally in the Pleasant Grove and Curry Creek watershed and in the greater Sacramento River watershed. Starting in the early 1900s, levees and dikes were installed to protect landowners and assist farmers. This practice has resulted in a highly channelized and confined stream system, especially in the lower watershed, which has effectively eliminated the natural floodplain. The confined channels cause increased stream stage heights which then typically results in flooding of areas just upstream of bridges that have become undersized with respect to the increased stage heights. Adding to this problem is an increase in drainage rates from the upper watershed from the cities of Roseville and Rocklin. Development typically increases the amount of impervious surfaces, such as roads, parking lots, and roofs, within a watershed. All of these impervious surfaces lead to increased runoff volumes and response times to storm events. The greatest single factor in increased flooding is elevated stage heights in the Sacramento River caused by development throughout the drainage basin. The increased stage heights create a pressure head differential which restricts flood waters that are draining from the watershed from entering the Sacramento River. This causes water to back up through the Natomas Cross Canal, up the Pleasant Grove Creek Canal, and into both Pleasant Grove and Curry Creeks (Foothill Associates 2006:2-39 through 2-42).

A site-specific hydraulic study has been performed to determine both the existing and projected future conditions with development, of the Regulatory Floodway and floodplain for the mainstem Curry Creek and its two unnamed tributaries that flow through the project site, including the projected base flood depths, water surface elevations, flood flow velocities, and floodwater scour depths (Black & Veatch 2022). The hydraulic study also considers potential downstream flooding effects from the proposed development. A brief summary of the results of this study is presented in Impact 3.10-4.

**Tsunamis**

A tsunami is an ocean wave usually created by undersea fault movement or by a coastal or submerged landslide. As the displaced water moves to regain equilibrium, waves are formed and radiate across the open water. When the waveform reaches the coastline, it quickly raises the water level, with accompanying high water velocities that can damage structures and sweep away objects and people. The project site is along the eastern margin of the Sacramento Valley, approximately 92 miles from the Pacific Ocean.

**Seiches**

A seismic seiche causes standing waves to set up on rivers, reservoirs, ponds, and lakes when seismic waves from an earthquake pass through the area. Because they occur in an enclosed waterbody, standing waves continue to slosh back and forth over a period of time that may range from a few minutes to several hours. The nearest waterbody with potential for seiches is Folsom Lake, approximately 13 miles east of the project site.

**Erosion and Runoff Potential**

Most soils can be categorized into hydrologic soil groups (which apply only to surface soil layers) based on runoff-producing characteristics. Hydrologic soil groups are factored into calculations of erosion potential when drainage plans are prepared. Most of the project site is comprised of Hydrologic Group D soils, which have a very slow water infiltration rate due to their high clay content and/or the presence of a cemented hardpan, and therefore have a very high stormwater runoff potential (U.S. Natural Resources Conservation Service 2021). Site-specific infiltration characteristics and stormwater runoff potential were modeled as part of a hydrologic study performed by Black & Veatch (2022) (Appendix D to this EIR), the results of which are summarized in Impacts 3.10-3 and 3.10-4.

**Groundwater Resources****Groundwater Basin**

The Sacramento Valley Groundwater Basin is the major groundwater basin in the Sacramento River hydrologic region. The project site is located in the North American subbasin (Basin Code 5-021.64), which underlies northern Sacramento, southern Sutter, and western Placer counties. The subbasin is bounded by the Bear River on the north, the Feather River and Sacramento Rivers on the west, the American River on the south, and a north/south line extending from the Bear River south to Folsom Lake that passes about 2 miles east of the City of Lincoln. The subbasin encompasses approximately 535 square miles and approximately 351,000 acres. A draft Groundwater Sustainability Plan (GSP) for the North American Subbasin was prepared and submitted to DWR in January 2022 (GEI 2021); relevant information from the GSP is presented in the subsections below.

DWR (2006) previously categorized the North American Subbasin into a system of two aquifers: an unconfined upper aquifer (200–300 feet below the ground surface [bgs]) and a semi-confined lower aquifer (more than 300 feet bgs). However, recent investigations performed for the GSP determined there is no evidence to subdivide the subbasin into two aquifers, and therefore only one aquifer is actually present (GEI 2021:4-35 and 3-26). The project site is situated in the Central portion of the Subbasin.

Freshwater-bearing deposits in the North American Subbasin consist of recent (Quaternary) flood basin and stream channel deposits underlain by the older Pleistocene-age Modesto, Riverbank, and Turlock Lake Formations, as well as a few locations containing the Pliocene-age Laguna Formation. In addition, the older Pliocene-age Mehrten Formation (generally the deepest part of the aquifer) also provides substantial freshwater deposits. Depending on location, the Mehrten Formation is between 200 and 1,200 feet thick. Wells completed in the sand and gravel units of the Mehrten Formation have reported pumping capacities of over 3,000 gallons per minute (GEI 2021:4-9 through 4-12.)

### Groundwater Recharge

Under natural conditions, groundwater recharge results from infiltration of precipitation (rain and snow). The rate and quantity of water reaching the aquifer depends on factors that include the amount and duration of precipitation, soil type, vertical permeability, clay content, slope, land cover, and the presence of a cemented hardpan or bedrock.

As discussed above, most of the project site is composed of Hydrologic Group D soils. These soils containing hardpan occupy more than half of the Sacramento Valley on the east side of the Sacramento River (which includes the project site) and these hardpans severely restrict downward movement of water. The abundance of Group D soils limits percolation and groundwater recharge at the project site. However, no geologic sediments are impermeable, so some recharge occurs in all areas that are not covered by impermeable surfaces (such as asphalt or concrete). This is particularly important in agricultural areas where, even though there are low permeability soils, water is applied throughout the growing season, which does result in recharge to the groundwater basin (GEI 2021:4-36 and 4-37). More permeable soils, which allow a greater degree of recharge (i.e., Hydrologic Group B soils) are present along the streambed of Curry Creek and its tributaries (NRCS 2021).

### Groundwater Levels

Current groundwater contours show a pumping depression in the center of the Subbasin that is about 20 feet below mean sea level. Groundwater flows radially toward this depression, from the fringes of the Subbasin toward the center. In the 1960s a small depression, due to groundwater pumping, began to form near the junction of the Sutter/Placer/Sacramento County lines and extended up to Pleasant Grove. By 1970, the pumping depression was established in the location where it is today. Gradually over the years the depth of the central pumping depression became deeper and shifted

to the east and south, extending from Placer County to almost the American River. By 1995, the pumping depression reached its maximum depth, to more than 40 feet below mean sea level. Between 1995 and 2004, groundwater elevations stabilized. From 2004 to 2019, substantial recoveries of groundwater elevations have been observed within the main pumping depression in Sacramento County. Groundwater elevations in the main depression have recovered from 10 to 20 feet. This stabilization and subsequent improvement is primarily due to groundwater management activities stemming from the Sacramento Suburban Water District's in-lieu groundwater recharge program in combination with regional water efficiency measures decreasing overall public water supply demand (GEI 2021:5-10 through 5-18). The project site is located within the regional area of depression, in Placer County (GEI 2021:Figure 5-6).

### Subsidence

Historically, benchmark surveys showed about 0.3 feet of subsidence most likely due to groundwater levels declining by about 30 feet from the 1950s through 1970s. Since 1994, the groundwater levels have remained relative stable (GEI 2021:5-48). Based on monitoring data obtained for the period 2008–2017, the level of groundwater subsidence in the project area is very low, ranging from -0.05 to 0 feet (GEI 2021:Figures 5-29 and 5-30).

### Groundwater Quality

The GSP provides generalized water quality data obtained from wells throughout the North American Subbasin. Generally, the quality of groundwater in the Subbasin is suitable for nearly all uses, with the exception of localized contamination plumes and localized, naturally-occurring and human-caused quality issues. There are no contaminated groundwater plumes in the project vicinity (GEI 2021:Figure 5-24). The GSP includes water quality data from a well near the project site, which indicates that the water is suitable for drinking water, with all constituent concentrations below the secondary and primary drinking water standards (GEI 2021:5-24 through 5-32).

### Sustainability

The Sustainable Groundwater Management Act (SGMA) and corresponding regulations require that each groundwater basin designated as a “high” or “medium” priority be operated to a sustainable yield, balancing natural and artificial groundwater recharge with groundwater use to ensure that undesirable results—such as chronic lowering of groundwater levels, loss of storage, water quality impacts, land subsidence, and impacts to hydraulically connected streams—do not occur. California's groundwater basins are classified into one of four categories; high-, medium-, low-, or very low priority based on components identified in the California Water Code Section 10933(b). Groundwater agencies located within high- or medium-priority basins must adopt GSPs by January 31, 2020 (if the basin was determined by DWR to be a condition of critical overdraft), or by January 31, 2022 for all other high and medium priority basins. GSPs may be adopted, but are not required, for low and very low priority basins.

In late 2019, DWR released its final basin prioritizations and determined that the North American Subbasin is not in a state of overdraft, and should be classified as a medium priority basin (DWR 2020).

As noted previously, a draft GSP for the North American Subbasin was prepared and submitted to DWR in January 2022 (GEI 2021). There are five groundwater sustainability agencies (GSAs) within the North American Subbasin that worked together cooperatively to develop the GSP. The GSAs are: Reclamation District 1001; Sacramento Groundwater Authority; South Sutter Water District; Sutter County GSA; and West Placer GSA. The GSAs are responsible for monitoring groundwater conditions, complying with SGMA requirements, and coordinating with other agencies and entities (e.g., public water systems, etc.) to achieve sustainability. The powers granted to GSAs under the SGMA to effect sustainable groundwater management are generally limited to managing the quantity, location, and timing of groundwater pumping and recharge.

As required by the SGMA, the GSP for the North American Subbasin includes a description of the subbasin setting, hydrogeological conceptual model, comprehensive water budget, basin-wide monitoring network, sustainable management criteria, and projects and management actions necessary to ensure the Subbasin's sustainability.

To determine the North American Subbasin's sustainability, groundwater budgets were determined for the following three scenarios:

1. **Historic Conditions.** Hydrologic data from water years 2009–2018 (10-year period). Used to evaluate availability and reliability of past surface water supply deliveries, aquifer response to water supply, and demand trends relative to water year type in the Subbasin.
2. **Current Conditions.** Hydrologic data from water years 1970–2019 (50-year period). Used to analyze the long-term effects of current land and water use on groundwater conditions and to estimate current inflows and outflows for the Subbasin. The current level of development for most of the entities in the Subbasin is defined as the average demand and supply conditions during the most recent 10 years (i.e., approximately 2009–2018).
3. **Projected Conditions.** Hydrologic data from water years 1970–2019 (50-year period)<sup>5</sup>, plus water for future projected development. Used to assess the conditions of the Subbasin under projected future conditions of land use, water supply, and agricultural and urban demand; and projected aquifer response to implementation of the specific projects and management actions in the GSP. The projected level of development generally encompasses the year 2040 planning horizon.

The groundwater budgets estimate the amount of groundwater coming into the Subbasin from the various sources of inflows, and the amount of groundwater leaving the Subbasin from the various types of outflows. The difference between the inflows and

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<sup>5</sup> For modeling purposes, the projected conditions analysis uses historic hydrologic data to help predict hydrologic conditions in the future, along with estimated water use for projected future development. Therefore, the same 50-year time period (i.e., 1970–2019) was used as part of the baseline hydrologic dataset for both current and projected conditions.

the outflows indicates whether the Subbasin is experiencing an increase or decrease in groundwater storage, which in turn factors into the overall sustainable yield of the Subbasin. Modeling results for each of the three groundwater budgets are presented in Table 3.10-2.

**Table 3.10-2. North American Subbasin Groundwater Budgets**

Inflow/Outflow Sources	Historic Groundwater Budget (AFY)	Current Groundwater Budget (AFY)	Projected Groundwater Budget (AFY)
<b>Inflows</b>			
Deep percolation	177,500	183,500	167,400
Stream system infiltration	134,000	134,500	154,300
Subsurface inflows	54,600	49,900	53,600
Groundwater injection	300	200	2,100
Other inflows (primarily irrigation water canal seepage)	16,700	16,700	16,400
<b>Total Inflows</b>	<b>383,000</b>	<b>384,700</b>	<b>393,800</b>
<b>Outflows</b>			
Groundwater pumping	296,400	303,300	325,300
Groundwater discharge to local streams	44,400	53,000	46,400
Subsurface outflows to neighboring subbasins	10,400	13,600	16,800
<b>Total Outflows</b>	<b>351,200</b>	<b>369,900</b>	<b>388,400</b>
<b>Average Annual Increase in Groundwater Storage</b>	<b>31,800</b>	<b>14,900</b>	<b>5,400</b>

Note: AFY = acre-feet per year  
Source: GEI 2021:Chapter 6

As shown in Table 3.10-2, modeling of all three groundwater budgets, including the projected conditions (i.e., future development through 2040 with implementation of the specific management actions included in the GSP) indicates there are greater inflows than outflows in the North American Subbasin, resulting in an increase in groundwater storage. It should be noted that inflows and outflows change by water year type. In wet years, precipitation meets more of the water demand and therefore greater recharge occurs from precipitation and streams. In dry years, more groundwater is pumped to meet the agricultural demand not met by precipitation and therefore less recharge occurs from precipitation and stream flows. This contributes to an increase in groundwater storage in wet years and a decrease in dry years. Further, many urban water users practice conjunctive use, using more surface water in wet years and more groundwater in dry years to optimize their water supplies. While agricultural demand for applied water increases in dry years due to lack of precipitation, agricultural surface water supplies remain relatively consistent in most non-critical years (GEI 2021:6-18).

Sustainable yield is defined by the SGMA as "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result." (California Water Code Section 10721[w]). In other words, sustainable yield is the amount of groundwater that can be withdrawn on a long-

term average basis (i.e., 20 years) without causing undesirable results. For the North American Subbasin, the sustainable yield was estimated by identifying a level of groundwater pumping that would result in no long-term change in groundwater in storage and then verifying that this level of pumping would avoid undesirable results. Modeling results indicate that 336,000 acre-feet per year (AFY) is the maximum amount of groundwater pumping that can occur without affecting the amount of groundwater storage. Therefore, 336,000 AFY is defined as the current sustainable yield of the basin (GEI 2021:6-30).

Chapter 9 of the GSP contains a description of specific projects and management actions that will be undertaken in the North American Subbasin to promote groundwater sustainability. These projects and management actions broadly consist of the following (GEI 2021:9-1 and 9-2):

- Continued conjunctive use in urban and agricultural areas.
- Continued demand management through:
  - Temporary conservation measures consistent with water shortage contingency plans in Urban Water Management Plans that allow for water use reductions during periods of constrained supply;
  - Urban water use efficiency program; and
  - Agricultural specific Efficient Water Management Practices.
- Continued agricultural water reuse.
- Continued recycled water use.

### 3.10.3 Environmental Impacts and Mitigation Measures

#### *Methods and Assumptions*

Potential impacts related to hydrology and water quality were evaluated based on a review of (1) available information regarding watersheds, surface waters, groundwater, flooding hazards, and stormwater control and treatment requirements in the project area; (2) the *Preliminary Hydrology Report* prepared for the proposed project by Black & Veatch (2022); the *Aquatic Resources Delineation Report* (AECOM 2022a); and (4) the *Water Supply Assessment* prepared for the proposed project by AECOM (2022b). The information obtained from these sources was reviewed and summarized to document existing conditions and to identify the potential environmental effects of the proposed project.



*Thresholds of Significance*

Based on Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact related to hydrology and water quality if it would:

- violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;
- substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- 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;
  - ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;
  - 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; or
  - iv) impede or redirect flood flows;
- in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or
- conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

*Impact Analysis***Impact 3.10-1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?**

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**Proposed Solar Facilities**

For the proposed project, approximately 1,170 acres of existing agricultural crop land would be converted to urban development in the form of new industrial (i.e., solar facilities) land uses.

As indicated previously in the “Environmental Setting,” the mainstem of Curry Creek, which flows through the middle of the project site, is included on the SWRCB’s 303(d) list of impaired water bodies for pyrethroids and toxicity (SWRCB 2021a). Furthermore,

there are a variety of surface water drainage features on the project site, some of which have been determined to be jurisdictional wetland features (AECOM 2022a). Most of these surface water features drain to the southwest either into the mainstem Curry Creek or its two unnamed tributaries which also flow through the project site. Curry Creek discharges into the Pleasant Grove Creek Canal, then into the Natomas Cross Canal, and then into the Sacramento River. Both the Natomas Cross Canal and the Sacramento River are also included on the SWRCB's 303(d) list of impaired water bodies, for a variety of pollutants (SWRCB 2021a).

Buildout of the project site could affect long-term water quality by adding approximately 3.27 acres of new impervious surfaces (i.e., paved roads and parking areas, rooftops, and PV pole foundations) out of the total approximately 1,170-acre project site, which has the potential to increase the pollutant load in stormwater runoff. Most of the internal access roadways throughout the project site would be composed of gravel. Depending on the amount of use, gravel roads can become compacted and result in a loss of permeability, which can in turn result in increased stormwater runoff. However, the gravel roads at the project site would likely only be used a few times per year for maintenance access. Most of the 3.27 acres of paved/rooftop impervious surfaces would be associated with the substation, BESS area, switchyard, and control buildings. New development has the potential to alter the types, quantities, and timing of contaminant discharges in stormwater runoff. Changes to a more developed state, if not properly managed, can adversely affect water quality. Sediment, trash, organic contaminants, nutrients, trace metals, and oil and grease compounds are common urban runoff pollutants that can affect receiving water quality. Sources of these pollutants may be erosion from disturbed areas, deposition of atmospheric particles derived from automobiles or industrial sources, corrosion or decay of building materials, rainfall contact with toxic substances, and accidental spills of toxic materials on surfaces that receive rainfall and generate runoff. Specifically, sources of sediment from urban development include roads and parking lots, as well as destabilized landscape areas, streambanks, unprotected slopes, and disturbed areas where vegetation has been removed during the grading process. Sediments, in addition to being pollutants in their own right, transport other contaminants, such as trace metals, nutrients, and hydrocarbons that adhere to suspended sediment particles. New urban industrial and commercial development can generate urban runoff from parking areas, as well as any areas of hazardous materials storage exposed to rainfall.

The amount of contaminants discharged in stormwater drainage from developed areas varies based on a variety of factors, including the intensity of urban uses such as vehicle traffic, types of activities occurring (e.g., office, commercial, industrial), types of contaminants used at a given location (e.g., pesticides, herbicides, cleaning agents, petroleum byproducts), contaminants deposited on paved surfaces, and the amount of rainfall. Water quality degradation can interfere with Basin Plan implementation and with achievement of TMDL objectives required by the CWA, and can adversely affect wetland ecosystems, and sensitive plant and animal species as well as humans.

Long-term operational discharges of urban contaminants into the stormwater drainage system and ultimate receiving waters would increase with the buildout of the proposed development area, compared to existing conditions. The major factor in this increase is the added amount of impervious surfaces, in the form of parking areas, access roads, rooftops, and concrete foundations for the battery storage buildings, the electrical substation, and the site control center buildings. In addition, the presence of additional industrial urban land uses that use potential pollutants (e.g., solar panel cleaning agents, pesticides, oil) could result in discharges if there is improper storage, application, and/or disposal. New impervious surfaces (i.e., pavement, rooftops, and PV pole foundations) associated with the proposed solar facilities have the potential to result in an associated increase in urban stormwater runoff, which can be a source of surface water pollution.

Several existing regulations would apply to the proposed development area that would reduce or avoid impacts related to long-term erosion, sedimentation, and water quality degradation. To receive a grading permit from the County, a Grading and Erosion Control Plan, along with Improvement Plans, must be submitted to the County's Engineering and Surveying Division that must incorporate stormwater pollution control as well as storm drainage design features to control increased runoff from the project site. As described above in the Regulatory Setting, the County's Grading, Erosion, and Sediment Control Ordinance requires implementation of erosion and sediment control BMPs to protect receiving water quality, which includes both surface water and groundwater. Groundwater quality can be affected either by direct contact during construction-related earthmoving activities, or by indirect contact as a result of percolation of stormwater. Earthmoving activities that could encounter groundwater are issued permits by the Central Valley RWQCB through the project-specific permitting process; the permits contain provisions (in form of permit terms and conditions) that are specifically intended to protect groundwater quality. Groundwater quality would also be protected through maintenance of well heads to ensure that overland surface water does not enter the groundwater table through the tops of the wells. Protection of surface water and groundwater quality from stormwater percolation is accomplished through implementation of the NPDES MS4 permit (discussed below).

Western Placer County and the City of Truckee are co-permittees to the NPDES Phase II Small MS4 permit issued and enforced by the SWRCB (2019). The MS4 Permit specifies the actions necessary to reduce the discharge of pollutants in stormwater to the maximum extent practicable, in a manner designed to achieve compliance with water quality standards and objectives, and methods to effectively prohibit non-stormwater discharges into municipal storm drain systems and watercourses within the permittees' jurisdictions. The MS4 Permit is implemented through County and project applicant compliance with the *Placer County Land Development Manual* (Placer County 2016), *West Placer County Storm Water Quality Design Manual* (cbec eco engineering and CDM Smith 2018), the County's Stormwater Quality Ordinance, and site-specific Storm Water Quality Plans. Long-term water quality impacts must be reduced using site design and source control measures to help keep pollutants out of stormwater. These measures to protect water quality and support designated beneficial uses of

waterbodies are part of the County's and the project applicant's required compliance with the *Water Quality Control Plan (Basin Plan) for the Sacramento and San Joaquin River Basins* (Central Valley RWQCB 2018).

The project site would be seeded with grass underneath the solar panels. Because the site soils would no longer be flooded for rice farming, the soil would dry to non-irrigated conditions, thereby allowing infiltration of surface water runoff. Post-development water quality treatment would be accomplished via filtering through the vegetated areas for overland surface flow, and the project's three proposed on-site detention basins would also perform water quality treatment functions by allowing sediment and other associated pollutants to settle in the basins prior to discharge. During the construction phase, various temporary BMPs such as stabilized construction entrances, silt fences, straw bales, etc. would be implemented along the perimeter of the parcels to prevent pollutants from leaving the site. Most of the proposed equipment associated with project operation would not represent a source of pollutants. However, the main power transformers within the substation and the medium-voltage transformers located within the solar PV and BESS area may contain oil. An oil containment structure would be constructed around each of the main power transformers within the substation area to contain any potential oil leaks, in case such leaks occur. The final design of water quality treatment measures would include BMPs consistent with the California Stormwater Quality Association's (CASQA) *Industrial/Commercial BMP Handbook* (CASQA 2021).

Projects that disturb more than 1 acre of land must comply with the requirements in the SWRCB General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-009-DWQ as amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ) [Construction General Permit]. Through the NPDES and WDR process, SWRCB seeks to ensure that the construction and post-construction conditions at a project site do not cause or contribute to direct or indirect impacts on water quality. The Construction General Permit requires preparation and implementation of a SWPPP with associated BMPs that are specifically designed to reduce construction-related erosion, sedimentation, and pollutant transport. The Construction General Plan includes a numeric, two-part, risk-based analysis process.

In conclusion, compliance with the above-listed law, regulations, ordinances, and permit terms would require the project to reduce pollution and runoff generated in the proposed development area through implementation of operation-related source-control measures, along with BMPs, and pretreatment and with preparation of a SWPPP with associated BMPs designed to control construction-related erosion and pollutants. These measures would protect water quality as required by the Basin Plan. Therefore, construction and operation of the proposed new industrial development at the project site would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, and this impact would be **less than significant**.

*Mitigation Measures*

No Mitigation is required.

**Proposed Agricultural Operations**

The project site has been and is currently used for agricultural production, including rice farming and almond orchards. Agricultural crops typically require the application of fertilizers and pesticides, which can contribute to downstream water quality degradation. However, the use of all such chemicals is regulated at the federal, state, and local level, and must be applied, stored, and disposed of per the manufacturer's labelled directions.

During the project's operational phase, spring sheep grazing would occur at the project site around the PV arrays. Livestock grazing can have adverse effects on water quality from fecal bacterial contamination (such as *E. coli*) and nutrient over enrichment (particularly nitrogen from urine and feces). In addition, if pastures are grazed too heavily, a loss of plant matter can occur and the soil can become compacted from trampling, both of which may result in increased erosion and sediment transport. However, when properly implemented, BMPs as recommended by local soil and water conservation districts, cooperative agricultural extension services such as U.C. Rangelands, and the U.S. and California Natural Resources Conservation Services (NRCS), can substantially reduce the potential for water quality degradation. These BMPs fall under several broad categories, including balancing stocking rates with forage production, distributing grazing and waste across the landscape, managing fertilizer and pesticide applications, and installing fencing to keep livestock away from riparian zones (SWRCB 2021b).

Agricultural water quality in California is regulated by the SWRCB. The SWRCB, California Coastal Commission (CCC), and other state agencies have identified management measures to address agricultural nonpoint source (NPS) pollution of State waters, related to erosion and sediment control, animal waste, nutrient management, pest and weed management, grazing management, and irrigation water management. The management measures consist of a suite of plans, practices, technologies, operating methods, or other alternatives that may be used in combination to control NPS pollution. Associated with each management measure are management practices that are designed to reduce the quantities of pollutants entering receiving waters. Programs established to control NPS pollution from agriculture in California include joint efforts by local, State, and federal agencies. The SWRCB and the CCC oversee the statewide program, with assistance from the Department of Pesticide Regulation (DPR) for pesticide pollution and DWR for irrigation water management. The California NRCS and the University of California Cooperative Extension Service provide technical and financial services for farmers. Resource Conservation Districts also provide guidance, training, and technical assistance (SWRCB 2021b). Additional detailed information pertinent to agricultural-related water quality regulations and guidelines is available from the SWRCB's website:

[https://www.waterboards.ca.gov/water\\_issues/programs/nps/encyclopedia/1\\_age.html](https://www.waterboards.ca.gov/water_issues/programs/nps/encyclopedia/1_age.html).

With compliance with ongoing SWRCB and Central Valley RWQCB requirements to protect water quality from NPS agricultural discharges, project-related operational water quality impacts from agricultural uses (such as sheep grazing) would be **less than significant**.

#### *Mitigation Measures*

No Mitigation is required.

### **Impact 3.10-2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?**

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#### **Groundwater Recharge**

Impervious surfaces, such as concrete building foundations, pavement, and heavily traveled dirt and gravel roads where the soil becomes compacted, will restrict the movement of surface water through the soil in the top layers directly underneath such facilities. Therefore, a large enough area of new impervious surfaces associated with development can interfere with groundwater recharge. Most of the internal access roadways throughout the project site would be composed of gravel. Depending on the amount of use, gravel roads can become compacted and result in a loss of permeability. However, the gravel roads at the project site would likely only be used a few times per year for maintenance access. Most of the approximately 1,170-acre project site would consist of pole-mounted PV solar arrays. Because the solar panels would be mounted on poles above the ground, they would not impede the movement of water through the soil, and therefore would have no effect on groundwater recharge. Project components that would result in the development of most of the impermeable surface at the project site consist of the substation, BESS area, switchyard, and control buildings; smaller amount of impervious surface would be created from the PV pole foundations. The approximately 3.27 acres of new impervious surfaces associated with pavement, rooftops, and PV pole foundations at the project facilities represent about 0.2% of the total proposed development area, and therefore would not substantially interfere with groundwater recharge. Therefore, the proposed project would not impede sustainable groundwater management of the basin by substantially interfering with groundwater recharge, and this impact would be **less than significant**.

#### **Groundwater Supplies**

A *Water Supply Assessment* (WSA) has been prepared for the proposed project as required by Senate Bill (SB) 610 and is included in Appendix D (AECOM 2022b). The WSA evaluated potential impacts from groundwater use for the proposed project. The results of the WSA, as related to groundwater basin sustainability, are summarized below.

Groundwater is currently pumped from on-site wells to meet agricultural demands within the project area, including rice fields and almond orchards. The locations and

descriptions of wells in the project area are presented in Figure 2 and Table 4, respectively, of the WSA. As discussed in detail in Section 4.1.2 of the WSA, some of the on-site agricultural wells serve agricultural lands that will no longer be in production during project operations (e.g., those located at northern or southern solar fields). As such, there would be substantial reductions in groundwater pumping at these on-site wells compared to existing practices.

As further discussed in the WSA, some of these wells could potentially be used to support PV panel washing and/or compatible agricultural activities during the operations and maintenance phase of the project, and up to 10 of these wells would be used to provide water during the project's operation and maintenance phase. In order to comply with County standards related to the minimum distance between groundwater wells and proposed potable water uses, a new well may be drilled at the proposed site control center to supply drinking water for employees and water for employee restrooms. A variety of other groundwater wells on land used for agriculture are adjacent to the project site, and it was assumed for the WSA modeling purposes that use of groundwater from those wells for agricultural operations would continue in the future.

During the project's construction phase, water used for dust control and for compaction/backfill would be sourced from on-site wells. Non-potable water for concrete foundations and concrete washout stations, and for temporary sanitary facilities, would be trucked to the project site. Potable water for the temporary construction office and the construction work force would also be trucked to the site.

During the project's operation and maintenance phase, on-site groundwater would be used for washing of solar panels (once per year), drinking water for sheep, and drinking water for employees and water for employee restrooms.

The total estimated groundwater demand for the proposed project is shown in Table 3.10-3. Considering the amount of groundwater used under current conditions to sustain agricultural operations, the estimated reduction in groundwater use from implementation of the proposed project is expected to be 3,673 acre-feet per year (AECOM 2022b).

**Table 3.10-3. Groundwater Demand for Proposed Solar Facilities**

Time Period	Water Demand
Construction (18 months – 2 years)	100 acre-feet
Operational Phase (35 years)	
Solar Panel Washing (once per year)	5.0 acre-feet per year
Spring Sheep Grazing	5.8 acre-feet per year
Restrooms and Drinking Water	0.1 acre-feet per year
Subtotal Project Operational Water Demand	11 acre-feet per year <sup>a</sup>
<b>Total Project Water Demand</b>	<b>430 acre-feet</b>
<b>Total Solar Facilities Water Demand Averaged Over 20 Years<sup>b</sup></b>	<b>21.5 acre-feet per year</b>
<b>Total Solar Facilities Water Demand Averaged Over 30-Year Project Life</b>	<b>14.3 acre-feet per year</b>

<sup>a</sup> Acreage rounded up to the nearest whole number consistent with WSA.

<sup>b</sup> Based on the 20-year timeframe specified by SB 610; does not include decommissioning water demand since the solar facilities would still be operational at the end of that time.

Source: AECOM 2022b

Although a net increase in groundwater storage is expected on an average annual basis, localized effects could occur due to project-related groundwater pumping (e.g., if pumping rates are high enough, they could result in a drawdown of the water level in neighboring wells). The WSA concluded that use of groundwater during the project's construction phase would result in a drawdown of 0.5 feet or less at a distance of 1,450 feet after 375 days of pumping. Off-site groundwater wells and other sensitive receptors are approximately 1,450 feet from existing on-site wells. Therefore, the projected drawdown would be less than 0.5 foot at even the nearest neighboring well located in adjacent parcels. During the project's operation and maintenance phase, the WSA found that drawdown in nearby off-site groundwater wells would be negligible (AECOM 2022b).

As discussed above in the Environmental Setting, the project site is located in the North American groundwater subbasin. As shown in Table 3.10-2, modeling of all three groundwater budgets in the GSP for the North American Subbasin, including the projected conditions (i.e., future development through 2040) estimates greater average annual inflows than outflows in the subbasin under long-term average conditions, resulting in an increase in groundwater storage. However, the groundwater budget for projected conditions, when factoring in climate change, estimates a storage deficit; but with implementation of specific projects included in the GSP, the subbasin should continue to have a surplus of water in the future, but in lesser amounts. During dry and critically dry water years, net decreases in groundwater storage within the subbasin are expected, but this storage is typically recovered during subsequent wet years. As such, the groundwater subbasin is not projected to experience any undesirable results within the 2042 planning horizon.

Because the proposed project would result in a net decrease in groundwater pumping of approximately 3,673 acre-feet per year over the project's operational life, the proposed project would contribute to improved groundwater storage conditions in the North American Subbasin, and would not substantially decrease groundwater supplies. Therefore, the proposed project would not impede sustainable groundwater management of the basin, and this impact would be **less than significant**.

#### *Mitigation Measures*

No Mitigation is required.

#### **Impact 3.10-3. Substantially Alter Drainage Patterns or Add Impervious Surfaces that would Result in Substantial Erosion, Exceed Storm Drainage System Capacity, or Provide Substantial Additional Sources of Polluted Runoff?**

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Black & Veatch was retained to prepare a *Preliminary Hydrology Report* (Black & Veatch 2022, attached as Appendix D to this EIR), which includes both a hydrologic analysis (related to stormwater runoff) and a hydraulic analysis (related to flooding) for the proposed industrial development at the project site. The hydrologic analysis was based on the requirements of the *Placer County Stormwater Management Manual*



(PCFCWCD 1990) and the *West Placer County Storm Water Quality Design Manual* (cbec eco engineering and CDM Smith 2018). Additional guidance was provided by PCFCWCD and the Placer County Engineering & Surveying Division. These requirements include limiting the post-development peak stormwater discharge to the same level as pre-development discharge during the 2-, 10-, and 100-year frequency and 24-hour duration design precipitation events. A summary of the information contained in the hydrologic analysis related to stormwater runoff is presented below.

For modeling purposes, it was assumed that following the completion of construction activities, the areas underneath the solar arrays would be re-seeded with grasses, and the areas around the switching station, substation, and BESS would be covered with crushed rock. Because the site soils would no longer be flooded for rice farming, the soil would dry to non-irrigated conditions, thereby allowing infiltration of surface water runoff. The pile foundations supporting the racking tables and inverter skids were modeled as impervious areas, but assuming that the soil under the PV panels would become saturated in response to the design storm events, specifically the 100-year recurrence interval event, which was used to size the stormwater drainage ditches and basins. The switching station, substation, and BESS areas were also modeled as impervious surfaces. The existing grades at the site are very flat, which would encourage infiltration. Ditches and detention basins would be graded to drain completely, seeded to establish grass, and mowed once the grass is established. Perimeter and intermediate roads at the site would be gravel surfaced. These factors were incorporated into the *Preliminary Hydrology Report*, as part of the pre- and post-development infiltration characteristics of the project site.

Peak discharges were estimated using the HEC-HMS Hydrologic Modeling System developed by the U.S. Army Corps of Engineers (USACE), which generates stormwater runoff hydrographs. Two separate HEC-HMS models were developed, for both the existing and proposed conditions analyses: one for the parcels containing the PV arrays; and another that comprised the parcels containing the switching station, substation, and BESS areas.

For each design storm event in the PV array areas, model results demonstrate that the proposed (developed) condition peak discharge would be less than the corresponding peak discharge for the existing condition. With regards to post-development stormwater volume, due to the change in the hydrologic characteristics of the project site soils after construction (i.e., from saturated rice fields to dryland grasses), the *Preliminary Hydrology Report* (Table 2, page 7) demonstrates that the volume of stormwater runoff from the parcels containing the proposed PV arrays would be less than the volume of stormwater runoff under existing conditions, for all three modeled design storm events. Therefore, no detention basins are required in the PV array areas.

Due to the extent of impervious surfaces generated in the switching station, substation, and BESS areas, the proposed (developed) condition peak discharge and volume would be greater than the corresponding peak discharge and volume under existing conditions (*Preliminary Hydrology Report* Table 3, page 7). Therefore, a total of three

detention basins are required in this area of the project site. The basins would be designed to drain completely, with a 1% bottom slope directed towards the discharge culverts. The basins would be dry between storm events, with grass cover. The basins would be very shallow, due to the topography of the project site. Since only a small reduction in the post-development peak discharges would be required, multiple 12-inch-diameter discharge culverts would be provided to release the stormwater. The size was selected to allow for sufficient cover on the pipes, with the added benefit of the stormwater discharge being diffused over a larger area by using more pipes. The current (preliminary) design includes two detention basins in the BESS area, and one detention basin in the switching station area. The two BESS area basins would be hydraulically connected (so they drawdown evenly) with a pipe that matches the bottom interior elevation of the basins to allow for acceptable performance regardless of the amount of stormwater runoff directed to each basin.

The results of peak discharge modeling for parcels containing the PV arrays (no detention basins); and for parcels containing the switching station, substation, and BESS areas (with inclusion of the three proposed detention basins), are provided in the *Preliminary Hydrology Report* (Appendix D). The modeling results demonstrate that no detention basins are required in the PV array area. The modeling results also demonstrate that with inclusion of the three proposed detention basins in the switching station, substation, and BESS areas, post-development stormwater runoff (both peak discharge and total volume) would be less than or equal to pre-development stormwater runoff conditions as required by Placer County.

Finally, as requested by Placer County, a separate hydrology analysis was performed using the Kinematic Wave Transform method in accordance with Section V.E.3.b.(6) of the Placer County *Stormwater Management Manual*, to compare the results against the SCS Unit Hydrograph Transform method used in the project's Hydrology Analysis. The Kinematic Wave Transform method was used to model the watershed within the solar array parcel South #5, and the switch station, substation, and BESS area. The analysis results from the Kinematic Wave Transform method resulted in higher peak discharges as compared to the SCS UH method. However, post-development peak discharges were still less than the corresponding pre-development peak discharges in response to all modeled storm events.

It should be noted that only two of the project parcels (UDF-NE and UDF-NW), are located within the compliance boundary that defines areas which are subject to the *West Placer Storm Water Quality Design Manual*. Project type categorization is provided in Section 2.2 of the manual and is based on the extent of impervious surfaces that are created or replaced. The manual defines a regulated "small project" as one that would create a minimum of 2,500 square feet of new impervious surfaces. A total of 2,345 square feet of impervious surfaces (i.e., pavement, rooftops, and PV pole foundations) would be created in parcels UDF-NE and UDF-NW, which is less than the minimum value of 2,500 square feet which defines a "small project." Thus, the proposed project is not subject to the requirements of the *West Placer Storm Water Quality*

*Design Manual* as related to implementation of LID strategies (subject to County verification).

However, the proposed development would still create a total of approximately 3.27 acres of impervious surfaces (i.e., pavement, rooftops, and PV pole foundations). Therefore, although the proposed project is not subject to the LID requirements contained in the *West Placer Storm Water Quality Design Manual*, the project would still be required to treat the post-development stormwater runoff from the project site in conformance with Placer County requirements. Given the relatively small total area of impervious surfaces created by development of pavement/rooftops/PV foundations on the project site (approximately 3.27 acres out of the approximately 1,170 acres total project site), it is anticipated that operational stormwater runoff would be primarily treated by way of infiltration through the seeded areas within the project site, as the runoff sheet flows across the project parcels prior to draining into various drainageways. The project's three proposed on-site detention basins would also perform operational water quality treatment functions by allowing sediment and other associated pollutants to settle in the basins prior to discharge. Most of the proposed equipment associated with project operation would not represent a source of pollutants. However, the main power transformers within the substation and the medium-voltage transformers located within the solar PV and BESS area may contain oil. An oil containment structure would be constructed around each of the main power transformers within the substation area to contain any potential oil leaks, in case such leaks occur. Dry type transformers or biodegradable oil may be specified for the medium-voltage transformers located within the solar PV and BESS areas as part of stormwater quality protection methods. To achieve the required stormwater quality treatment during the project's construction phase, various temporary BMPs would be implemented as part of the SWPPP, such as stabilized construction entrances, silt fences, straw bales, etc. would be implemented along the perimeter of the parcels/construction areas to prevent pollutants from leaving the site. The design and details of the temporary (construction) and permanent (operational) BMPs would be addressed during final site design as part of the project's Erosion Control Plan and SWPPP and the operational Stormwater Quality Plan.

### Impact Conclusion

During project construction, actions required to comply with the County's Grading, Erosion, and Sediment Control Ordinance and implementation of BMPs associated with the required SWPPP, along with operational stormwater quality pre-treatment from the new impervious surfaces that would be detailed in the project's Stormwater Quality Plan (as discussed above and in detail in Impact 3.10-1), would result in **less-than-significant** impacts from erosion or creation of substantial new sources of operational polluted stormwater runoff.

The site-specific modeling performed by Black & Veatch (2022) demonstrates that during project operation, stormwater runoff peak flows and volumes in the PV array areas would be reduced from existing conditions, without the need for detention basins. During the project's operational phase, occasional washing of solar panels

(approximately once per year) would occur using water and a mild detergent. Because the amount of stormwater runoff would be reduced as compared to existing conditions (due to the change from saturated rice fields to dryland grasses), proposed development in the PV array area would not result in substantial erosion or exceed the storm drainage system capacity. Furthermore, operation of the PV arrays, involving yearly panel washing, would not provide substantial additional sources of polluted runoff.

Modeling results (Black & Veatch 2022) also demonstrate that with inclusion of the three detention basins in the switching station, substation, and BESS areas, post-development stormwater runoff peak flows and volumes during project operation would be reduced to levels that are below pre-development stormwater runoff conditions. Because the detention basins have been appropriately designed to detain runoff during a storm event and release it slowly through multiple discharge pipes, proposed development in the switching station, substation, and BESS areas would not result in substantial erosion or exceed the storm drainage system capacity. Final stormwater drainage plans would be submitted to the County for approval prior to the issuance of Grading Permits for Improvement Plans. Furthermore, project operation would be governed by County requirements such as those contained in the Stormwater Quality Ordinance along with implementation of measures contained in a County-approved project-specific Storm Water Quality Plan, all of which require implementation of source pollution prevention measures and permanent post-construction BMPs. Therefore, operation of the switching station, substation, and BESS areas would not provide substantial additional sources of polluted runoff.

For the reasons stated above, operational impacts related to substantial erosion, additional sources of polluted runoff, and exceedance of stormwater drainage capacity throughout the project site would be **less than significant**.

#### *Mitigation Measures*

No Mitigation is required.

#### **Impact 3.10-4. Substantially Alter Drainage Patterns or Add Impervious Surfaces that would Result in Increased Flooding, or Impede or Redirect Flood Flows?**

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As discussed in the Environmental Setting and shown in Exhibit 3.10-2, FEMA (2018) has mapped the mainstem of Curry Creek—which flows through the middle of the project site—as a Regulatory Floodplain, and has identified cross-sections at selected points along the streambed with anticipated base flood elevations (i.e., the water surface elevation) during a flood event. However, the two Curry Creek tributaries that also flow through the project site, north of the main stem, do not have base flood elevations. Furthermore, areas downstream and west of the project site in the Curry Creek watershed are known to experience flooding issues. Therefore, Black & Veatch was retained to perform a hydraulic analysis of Curry Creek and its tributaries at the project site, as part of the *Preliminary Hydrology Report* (Black & Veatch 2022, attached

as Appendix D to this EIR). A summary of the hydraulic analysis results is presented below.

The USACE's 2-Dimensional HEC-RAS software was used for design calculations pertaining to floodwater depth (i.e., water surface elevations), velocity, and scour depth at the project site. In addition, a second model calculation pertaining to floodwater depth was performed using FEMA's 1-Dimensional model. The HEC-RAS model was used for design calculations pertaining to water depth, velocity, and scour depth along the project areas. The FEMA model provides a preliminary evaluation of the project's effect from a regulatory floodplain perspective. Existing data from FEMA 100-year-flood cross sections along the mainstem Curry Creek was incorporated into the modeling work. The FEMA hydraulic model includes 100-year-flood peak discharges along Curry Creek; however, the unnamed tributaries on the north side of Curry Creek are not included. As such, U.S. Geological Survey (USGS) regression equations (USGS StreamStats Tool) were used to determine the estimated 100-year-flood peak discharges along the two unnamed tributaries.

HEC-RAS model results demonstrated that the proposed (developed) conditions at the project site would increase the 100-year-flood water surface elevations by a maximum of 0.2 feet, and would increase/decrease flood water velocities by 0.5 feet per second. The maximum 100-year-flood scour depth at the project site was calculated to be 1.5 feet (at the base of the PV supports), with over 99% of the project site with scour depths of less than 1 foot. Model results also demonstrated that the 100-year floodplain boundaries within the project site would be extended by a total of approximately 40 acres.

HEC-RAS modeling also demonstrated that in the downstream areas of Curry Creek and the unnamed tributaries, the water surface elevations would not change.

Finally, using the FEMA model, it was determined that the proposed developed conditions at the project site would increase 100-year-flood water surface elevations by 0.25 foot. This maximum increase would be localized near project subarea South No. 4. The difference between the FEMA and USACE model results likely stems from the fact that the FEMA model was conservatively adjusted to apply Manning's coefficient changes (related to channel roughness) to the entire overbank<sup>6</sup> areas, whereas the HEC-RAS model applied the changes solely to the proposed development areas.

The location and types of improvements associated with the proposed project in relation to the on-site floodplains, as determined by the hydraulic modeling results, are provided in the *Preliminary Hydrology Report*. There is no development proposed in the FEMA Regulatory Floodway. NFIP regulations require that development in the FEMA flood fringe (outside of the floodway) must not increase the FEMA 100-year-flood water surface elevation by more than 1 foot. Because the proposed development areas are in the FEMA flood fringe (outside of the floodway), and the maximum estimated FEMA

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<sup>6</sup> An overbank is an area of alluvial deposits consisting of sediment that has been deposited on the floodplain of a river or stream by flood waters that have broken through or overtopped the channel banks.

water surface elevation increase due to the proposed development is less than 1 foot using both models, the proposed project meets NFIP requirements. The hydraulic analysis also demonstrates compliance with Section 15.52.240 of the Placer County Flood Damage Prevention Ordinance, which requires preparation of an engineering study for a project with a FEMA Zone A flood hazard classification, and demonstrating the proposed development would not aggravate flooding problems on adjacent properties. It should also be noted that the PV arrays themselves would be raised above the 100-year flood water surface elevation; only the steel piers holding the PV arrays would be in the floodplain.

There is an existing dirt road crossing over the mainstem Curry Creek in the southern portion of the project site, which is below the 100-year water surface elevation based on FEMA floodplain modeling. This crossing may require minor improvements to reinforce the surface of the road to accommodate construction traffic; if such improvements were necessary, they would only consist of adding temporary steel plating, which would have no effect on floodwater surface elevations nor would it impede flood flows. Although on-site dirt and gravel access roads would be constructed, these roads would not require crossings through the FEMA Regulatory Floodway. Furthermore, these improvements would not require in-channel work and would not affect floodplain hydraulics or impede flood channel flows, as modeled in the hydraulic analysis, because the access roads would not be raised above the FEMA 100-year surface elevation. During the winter rainy season, the access roads to some of the PV arrays may occasionally be temporarily inundated with water; however, project operation would accommodate the occasional periodic, short-term lack of availability of internal access roads to the PV arrays, which would rarely be used. The access roads to the substation, BESS area, switchyards, and project control buildings (in the southern portion of the project site, near Baseline Road) would not be constructed within any type of floodplain. As noted in Chapter 2, "Project Description," the PV panels would be mounted on driven steel pile foundations, which would provide the necessary anchoring to resist lateral forces generated by the movement of water (where the piers would be installed in the floodplain), as required by Section 15.52.170 of the County's Flood Damage Prevention Ordinance.

### Impact Conclusion

The *Placer County General Plan* (2013, 2021) includes policies related to preservation of local floodplains that could result from unmitigated, fully developed conditions from future upstream development as contemplated in the General Plan. Although this "unmitigated, fully developed 100-year floodplain" (referred to in the General Plan as the "County's Regulatory Floodplain") has not been modeled specifically for the project site, it is acknowledged that the project would result in the placement of a portion of the proposed pole-mounted solar panels and fencing in the "County's Regulatory Floodplain," which would result in an inconsistency with General Plan policies designed to preserve these local floodplains. The County is proposing a General Plan amendment to allow for the construction of nonpermanent solar electric generation projects within the County's Regulatory Floodplain. The General Plan policies related to

the County's Regulatory Floodplain are not currently codified in the County's Flood Damage Prevention Ordinance (Municipal Code Chapter 15, Article 15.52), which relates solely to FEMA Regulatory Floodways and FEMA Floodplains. Proposed project improvements would not be located in the FEMA Regulatory Floodway, but some of the pole-mounted solar panels, maintenance access roads, and fencing would be located in the FEMA 100-year Floodplain. Modeling conducted for the proposed project (Black & Veatch 2022) demonstrates that the proposed project would not increase the 100-year-flood water surface elevation by more than 1 foot (thereby meeting the County Flood Damage Prevention Ordinance and NFIP criteria), would increase/decrease flood water velocities by a maximum of 0.5 foot per second, would result in scour depths of 1.0–1.5 feet along the inundated project areas, and would have no effect on downstream (off site) water surface elevations. Finally, as discussed in Impact 3.10-3, three appropriately sized on-site detention basins would be constructed to detain, and slowly release, stormwater runoff. Therefore, the proposed project would not substantially alter drainage patterns or add impervious surfaces such that increased flooding would occur, nor would it impede or redirect flood flows. Thus, this impact would be **less than significant**.

#### *Mitigation Measures*

No Mitigation is required.

#### **Impact 3.10-5. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?**

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As explained previously in the Environmental Setting, the project site is not located in a tsunami or seiche zone; thus, there would be **no impact** from release of pollutants from either of these hazards.

No project components would be developed within the Regulatory Floodway. Furthermore, the proposed switching station, substation, and BESS areas, along with the three associated detention basins and the proposed septic system, would not be developed within a 100-year floodplain. However, some of the proposed PV arrays and fencing would be developed within a 100-floodplain. The solar arrays and fencing would not result in a risk of pollutants from inundation, because the PV panels would not contain Cadmium telluride, and the panels would be pole mounted (above the ground surface) and anchored below ground with steel piers as recommended in the geotechnical report (Wallace Kuhl 2022) to ensure stability.

The location of the construction trailer and the construction material and equipment storage and staging areas has not yet been determined. Inundation of construction equipment or material storage areas during a flood could result in downstream transport of pollutants, thereby degrading water quality and impairing designated beneficial uses of downstream waterbodies. Therefore, this impact is considered **potentially significant**.

**Mitigation Measure 3.10-1: Locate Construction Equipment and Material Storage Areas Outside of the 100-Year Floodplain During the Winter Rainy Season.**

In order to protect human life, water quality, and designated in-stream beneficial uses of waterbodies, the construction contractor shall implement the following:

- The on-site construction trailer and its associated portable restrooms, fencing, power supply, and parking area, shall not be located within a 100-year floodplain.
- During the winter rainy season (i.e., November 1 through April 1), construction materials and equipment shall not be stored in a 100-year floodplain.

Implementation of Mitigation Measure 3.10-1 would reduce potential project-related impacts from release of pollutants in a flood hazard zone to a **less-than-significant** level, because construction materials and equipment would not be located within a 100-year flood zone during the winter rainy season.

**Impact 3.10-6. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?**

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For the reasons described in Impacts 3.10-1 and 3.10-2, above, the proposed project would not conflict with or obstruct implementation of the *Water Quality Control Plan (Basin Plan) for the Sacramento and San Joaquin River Basins* (Central Valley RWQCB 2018) or the *North American Subbasin Groundwater Sustainability Plan* (GEI 2021). Therefore, this impact would be **less than significant**.

*Mitigation Measures*

No Mitigation is required.



### **3.11 Land Use and Planning**

This section describes the existing land use and setting of the proposed project area and evaluates whether the proposed project would result in a physical division of an established community or adverse effects to land use and planning. This section further describes the proposed project's consistency with state, regional, and local plans that are not already addressed in the other resource sections of this Draft EIR.

#### **3.11.1 Regulatory Setting**

##### *Federal*

There are no relevant federal regulations regarding land use and planning applicable to the proposed project.

##### *State*

There are no relevant State regulations regarding land use and planning applicable to the proposed project.

##### *Local*

##### *Placer County General Plan*

Land use and planning decisions within and adjacent to the project site are guided and regulated by the Placer County General Plan. The County's General Plan describes assumptions, goals, and planning principles that provide a foundation for establishing land use patterns and a framework for land use decisions throughout the County.

All relevant General Plan policies are described in each technical section of this Draft EIR, as appropriate. There are no additional General Plan policies applicable to land use and planning that are not already addressed in the other resource sections of this Draft EIR.

##### **General Plan Part III**

The project site is identified within the "Future Study Area" in Part III of the Placer County General Plan (Placer County 2013). The Future Study Area encompasses the southwestern portion of the unincorporated County. The County considers General Plan Amendments for proposed urban or suburban development within the Future Study Area based on the standards and requirements listed in Part III of the General Plan. There are no policies in Part III of the County General Plan applicable to land use and planning.

*General Plan Health and Safety Element*

The Placer County General Plan Health and Safety Element includes Policy 8.b.1.4 (Placer County 2021a), which states:

*New construction shall not be permitted within 100 feet of the centerline of permanent streams and within 50 feet of intermittent streams, or within the 100-year floodplain, whichever distance is greater.*

The County and SMUD have agreed on a General Plan Amendment to Policy 8.b.1.4, which will state the following:

*New construction shall not be permitted within 100 feet of the centerline of permanent streams and within 50 feet of intermittent streams, or within the 100-year floodplain, whichever distance is greater, except for long-term, nonpermanent solar electric generation projects with a conditional use permit, as long as any impacts to the floodplain, vegetation and wetlands are less than significant, grading and increases to water surface elevations of the base flood are minor, and the stream is not anadromous fish bearing.*

*General Plan Land Use Designation*

Assessor's Parcel Numbers (APNs) 017-090-024, 017-090-056, 017-130-015, 017-130-016, 017-130-057, 017-130-058, 017-130-061, 017-152-002, and 017-152-003 are designated by the Placer County General Plan as Agriculture 80-acre minimum and APNs 017-090-047, 017-090-048, 017-090-057, and 017-090-058 are designated by the Placer County General Plan as Regional University Specific Plan. The Placer County General Plan describes these land use designations as follows (Placer County 2013):

- Agriculture (AG) (80-acre minimum). This designation identifies land for the production of food and fiber, including areas of prime agricultural soils, and other productive and potentially productive lands where commercial agricultural uses can exist without creating conflicts with other land uses, or where potential conflicts can be mitigated. Typical land uses allowed include: crop production, orchards and vineyards, grazing, pasture and rangeland, hobby farms; other resource extraction activities; facilities that directly support agricultural operations, such as agricultural products processing; and necessary public utility and safety facilities. Allowable residential development in areas designated Agriculture includes one principal dwelling and one secondary dwelling per lot, caretaker/employee housing, and farm worker housing.
- Regional University Specific Plan (RUSP). The RUSP incorporates detailed land-use development standards and design criteria; contains specific land use designations, policies, and regulations; and includes text and diagrams that address the planning of necessary infrastructure and facilities, as well as land

uses and open space. In addition, it specifies those programs and regulations necessary to finance infrastructure and public works projects.

### Placer County Code

Chapter 17 of the County's Municipal Code sets out the zoning regulations applicable throughout the County, in order to promote and protect the public health, safety, peace, comfort, convenience, and general welfare. The Placer County Zoning Ordinance further contains regulations through which the Placer County General Plan's provisions are implemented. Part 2 of Chapter 17 sets out the zoning provisions applicable to the zoning of the project site.

APNs 017-090-023, 017-090-024, 017-090-056, 017-130-015, 017-130-016, 017-130-057, 017-130-058, 017-130-061, 017-152-002, and 017-152-003 are currently zoned Farm, combining minimum building site of 80 acres (F-B-X 80) in the Placer County Zoning Ordinance. The F-B-X zoning designation is intended to provide areas for the conduct of commercial agricultural operations that can also accommodate necessary services to support agricultural uses, together with residential land uses at low population densities. Allowable land uses include crop production, equestrian facilities, grazing, farmworker dwelling units, and storage and accessory buildings.

APNs 017-090-047, 017-090-048, 017-090-057, and 017-090-058 are zoned Specific Plan - Regional University Specific Plan (SPL-RUSP) in the Placer County Zoning Ordinance. The purpose of the specific plan (SPL) district is to allow unique zone districts to be established consistent with an adopted specific plan, providing more flexibility in the designation of allowable uses, development standards, and other regulations than would be possible through application of other base and combining zone districts. As discussed further below, the Regional University Specific Plan was adopted by the Board of Supervisors in 2008 and amended on May 14, 2019. The Regional University Specific Plan includes development standards such as minimum parcel size, setbacks, maximum coverage or floor area ratio, height limits, density, parking ratios, and other applicable requirements.

### Regional University Specific Plan

APNs 017-090-047, 017-090-048, and 017-090-057 are zoned University zoning district (UZ) in the RUSP. Development of these parcels must comply with the RUSP or propose an amendment to the RUSP entitlement. There is a two-step review process for any new development within the UZ zoning district that includes an overall campus master plan and a site review approval process, as defined in Section 10.2.5, "University Review Process," of the RUSP.

SMUD's understanding is that Hillsdale College currently does not intend to complete a campus master plan, nor does SMUD propose to complete the University Site Review Process for construction of the photovoltaic collection system (Placer County 2022). Therefore, SMUD has requested Placer County's consideration of the following specific

plan amendments to the Regional University Specific Plan (RUSP) and the RUSP Development Agreement. Specifically, the amendments would include the following changes to these existing documents (underlined):

**RUSP, Page 10-3 10.2.4 Subsequent Conformity Review**

A Subsequent Conformity Review Questionnaire (SCRQ) shall be submitted to Placer County in conjunction with the application for any discretionary development entitlement, such as a tentative subdivision map, conditional use permit or other similar entitlement, for individual projects within the RUSP and also as part of the Campus Master Plan and University Site Review process, for any uses other than an electric generation plant project, which requires a conditional use permit. The purpose of the SCRQ will be to enable the County to determine if the proposed project is consistent with the Specific Plan and to examine if there are project-specific effects that are peculiar to the project or its site that were not considered in the Specific Plan EIR, or if an event as described in CEQA Guidelines Section 15162 has occurred.

**RUSP Design Standards and Guidelines, Page 5-1 5.D. Development Standards and Permitted Uses**

The University Campus (Parcel 29) will require a site-specific master plan for review and approval by the County prior to improvements on the campus site. Land uses permitted in the University District will be determined during the Campus Master Plan process as described in Section 10.2.4 of the Regional University Specific Plan, for any uses other than an electric generation plant project, which requires a conditional use permit. The University is planned as a “full service” campus that will have typical features and academic uses similar to a major university of national stature.

SMUD has been working with County staff on these specific plan amendments and will continue to work with the County on additional pertinent sections of the RUSP Development Agreement that may need clarification regarding this project and defers to County staff on which areas need to be discussed in further detail.

*Placer County Conservation Program*

On September 1, 2020, the Placer County Board of Supervisors adopted the Placer County Conservation Program (PCCP), adding Chapter 19, Article 19.10 to the Placer County Code (effective November 2, 2020). The PCCP is a multi-component program comprised of:

- Habitat Conservation Plan under the Federal Endangered Species Act and a Natural Community Conservation Plan under the California Natural Community Conservation Planning Act,
- County Aquatic Resources Program, and

- In-Lieu Fee Program to fulfill Clean Water Act Section 401/404 compensatory mitigation requirements for impacts to aquatic resources.

The Plan Area includes approximately 200,000 acres in Western Placer County stretching from State Route 49 westward to Sutter and Sacramento Counties, including the City of Lincoln and unincorporated Placer County. PCCP Permittees include Placer County, the City of Lincoln, South Placer Regional Transportation Authority, and the Placer County Water Agency. The PCCP is implemented by the Placer Conservation Authority (PCA). In addition to the Permittees, other parties may elect to seek coverage under the PCCP as “Participating Special Entities.” The cities of Auburn, Loomis, Rocklin and Roseville are not in the PCCP.

The PCCP describes how to avoid, minimize, and mitigate effects on covered species by addressing the permitting requirements relevant to these species for activities conducted in the Plan Area by the Permittees. Covered Activities include urban growth and a variety of road, water, and other needed infrastructure construction and maintenance activities. The Plan also describes the responsibilities associated with operating and maintaining habitat reserves that will be created to mitigate anticipated effects resulting from growth and development activities. Municipal Power Generation is not considered a covered activity in the PCCP. See Section 3.4, “Biological Resources” for further discussion of the PCCP covered activities and Impact 3.4-6 for an analysis of the proposed project’s consistency with PCCP.

Most of the project area is in the Valley Potential Future Growth Area (PFG) of the PCCP which has been identified as the area where most of the future urban and suburban growth will occur in the Plan Area (see Exhibit 3.4-1 in Section 3.4, “Biological Resources”). The Valley PFG comprises 46,769 acres made up by the City of Lincoln and a portion of the adjacent Lincoln Sphere of Influence (SOI) and unincorporated county area adjacent to the city of Roseville. The Valley PFG is intended to be as inclusive as possible to accommodate as many ground-disturbing activities associated with growth as possible. It includes rural and urban land uses and the use, construction, demolition, rehabilitation, maintenance, and abandonment of typical public facilities, consistent with the implementation of local general plans, community plans, area plans (collectively referred to as general plans), specific plans, and local, state, and federal laws. However, municipal power generation is specifically not covered by the Plan and thus excludes SMUD activities for power generation and transmission, including municipal wind and large-scale solar. A total of 1,112.02 acres of the project area overlap with the PFG.

The northern boundary of the project area overlaps the Reserve Acquisition Area (RAA) of the PCCP (see Exhibit 3.4-1 in Section 3.4). The RAA is designated in the PCCP as the area where a connected Reserve System could eventually be assembled; however, the ultimate Reserve System depends upon property owners’ willingness to sell property or conservation easements, and the ability of such properties to meeting PCCP mitigation and conservation requirements. 57.79 acres of the project site overlap with the RAA.

### 3.11.2 Environmental Setting

The project would be located on up to approximately 1,170 acres of land in southwestern Placer County west of the City of Roseville, north of Baseline Road and east of South Brewer Road (see Figure 2-1 in Chapter 2, “Project Description”). Primary access to the project site would be provided by entry roads from Baseline Road to the south, South Brewer Road to the west, and Phillip Road to the north.

#### *Existing Land Uses*

Existing agricultural land uses within the project area include predominantly agricultural rice fields and almond orchards. Rice fields are generally located in the northern and central portions of the project site while the southern extent of the project site consists entirely of almond orchards. All almond orchards in and adjacent to the project site are newly planted. Some seasonal wetlands present onsite were previously farmed for grain; however, in recent years has become fallowed fields.

A series of wells and pumps are located throughout the project site to provide irrigation for rice production. A power line easement containing two 230-kilovolt circuits runs in a north-south direction along the southern boundary of the project site. There are no buildings or other existing structures within the project site.

#### *Surrounding Land Uses*

Surrounding land uses include additional rice fields and almond orchards; irrigated pastures grazed by cattle; and open space areas that support seasonal wetlands, riparian habitat, and annual grassland vegetation. Single-family homes are scattered along Country Acres Lane, South Brewer Road, and Philips Road.

Westpark, a 1,500-acre master planned community in the city of Roseville, is located approximately 0.70 mile east from the eastern boundary of the project site and is the closest established community.

#### *Future Land Uses in the Vicinity of the Project Site*

Future land uses in the vicinity of the project site would be guided by specific plans adopted by Placer County, the City of Roseville, and Sacramento County. Exhibit 3.11-1 shows the location of each specific plan area. The following discussion summarizes the existing and planned land uses proposed in each of these specific plans.

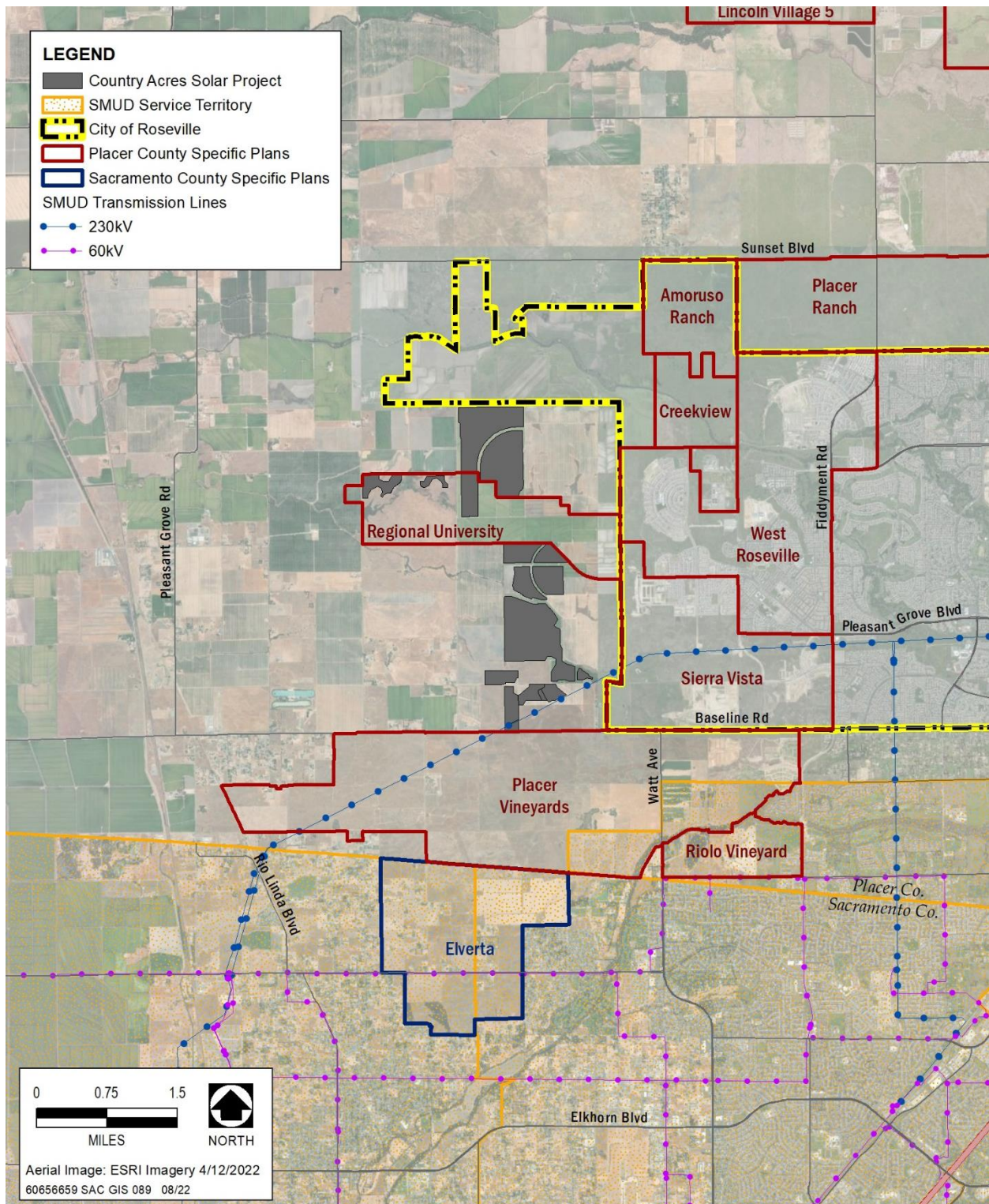
#### *Placer County*

As shown on Exhibit 3.11-1, the Placer Ranch Specific Plan area is northwest of the project site and the Placer Vineyards Specific Plan and Riolo Vineyard Specific Plan areas are located south of the project site in unincorporated Placer County. APNs 017-090-047, 017-090-048, 017-090-057, and 017-090-058 are located within the Regional University Specific Plan area (Exhibit 3.11-1). It is assumed that future development

within these areas would be consistent with the adopted specific plans (Placer County 2021b):

- **Placer Ranch Specific Plan.** The Placer Ranch Specific Plan was adopted by the Placer County Board of Supervisors on December 10, 2019 and encompasses 2,213 acres within the Sunset Area Plan. The plan area is bound to the north by Sunset Boulevard, to the south by the Westpark community, to the west by the Amoruso Ranch Specific Plan area. It includes development of 5,636 single and multi-family residential units, a California State University satellite campus, commercial development, and open space, parks.
- **Placer Vineyards Specific Plan.** The Placer Vineyards Specific Plan was originally adopted by the Board of Supervisors in 2007 and amended on January 6, 2015. Placer Vineyards includes approximately 5,230 acres of land located in the southwest corner of Placer County, approximately 15 miles north of the City of Sacramento. The plan area is bound to the north by Baseline Road, to the south by the Sacramento County line, to the west by the Sutter County line and Pleasant Grove Road, and to the east by Dry Creek and Walerga Road. It includes development of 14,540 single and multi-family residential units; commercial, business park, and office development; elementary, middle, and high schools; public/quasi-public uses (i.e., police and fire stations, libraries, transit stations); open space; and parks.
- **Regional University Specific Plan.** The Regional University Specific Plan was adopted by the Board of Supervisors in 2008 and amended on May 14, 2019. The Regional University Specific Plan governs future development of a 1,175-acre mixed-use community and 6,000-student university campus, located between South Brewer Road and the western boundary of the city of Roseville. It includes development of 2,269 standard residential units and 2,118 university campus residential units for a total of 4,387 residential units as well as commercial development, public/quasi-public uses (i.e., police and fire stations, libraries, transit stations), open space, and parks.
- **Riolo Vineyard Specific Plan.** The Riolo Vineyard Specific Plan was originally adopted by the Board of Supervisors in 2009 and amended in October 2015. The specific plan area is bordered by Watt Avenue, Walerga, and PFE Roads in unincorporated Placer County. The Riolo Vineyards Specific Plan is proposed as a residential community with 933 residential units and a mix of commercial, open space, and recreational land uses that encompasses approximately 525 acres.





Source: SMUD 2022, Placer County 2021b, Sacramento County 2021

**Exhibit 3.11-1. Specific Plans in the Project Area**



City of Roseville

As shown on Exhibit 3.11-1, the Amoruso Ranch Specific Plan, Creekview Specific Plan, West Roseville Specific Plan, and Sierra Vista Specific Plan areas are located northeast and east of the project site within the city of Roseville. It is assumed that future development within these areas would be consistent with the adopted specific plans (City of Roseville 2022):

- **Amoruso Ranch Specific Plan.** The Amoruso Ranch Specific Plan was adopted by the City Council on June 15, 2016. The 694-acre specific plan area is located northwest of the Roseville city limits, south of West Sunset Boulevard and approximately 1.5 miles west of Fiddymment Road. The Amoruso Ranch Specific Plan includes a mix of uses, including 337 acres of low, medium, and high density residential land that could be developed with 2,827 dwelling units. The land use plan also includes three commercial parcels totaling 51 acres, a 9.6-acre elementary school site, seven neighborhood parks, and a 3-acre fire station/public facilities site. Approximately 135 acres of the site will be set aside as open space preserve.
- **Creekview Specific Plan.** The Creekview Specific Plan was adopted by the City Council on September 19, 2012, and the specific plan area was annexed into the City of Roseville on April 17, 2013. The Creekview Specific Plan consists of 501 acres north and west of the West Roseville Specific Plan. It includes development of 2,011 single and multi-family residential units, 136 acres of open space, 15.7 acres of neighborhood parks, a 7-acre school site, 2.6 acres of utilities sites, and 19.3 acres for commercial development.
- **West Roseville Specific Plan.** The West Roseville Specific Plan was adopted by the City Council in 2004. The specific plan area consists of 3,162 acres west of Fiddymment Road, generally north of Pleasant Grove Boulevard. It includes development of 8,792 single and multi-family residential units, 57 acres of commercial, 109 acres of industrial, 255 acres of park, 705 acres of open space, and 108 acres of schools.
- **Sierra Vista Specific Plan.** The Sierra Vista Specific Plan was adopted by the City Council in May 2010 and amended in June 2012 to entitle land uses on the Westbrook property. The Sierra Vista Specific Plan consists of 2,064 acres west of Fiddymment Road, north of Baseline Road. It includes development of 8,679 single and multi-family residential units, approximately 259 acres of commercial, 106 acres of park, 304 acres of open space, 56 acres of schools and 40 acres of urban reserve.

Sacramento County

As shown on Exhibit 3.11-1, the Elverta Specific Plan is located south of the project site in unincorporated Sacramento County. The Sacramento County Board of Supervisors

adopted the Elverta Specific Plan on August 8, 2007, and the specific plan was amended in July 2014. The Elverta Specific Plan consists of 1,744 acres that is primarily planned for residential uses. It includes development of 831 acres of urban residential uses and 551 acres of agricultural-residential uses; 18 acres of commercial uses; 4 acres of office/professional uses; 20 acres of school uses; 71 acres of park uses; 26 acres of open space; and 153 acres to be used for drainageways, detention facilities, trails; and 70 acres for major roads (Sacramento County 2014).

### 3.11.3 Environmental Impacts and Mitigation Measures

#### *Methods and Assumptions*

The evaluation of potential impacts of the proposed project on land use and planning was based on a review of aerial photographs, the Placer County Zoning Ordinance, and the *Placer County General Plan* (Placer County 2013).

#### *Thresholds of Significance*

Based on Appendix G of the CEQA Guidelines, the proposed project would have a significant impact related to land use and planning if it would:

- physically divide an established community or
- conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.
- For an impact to be considered significant under this threshold, any inconsistency would also need to result in a significant adverse change in the environment not already addressed in the other resource sections of this Draft EIR.

#### *Issues Not Discussed Further*

**Physically Divide an Established Community**— There are no residential land uses within the project site. The nearest established community is located 0.70 mile east of the eastern project boundary. The proposed project does not include any linear features, such as new roadways, or any physical feature that would create a barrier, divide, or separate adjacent uses. Existing, or newly constructed roads would extend to the project site from Baseline Road, South Brewer Road, and Phillip Road. Improved (earthen or graveled) roads would be constructed throughout the site and between arrays. New overhead generation interconnection lines would be within the project site and/or transverse undeveloped parcels. Therefore, **no impact** would occur, and this issue is not addressed further in this EIR.

*Impact Analysis***Impact 3.11-1. 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?**

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The proposed project would construct, operate, and maintain a PV solar power and battery storage facility and interconnection facilities. The existing onsite agricultural activities would be discontinued during operation of the proposed project; however, throughout project operation, sheep grazing would occur at the project site around the PV arrays. The existing onsite wells will remain and could provide supplemental water to sheep to allow for year-round grazing of the site. Pollinator habitat compatible with sheep grazing would also be established in the PV array area. In addition to these planned agricultural uses, other potential agricultural uses compatible with solar, such as pollinator overwintering storage and irrigated crop production, are being considered for the project. Post-construction the majority of the site would be vegetated with grazing and pollinator friendly vegetation, with the exception of the footprints for the substation, switching station, BESS yard, the solar panel support posts, the foundations for the inverters, switchgear and transformers and roadways.

Consistency issues between implementation of the proposed project and the County General Plan or other land use plans and policies (i.e., PCCP, Placer County Sustainability Plan, Placer Parkway and Regional Transportation Plan) are related to land use regulations, which are, in part, based on avoiding or otherwise restricting uses that would adversely impact resources of the development site or adjacent land uses. Land use inconsistencies are not physical effects on the environment under CEQA unless it relates to a physical impact on the environment that is significant in its own right. While EIRs must discuss inconsistencies between the proposed project and applicable plans, plan consistency is not generally a CEQA issue.<sup>1</sup>

Specific impacts and project consistency issues associated with other resource and issue areas are addressed in each technical section of this EIR, as appropriate. These technical sections provide a detailed analysis of other relevant physical environmental effects that could result from implementation of the proposed project and identify mitigation measures, as necessary, to reduce impacts. Implementation of the proposed project would not conflict with adopted County General Plan policies or other land use plan, policy, or regulation that would generate any adverse physical impacts beyond those addressed in detail in the environmental sections of this Draft EIR (agriculture, air quality, biological resources, cultural resources, etc.).

A total of 1,112.02 acres of the project area overlap with the PFG of the PCCP. During the 30 to 35-year life of the project, the lands within the project area would not be

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<sup>1</sup> “The issue of whether a proposed project is consistent with a county's general plan is not a CEQA issue...” (*The Highway 68 Coalition v. County of Monterey, et al.* [6th Dist. 2017] Cal.App.5<sup>th</sup>).

available for development of the property under the PFG or inclusion within the PCCP Reserve System. The lands in the project area could not be developed as part of the PFG as anticipated in the development of the PCCP, and thus no impact fees under the PCCP would be provided to the implementing agency for the duration of the project (30 to 35 years). However, this would be a fiscal impact to the implementation of the Program, not a physical impact to the environment subject to an impact determination under CEQA. Please refer to Impact discussion of the issue in Section 3.4. Biology.

Historically, zoning ordinances of a county or city shall not apply to the location, construction, or production of facilities for the generation or storage of electrical energy by a local agency, per Government Code Section 53091(e). However, in 2019 a California Court of Appeal held in *City of Hesperia vs. Lake Arrowhead Community Services District* that “because the District’s proposed (solar) project includes the transmission of electrical energy, the exception contained in section 53091(e) does not apply to the project”. Therefore, SMUD expects that Placer County will require entitlements for the project including but not limited to a Conditional Use Permit (CUP) and an amendment to the RUSP. SMUD has been working closely with Placer County during the conceptual design of the project and the preparation of this Draft EIR and has been meeting with the county to discuss the requirements for obtaining a CUP and amending the RUSP. With approval of a CUP and an amendment to the RUSP, the proposed project would not conflict with the zoning of the project site. This impact is considered **less than significant**.

#### *Mitigation Measures*

No Mitigation is required.

### 3.12 Mineral Resources

This section summarizes the regulatory setting and environmental setting for mineral resources and analyzes potential impacts to mineral resources from the proposed project.

#### 3.12.1 Regulatory Setting

##### *Federal*

No federal plans, policies, regulations, or laws pertaining to mineral resources are applicable.

##### *State*

##### ***Surface Mining and Reclamation Act of 1975***

The Surface Mining and Reclamation Act of 1975 (SMARA) (Public Resources Code [PRC] 2710–2796) encourages the production, conservation, and protection of the state's mineral resources. PRC Section 2207 provides annual reporting requirements for all mines in the state, under which the State Mining and Geology Board is also granted authority and obligations. SMARA provides for the use of a system of Mineral Resource Zone (MRZ) classifications that reflect the known or inferred presence and significance of a given mineral resource. The MRZ classifications are based on available geologic information, including geologic mapping and other information on surface exposures, drilling records, and mine data, and on socioeconomic factors such as market conditions and urban development patterns.

##### *Local*

##### ***Placer County General Plan***

The 2013 Placer County General Plan Update (Placer County 2013) provides an overall framework for development of the county and the protection of its natural and cultural resources. The General Plan contains a Land Use Element, which describes goals and policies designed to encourage commercial mining operations within areas designated for such extraction, where environmental, aesthetic, and adjacent land use compatibility impacts can be adequately mitigated. None of the goals or policies are applicable to the proposed project.

#### 3.12.2 Environmental Setting

The project site is not located in a designated regionally important area of known mineral resources (i.e., MRZ-2), and is not located within a designated locally important area of known mineral resources under the Placer County General Plan (CDOC 2022; Placer County 2013).

### 3.12.3 Environmental Impacts and Mitigation Measures

#### *Methods and Assumptions*

Criteria from Appendix G of the State CEQA Guidelines were used to determine whether the proposed project would have a significant impact related to mineral resources. Impacts were assessed qualitatively based on review of applicable data, as well as applicable area general plans and other available reports and studies.

#### *Thresholds of Significance*

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would be considered to have a significant effect if it would do the following:

- Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?
- 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?

#### *Impact Analysis*

##### **Impact 3.12-1. Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?**

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The project site is not in an area known to contain significant mineral resources. Therefore, the project would not result in the loss of availability of a known mineral resource of value to the region or state. There would **no impact** and no mitigation is required.

##### **Impact 3.12-2. 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?**

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As discussed above, the project site is not in an area known to contain significant mineral resources, nor does the site lie in an area designated as a locally important mineral resource recovery site. There would **no impact** and no mitigation is required.

#### *Mitigation Measures*

No Mitigation is required.

### 3.13 Noise

This section includes a description of ambient noise conditions, a summary of applicable regulations related to noise and vibration, and an analysis of the potential impacts resulting from the implementation of the proposed project. Mitigation measures are recommended, as necessary, to reduce potentially significant noise and vibration impacts.

#### 3.13.1 Regulatory Setting

Various agencies have established noise guidelines and standards to protect citizens from potential hearing damage and other adverse physiological and social effects associated with noise and vibration.

##### *Federal*

Although not directly applicable to the proposed project, the research that supported the development of federal community noise standards provides a context for understanding human response to different noise levels and is summarized below for the reader's edification.

##### *U.S. Environmental Protection Agency Noise Control Act*

The Federal Noise Control Act of 1972 (Public Law 92-574) established a requirement that all federal agencies administer their programs to promote an environment free of noise that would jeopardize public health or welfare.<sup>1</sup> Although the U.S. Environmental Protection Agency (EPA) was given a major role in disseminating information to the public and coordinating federal agencies, each federal agency retains authority to adopt noise regulations pertaining to agency programs.<sup>2</sup>

In 1974, in response to the requirements of the federal Noise Control Act, the EPA identified indoor and outdoor noise level limits to protect public health and welfare (communication disruption, sleep disturbance, and hearing damage). Outdoor and indoor noise exposure limits of 55 decibels (dB) Day-Night Average Sound Level ( $L_{dn}$ ) and 45 dB  $L_{dn}$ , respectively, are identified as desirable to protect against speech interference and sleep disturbance for residential, educational, and healthcare settings. The sound-level criterion identified to protect against hearing damage in commercial and industrial areas is 70 dB 24-hour Equivalent Sound Level ( $L_{eq}$ ) (both outdoors and indoors).

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<sup>1</sup> The U.S. Environmental Protection Agency (EPA) was given the responsibility for providing information to the public regarding identifiable effects of noise on public health and welfare, publishing information on the levels of environmental noise that will protect the public health and welfare with an adequate margin of safety, coordinating federal research and activities related to noise control, and establishing federal noise emission standards for selected products distributed in interstate commerce. The Noise Control Act also directed that all federal agencies comply with applicable federal, State, interstate, and local noise control regulations.

<sup>2</sup> The EPA can, however, require other federal agencies to justify their noise regulations in terms of the Noise Control Act policy requirements.

The EPA's Office of Noise Abatement and Control was established to coordinate federal noise control activities. In 1981, EPA determined that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to state and local governments.

*U.S. Department of Transportation, Federal Transit Administration and U.S. EPA  
Vibration Guidelines*

To address the human response to groundborne vibration, the Federal Transit Administration (FTA) of the U.S. Department of Transportation has set forth guidelines for maximum-acceptable-vibration criteria for different types of land uses. These include 65 vibration decibels (VdB) referenced to 1 microinch per second ( $\mu\text{in/sec}$ ) and based on root mean square (RMS) velocity amplitude for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, laboratory facilities); 80 VdB for residential uses and buildings where people normally sleep; and 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, offices) (FTA 2018).

Standards have also been established to address the potential for groundborne vibration to cause structural damage to buildings. These standards were developed by the Committee of Hearing, Bio Acoustics, and Bio Mechanics (CHABA) at the request of the U.S. Environmental Protection Agency (FTA 2018). For fragile structures, CHABA recommends a maximum limit of 0.25 inches per second (in/sec) peak particle velocity (PPV) (FTA 2018).

*State*

In 1971, the State of California required cities and counties to include noise elements in their general plans (Government Code Section 65302 et seq.). The State of California General Plan Guidelines (Office of Planning and Research 2017) identify guidelines for the noise elements of local general plans, including a sound level/land-use compatibility chart. The noise element guidelines identify the "normally acceptable" range of noise exposure for low-density residential uses as less than 60 dB  $L_{dn}$ , and the "conditionally acceptable" range as 55-70 dB  $L_{dn}$ . The "normally acceptable" range for high-density residential uses is identified as below 65 dB  $L_{dn}$ , and the "conditionally acceptable" range is identified as 60-70 dB  $L_{dn}$ . For educational and medical facilities, levels below 70 dB  $L_{dn}$  are considered "normally acceptable," and levels of 60-70 dB  $L_{dn}$  are considered "conditionally acceptable." For office and commercial land uses, levels below 70 dB  $L_{dn}$  are considered "normally acceptable," and levels of 67.5–77.5 dB  $L_{dn}$  are considered "conditionally acceptable." Overlapping noise level ranges are intended to indicate that local conditions (existing sound levels and community attitudes toward dominant sound sources) should be considered in evaluating land use compatibility at specific locations. The State's guidance for land use / noise compatibility is summarized in Table 3.13-1.



In 1984, State noise element provisions were revised to recognize guidelines prepared by the Office of Noise Control of the California Department of Health Services and to analyze and quantify, “to the extent practicable, as determined by the legislative body,” noise from the following sources: highways and freeways; primary arterials and major local streets; passenger and freight on-line railroad operations and ground rapid transit systems; commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and other ground facilities and maintenance functions related to airport operation; local industrial plants, including, but not limited to, railroad classification yards; and other stationary noise sources identified by local agencies as contributing to the community noise environment. As noted in the General Plan Guidelines, the Office of Planning and Research notes that the Department of Health Services Office of Noise Control no longer exists, and the guidelines have been incorporated into the General Plan Guidelines for Noise Elements (OPR 2017).

**Table 3.13-1. Land Use Noise Compatibility Guidelines**

Land Use Category	Community Noise Exposure (CNEL/L <sub>dn</sub> , dBA)			
	Normally Acceptable <sup>1</sup>	Conditionally Acceptable <sup>2</sup>	Normally Unacceptable <sup>3</sup>	Clearly Unacceptable <sup>4</sup>
Residential-Low Density Single Family, Duplex, Mobile Home	<60	55–70	70–75	75+
Residential-Multiple Family	<65	60–70	70–75	75+
Transient Lodging, Motel, Hotel	<65	60–70	70–80	80+
School, Library, Church, Hospital, Nursing Home	<70	60–70	70–80	80+
Auditorium, Concert Hall, Amphitheater		<70	65+	
Sports Arenas, Outdoor Spectator Sports		<75	70+	
Playground, Neighborhood Park	<70		67.5–75	72.5+
Golf Courses, Stable, Water Recreation, Cemetery	<75		70–80	80+
Office Building, Business Commercial, and Professional	<70	67.5–77.5	75+	
Industrial, Manufacturing, Utilities, Agriculture	<75	70–80	75+	

Notes: CNEL = Community Noise Equivalent Level; dBA = A-weighted decibels; L<sub>dn</sub> = day-night average noise level.

<sup>1</sup> Specified land use is satisfactory, based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

<sup>2</sup> New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

<sup>3</sup> New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Outdoor areas must be shielded.

<sup>4</sup> New construction or development should generally not be undertaken.

Source: OPR 2017

California Department of Transportation

For the protection of fragile structures from transient vibration sources, Caltrans recommends a threshold of 0.2 in/sec PPV and 0.5 in/sec PPV for old or structures (Caltrans 2020). These standards are more stringent than the recommended guidelines established by the Federal Transit Authority (FTA), presented above. Table 3.13-2 shows the general thresholds for structural responses to vibration levels.

**Table 3.13-2. Structural Responses to Vibration Levels**

Structure and Condition	Peak Vibration Threshold (in/sec PPV)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Notes: in/sec = inches per second; PPV = peak particle velocity  
Source: Caltrans 2020

LocalPlacer County General Plan

The project will be guided by the policies, standards, regulations, and guidelines of the Placer County policies. Therefore, County goals and policies are presented for context.

**Goal 9A:** To protect County residents from the harmful and annoying effects of exposure to excessive noise.

**Policy 9.A.2:** Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table 9-1 (Table 3.13-3 of this EIR) as measured immediately within the property line of lands designated for noise-sensitive uses.

**Policy 9.A.5:** Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table 9-1 (Table 3.13-3 of this EIR) at existing or planned noise-sensitive uses, the County shall require submission of an acoustical analysis as part of the environmental review process so that noise mitigation may be included in the project design. The requirements for the content of an acoustical analysis are listed in Table 9-2 (Table 3.13-4 of this EIR).

**Policy 9.A.6:** The feasibility of proposed projects with respect to existing and future transportation noise levels shall be evaluated by comparison to Table 9-3 (Table 3.13-5 of this EIR), in the Placer County Noise Element.

**Policy 9.A.9:** Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table 9-3 or the performance standards in Table 9-3 (Table 3.13-5 of this EIR) at outdoor activity areas or interior spaces of existing noise-sensitive land uses.

**Policy 9.A.11:** The County shall require one or more of the following mitigation measures where existing noise levels significantly impact existing noise-sensitive land uses, or where the cumulative increase in noise levels resulting from new development significantly impacts noise-sensitive land uses:

- a. Rerouting traffic onto streets that have available traffic capacity and that do not adjoin noise-sensitive land uses;
- b. Lowering speed limits, if feasible and practical;
- c. Programs to pay for noise mitigation such as low-cost loans to owners of noise-impacted property or establishment of developer fees;
- d. Acoustical treatment of buildings; or,
- e. Construction of noise barriers.

**Policy 9.A.12:** Where noise mitigation measures are required to achieve the standards of Tables 9-1 (Table 3.13-3 of this EIR) and 9-3 (Table 3.13-5 of this EIR), in the Placer County Noise Element, the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall be considered as a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project.

**Goal 9.B:** To ensure that areas designated for industrial uses pursuant to Goal 1.E. and Policy 1.E.1. are protected from encroachment by noise-sensitive land uses.

**Policy 9.B.3:** Because many industrial activities and processes necessarily produce noise that will likely be objectionable to nearby non-industrial land uses, existing and potential future industrial noise emissions shall be accommodated in all land-use decisions.

**Table 3.13-3. Allowable Noise Levels for New Projects Affected by or Including Non-Transportation Noise Sources (Table 9-1 of the Placer County General Plan)**

Zone District of Receptor	Property Line of Receiving Use	Interior Space <sup>1</sup>
Residential adjacent to industrial	60 dBA	45 dBA
Other Residential	50 dBA	45 dBA
Office/Professional	70 dBA	45 dBA
Open Space	---	---

Neighborhood Commercial	70 dBA	45 dBA
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Notes:

dB = decibel

dBA = A-weighted decibel(s)

L<sub>dn</sub> = Day-Night Average Sound Level

Except where noted otherwise, noise exposures will be those which occur at the property line of the receiving use. Where existing transportation noise levels exceed the standards of this table, the allowable L<sub>dn</sub> shall be raised to the same level as that of the ambient level. If the noise source generated by, or affecting, the uses shown above consists primarily of speech or music, or if the noise source is impulsive in nature, the noise standards shown above shall be decreased by 5 dB. Interior space are defined as any locations where some degree of noise sensitivity exists. Examples include all habitable rooms of residences, and areas where communication and speech intelligibility are essential, such as classrooms and offices. Table 9-1 of the Placer County General Plan Noise Element has been summarized for use on this project; please see the Placer County General Plan Noise Element for the full Table and Footnotes.

Source: Placer County General Plan 2013.

**Table 3.13-4. Requirements for an Acoustical Analysis (See Policy 9.A.5, and Table 9-2 of the Placer County General Plan)**

An acoustical analysis prepared pursuant to Policy 9.A.5 shall:	
1.	Be the financial responsibility of the applicant.
2.	Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
3.	Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise sources.
4.	Estimate existing and projected cumulative (20 years) noise levels in terms of L <sub>dn</sub> or CNEL and/or the standards of Table 9-1, and compare those levels to the policies in this section. Noise prediction methodology must be consistent with the Placer County Acoustical Design Manual.
5.	Recommend appropriate mitigation to achieve compliance with the policies and standards of this section, giving preference to proper site planning and design over mitigation measures that require the construction of noise barriers or structural modifications to buildings that contain noise-sensitive land uses. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.
6.	Estimate noise exposure after the prescribed mitigation measures have been implemented.
7.	Describe a post-project assessment program that could be used to evaluate the effectiveness of the proposed mitigation measures.

Notes:

CNEL = Community Noise Equivalent Level

L<sub>dn</sub> = Day-Night Average Sound Level

**Table 3.13-5. Maximum Allowable Noise Exposure - Transportation Noise Sources (Table 9-3 of the Placer County General Plan)**

Zone District of Receptor	Property Line of Receiving Use	Interior Space <sup>1</sup>
Residential adjacent to industrial	60 dBA	45 dBA
Playgrounds, Neighborhood Parks	70 dBA	--

Notes:

-- = not applicable

CNEL = Community Noise Equivalent Level

dBA = A-weighted decibel(s)

L<sub>dn</sub> = Day-Night Average Sound Level

<sup>1</sup> Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.

<sup>2</sup> As determined for a typical worst-case hour during periods of use.

<sup>3</sup> Where it is not possible to reduce noise in outdoor activity areas to 60 dB L<sub>dn</sub>/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L<sub>dn</sub>/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

Source: Placer County General Plan 2013.

### Placer County Noise Ordinance

The Placer County Code, Section 9.36.060 establishes sound limits for sensitive receptors, as shown in Table 3.13-6: Hourly Exterior Noise Performance Standards for Stationary (Non- Transportation) Noise Sources. The standards are measures at the property line of the receiving sensitive receptor. It should be noted that the County also applies a limit of 5 dB over the existing ambient noise level or the Table 3.13-6 standards, whichever is greater.

**Table 3.13-6. Hourly Exterior Noise Performance Standards for Stationary (Non-Transportation) Noise Sources**

Noise Metric	Acceptable Noise Level, dBA	
	Daytime (7 a.m. – 10 p.m.)	Nighttime (10 p.m. – 7 a.m.)
L <sub>eq</sub>	55	45
L <sub>max</sub>	70	65

Notes: dBA (A-weighted decibels): The weighted sound level measurement scale specifically adjusted to human hearing; L<sub>eq</sub> (equivalent noise level): The energy mean (average) noise level; L<sub>max</sub> (maximum noise level): The maximum instantaneous noise level during a specific period of time.

Source: Placer County Code, Chapter 9 Public Peace, Safety, and Welfare.

Section 9.36.020 of the code defines a sensitive receptor as “a land use in which there is a reasonable degree of sensitivity to noise. Such uses include single-family and multi-family residential uses, frequently used outbuildings, schools, hospitals, churches, rest homes, cemeteries, public libraries, and other sensitive uses as determined by the enforcement officer.” The purpose of the Noise Ordinance is to implement the Noise Standards identified in the Placer County General Plan. The County Noise Ordinance is enforced with the Penal Code to establish standards for reported nuisance abatement and enforcement within the County.

Section 9.36.030 A.7 of the Ordinance provides an exception for construction noise so long as all construction equipment is “fitted with factory-installed muffling devices and that all construction equipment shall be maintained in good working order.” Allowable time periods for this construction noise are as follows: 6 a.m. to 8 p.m., Monday through Friday; and 8 a.m. to 8 p.m., Saturdays and Sundays. However, Planning Commission

revisions to the Placer County Board of Supervisors Minute Order 90-08 indicate the following:

“Construction noise emanating from any construction activities for which a Grading or Building Permit is required is prohibited on Sundays and Federal Holidays, and shall only occur:

- Monday through Friday, 6:00 a.m. to 8:00 p.m. (during daylight savings)
- Monday through Friday, 7:00 a.m. to 8:00 p.m. (during standard time)
- Saturdays, 8:00 a.m. to 6:00 p.m.

In addition, temporary signs shall be located throughout the project, as determined by the Development Review Committee, at key intersections depicting the above construction hour limitations.”

### 3.13.2 Environmental Setting

#### *Acoustic Fundamentals*

Noise is generally defined as sound that is loud, disagreeable, unexpected, or unwanted. Sound, as described in more detail below, is mechanical energy transmitted in the form of a wave because of a disturbance or vibration, and as any pressure variation in the air that the human ear can detect.

#### *Sound Properties*

A sound wave is introduced into a medium (air) by a vibrating object. The vibrating object (e.g., vocal cords, the string, soundboard of a guitar, the diaphragm of a speaker) is the source of the disturbance that moves through the medium. Regardless of the type of source that creates the sound wave, the particles of the medium through which the sound moves are vibrating in a back-and-forth motion at a given frequency (pitch).<sup>3</sup> A commonly used unit for frequency is cycles per second, called hertz (Hz).<sup>4</sup>

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<sup>3</sup> The frequency of a wave refers to how often the particles vibrate when a wave passes through the medium. The frequency of a wave is measured as the number of complete back-and-forth vibrations of a particle per unit of time. If a particle of air undergoes 1,000 longitudinal vibrations in 2 seconds, then the frequency of the wave would be 500 vibrations per second.

<sup>4</sup> Each particle vibrates as a result of the motion of its nearest neighbor. For example, the first particle of the medium begins vibrating at 500 Hz and sets the second particle of the medium into motion at the same frequency (500 Hz). The second particle begins vibrating at 500 Hz and sets the third particle into motion at 500 Hz. The process continues throughout the medium; hence each particle vibrates at the same frequency, which is the frequency of the original source. A guitar string vibrating at 500 Hz will set the air particles in the room vibrating at the same frequency (500 Hz), which carries a sound signal to the ear of a listener that is detected as a 500-Hz sound wave. The back-and-forth vibration motion of the particles of the medium would not be the only observable phenomenon occurring at a given frequency. Because a sound wave is a pressure wave, a detector could be used to detect oscillations in pressure from high to low and back to high pressure. As the compression (high-

A wave is an energy transport phenomenon that transports energy along a medium. The amount of energy carried by a wave is related to the amplitude (loudness) of the wave. A high-energy wave is characterized by high amplitude; a low-energy wave is characterized by low amplitude. The amplitude of a wave refers to the maximum amount of displacement of a particle from its rest position. The energy transported by a wave is directly proportional to the square of the amplitude of the wave. This means that a doubling of the amplitude of a wave is indicative of a quadrupling of the energy transported by the wave.

### *Sound and the Human Ear*

Because of the ability of the human ear to detect a wide range of sound-pressure fluctuations, sound-pressure levels are expressed in logarithmic units called dB to avoid a very large and awkward range in numbers. The sound pressure level in decibels is calculated by taking the log of the ratio between the actual sound pressure and the reference sound pressure squared. The reference sound pressure is considered the absolute hearing threshold (Caltrans 2013). Use of this logarithmic scale reveals that the total sound from two individual sources, each measured at 65 dBA, is 68 dBA, not 130 dBA; that is, doubling the source strength increases the sound pressure by 3 dBA.

Because the human ear is not equally sensitive to all sound frequencies, a specific frequency-dependent rating scale was devised to relate noise to human sensitivity. A dBA scale performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. The basis for compensation is the faintest sound audible to the average ear at the frequency of maximum sensitivity. This dBA scale is routinely used by authorities to regulate environmental noise. Typical indoor and outdoor noise levels are presented in Exhibit 3.13-1.

With respect to how humans perceive and react to changes in noise levels, a 1-dBA increase is imperceptible, a 3-dBA increase is barely perceptible, a 6-dBA increase is clearly noticeable, and a 10-dBA increase is subjectively perceived as approximately twice as loud (Caltrans 2013), as presented in Table 3.13-7.<sup>5</sup>

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pressure) and rarefaction (low-pressure) disturbances move through the medium, they would reach the detector at a given frequency. For example, a compression would reach the detector 500 times per second if the frequency of the wave were 500 Hz. Similarly, a rarefaction would reach the detector 500 times per second if the frequency of the wave were 500 Hz. Thus, the frequency of a sound wave refers not only to the number of back-and-forth vibrations of the particles per unit of time, but also to the number of compression or rarefaction disturbances that pass a given point per unit of time. A detector could be used to detect the frequency of these pressure oscillations over a given period of time. The period of the sound wave can be found by measuring the time between successive high-pressure points (corresponding to the compressions) or the time between successive low-pressure points (corresponding to the rarefactions). The frequency is simply the reciprocal of the period; thus, an inverse relationship exists so that as frequency increases, the period decreases, and vice versa.

<sup>5</sup> Table 3.13-7 was developed on the basis of the reactions of test subjects to changes in the levels of steady-state pure tones or broadband noise and to changes in levels of a given noise source. It is probably most applicable to noise levels in the range of 50–70 dBA, as this is the usual range of voice and interior noise levels.

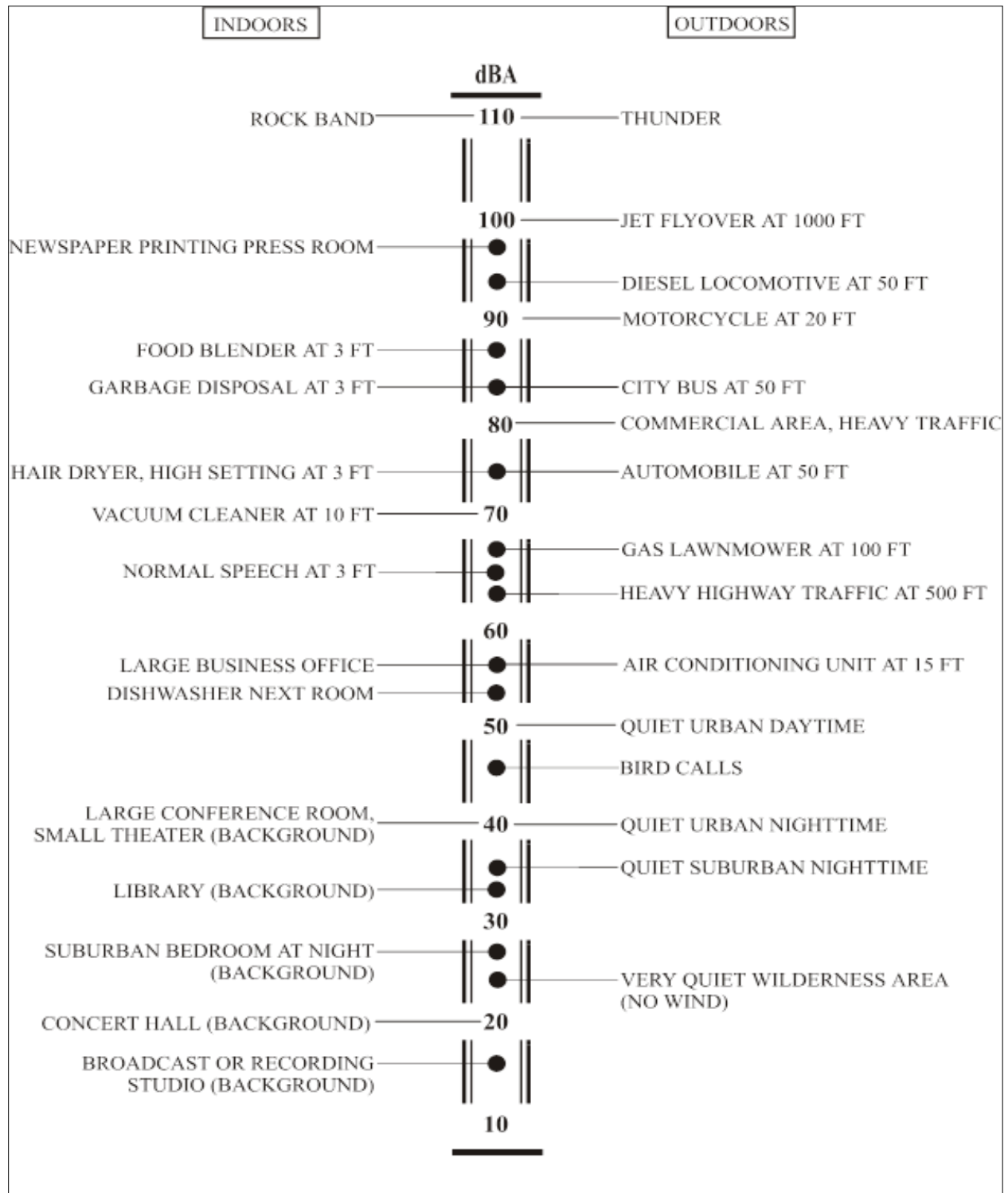
**Table 3.13-7. Subjective Reaction to Changes in Noise Levels of Similar Sources**

Change in Level, dBA	Subjective Reaction	Factor Change in Acoustical Energy
1	Imperceptible (except for tones)	1.3
3	Just barely perceptible	2.0
6	Clearly noticeable	4.0
10	About twice (or half) as loud	10.0

Note: dBA = A-weighted decibels

Source: Caltrans 2013





Notes:

dBA = A-weighted decibels

Source: Caltrans 2013

### Exhibit 3.13-1. Typical Noise Levels

### Sound Propagation and Attenuation

As sound (noise) propagates from the source to the receptor, the attenuation, or manner of noise reduction in relation to distance, is dependent on surface characteristics, atmospheric conditions, and the presence of physical barriers. The inverse-square law describes the attenuation caused by the pattern in which sound travels from the source to the receptor. Sound travels uniformly outward from a point source in a spherical pattern with an attenuation rate of 6 dB (hard sites) and 7.5 dB (soft sites)<sup>6</sup> per doubling of distance (dBA/DD) (FHWA 2017). However, from a line source (e.g., a road), sound travels uniformly outward in a cylindrical pattern with an attenuation rate of 3 dBA/DD. The characteristics of the surface between the source and the receptor may result in additional sound absorption and/or reflection.

Atmospheric conditions such as wind speed, temperature, and humidity may affect noise levels. The presence of a barrier between the source and the receptor may also attenuate noise levels. The actual amount of attenuation depends on the size of the barrier and the frequency of the noise. A noise barrier may be any natural or human-made feature such as a hill, tree, building, wall, or berm (Caltrans 2013).

### Noise Descriptors

The selection of a proper noise descriptor for a specific source depends on the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise are defined below (Caltrans 2013).

- **L<sub>max</sub> (Maximum Noise Level):** The maximum instantaneous noise level during a specific period of time. The L<sub>max</sub> may also be referred to as the “peak (noise) level.”
- **L<sub>min</sub> (Minimum Noise Level):** The minimum instantaneous noise level during a specific period of time.
- **L<sub>eq</sub> (Equivalent Noise Level):** The energy mean (average) noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, an average energy value is calculated, which is then converted back to dBA to determine the L<sub>eq</sub>. In noise environments that are determined by major noise events, such as aircraft overflights, the L<sub>eq</sub> value is heavily influenced by the magnitude and number of single events that produce the high noise levels.
- **L<sub>dn</sub> (Day-Night Noise Level):** The 24-hour L<sub>eq</sub> with a 10-dBA “penalty” for noise events that occur during the noise-sensitive hours between 10:00 p.m. and 7:00 a.m. In other words, 10 dBA is “added” to noise events that occur in the nighttime

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<sup>6</sup> [3. Acoustical Considerations - Design - Design Construction - Noise Barriers - Noise - Environment - FHWA \(dot.gov\)](#)

hours, and this generates a higher reported noise level when determining compliance with noise standards. The  $L_{dn}$  attempts to account for the fact that noise during this specific period of time is a potential source of disturbance with respect to normal sleeping hours.

- **CNEL (Community Noise Equivalent Level):** Similar to the  $L_{dn}$  described above, but with an additional 5-dBA, “penalty” added to noise events that occur during the noise-sensitive hours between 7:00 p.m. and 10:00 p.m., which are typically reserved for relaxation, conversation, reading, and television. When the same 24-hour noise data are used, the reported CNEL is typically approximately 0.5 dBA higher than the  $L_{dn}$ .
- **SENL (Single-Event [Impulsive] Noise Level):** A receiver’s cumulative noise exposure from a single impulsive noise event, which is defined as an acoustical event of short duration and involves a change in sound pressure above some reference value. SENLs typically represent the noise events used to calculate the  $L_{eq}$ ,  $L_{dn}$ , and CNEL.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level  $L_{eq}$ , which corresponds to a steady-state, A-weighted sound level containing the same total energy as a time-varying signal over a given time period (usually 1 hour). The  $L_{eq}$  is the foundation of composite noise descriptors such as  $L_{dn}$  and CNEL, as defined above, and correlates well with the community response to noise.

### Negative Effects of Noise on Humans

Negative effects of noise exposure include physical damage to the human auditory system, interference, and disease. Exposure to noise may result in physical damage to the auditory system, which may lead to gradual or traumatic hearing loss. Gradual hearing loss is caused by sustained exposure to moderately high noise levels over a period of time; traumatic hearing loss is caused by sudden exposure to extremely high noise levels over a short period. Gradual and traumatic hearing loss both may result in permanent hearing damage. In addition, noise may interfere with or interrupt sleep, relaxation, recreation, and communication. Although most interference may be classified as annoying, the inability to hear a warning signal may be considered dangerous. Noise may also be a contributor to diseases associated with stress, such as hypertension, anxiety, and heart disease. The degree to which noise contributes to such diseases depends on the frequency, bandwidth, level of the noise, and exposure time (Caltrans 2013).

### Fundamental Noise Control Options

Any noise problem is generally composed of three basic elements: the noise source, a transmission path, and a receiver. The appropriate acoustical treatment for a given project should consider the nature of the noise source and the sensitivity of the receiver.

The problem is defined in terms of appropriate criteria ( $L_{dn}$ ,  $L_{eq}$ , or  $L_{max}$ ); the location of the sensitive receiver (inside or outside); and the time that the problem occurs (daytime or nighttime). Noise control techniques are then be selected to provide an acceptable noise environment for the receiving property while remaining consistent with local accessibility, safety, and aesthetic standards, as well as practical structural and economic limits. Fundamental noise control options are described below.

### **Setbacks**

Noise exposure may be reduced by increasing the distance between the noise source and the receiving use. Setbacks can, for example, take the form of open space, frontage roads, recreational areas, and storage yards. The available noise attenuation from this technique is limited by the characteristics of the noise source and the ground type but is generally about 0–8 dB (Caltrans 2013). For example, the attenuation rate from stationary sources would be 6 dB (hard sites) and 7.5 dB (soft sites) per doubling of distance (FHWA 2017).

### **Barriers**

Shielding by barriers can be obtained by placing walls, berms, or other structures (such as buildings) between the noise source and the receiver. The effectiveness of a barrier depends on blocking the line of sight between the source and receiver; effectiveness is improved when the sound must travel a longer distance to pass over the barrier than if it were traveling in a straight line from the source to a receiver. The difference between the distance over a barrier and a straight line between source and receiver is called the “path length difference,” and is the basis for calculating barrier noise reduction.

Barrier effectiveness depends upon the relative heights of the source, barrier, and receiver. In general, barriers are most effective when placed close to either the receiver or the source. An intermediate barrier location yields a smaller path length difference for a given increase in barrier height than does a location closer to either source or receiver.<sup>7</sup> Earth, in the form of berms or the face of a depressed area, is also an effective barrier material.

There are practical limits to the noise reduction provided by barriers, as well as concerns about decreasing community connectivity, active transportation access, and visibility caused by barriers.<sup>8</sup> For vehicle traffic or railroad noise, a noise reduction of 5–10 dBA may often be reasonably attained. A 15-dBA noise reduction is sometimes possible, but a 20-dBA noise reduction is extremely difficult to achieve. Barriers usually are provided in the form of walls, berms, or berm/wall combinations. The use of an earth berm in lieu of a solid wall may provide up to 3 dBA additional attenuation over that

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<sup>7</sup> For maximum effectiveness, barriers must be continuous and relatively airtight along their length and height. To ensure that sound transmission through the barrier is insignificant, barrier mass should be about 4 pounds per square foot, although a lesser mass may be acceptable if the barrier material provides sufficient transmission loss. Satisfaction of the above criteria requires substantial and well-fitted barrier materials, placed to intercept the line of sight to all significant noise sources.

<sup>8</sup> For example, as noted, Placer County’s General Plan only allows barriers after all feasible attenuation strategies are exhausted (Policy 9.A.12).

attained by a solid wall alone, because of the absorption provided by the earth. Berm/wall combinations offer slightly better acoustical performance than solid walls alone, and they are sometimes preferred for aesthetic reasons.

### **Site Design**

Buildings can be placed on a project site to shield other structures or areas from areas affected by noise, and to prevent an increase in noise level caused by reflections. The use of one building to shield another can significantly reduce a project's overall noise control costs, particularly if activities accommodated in the shielding structure are insensitive to noise.

Site design should guard against creating reflecting surfaces that may increase on-site noise levels. For example, two buildings placed at an angle facing a noise source may cause noise levels within that angle to increase by up to 3 dBA. The open end of U-shaped buildings should point away from noise sources for the same reason. Landscaping walls or noise barriers may inadvertently reflect noise back to a noise-sensitive area unless located carefully. Avoidance of these problems while attaining an aesthetic site design requires close coordination between local agencies, the project engineer and architect, and the noise expert.

### **Building Façades**

When interior noise levels are of concern in a noisy environment, noise reduction may be obtained through the acoustical design of building façades. Standard construction practices provide a noise reduction of 10–15 dBA for building façades with open windows and a noise reduction of approximately 25 dBA when windows are closed (EPA 1974). Thus, an exterior-to-interior noise reduction of 25 dBA can be obtained by requiring that the building design include adequate ventilation systems, which allows windows on a noise-affected façade to remain closed under any weather condition.

Where greater noise reduction is required, acoustical treatment of the building façade is necessary. Reducing relative window area is the most effective control technique, followed by providing acoustical glazing (thicker glass or increased air space between panes) in frames with low air infiltration rates and using fixed (non-movable) acoustical glazing. Noise transmitted through walls can be reduced by increasing wall mass (using stucco or brick in lieu of wood siding), isolating wall members by using double or staggered stud walls, or mounting interior walls on resilient channels. Noise control for exterior doorways is provided by reducing door area, using solid-core doors, and by acoustically sealing door perimeters with suitable gaskets. Roof treatments may include the use of plywood sheathing under roofing materials.

### **Vegetation**

Trees and other vegetation are often thought to provide significant noise attenuation. However, approximately 100 feet of dense foliage (so that no visual path extends through the foliage) is required to achieve a 5-dBA attenuation of traffic noise (Caltrans 2013). Thus, the use of vegetation as a noise barrier should not be considered a

practical method of noise control unless large tracts of dense foliage are part of the existing landscape.

Vegetation can be used to acoustically “soften” intervening ground between a noise source and a receiver, increasing ground absorption of sound and thus increasing the attenuation of sound with distance. Planting trees and shrubs also offers aesthetic and psychological value, and it may reduce adverse public reaction to a noise source by removing the source from view, even though noise levels will be largely unaffected. However, trees planted on the top of a noise-control berm can slightly degrade the acoustical performance of the barrier. This effect can occur when high-frequency sounds are diffracted (bent) by foliage and directed downward over a barrier.

### Vibration Fundamentals

Vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structureborne noise. Similar to noise, groundborne vibration and groundborne noise can be generated from construction and operational sources. If vibration levels are high enough, groundborne vibration has the potential to damage structures, cause cosmetic damage (e.g., crack plaster), or disrupt the operation of vibration-sensitive equipment. Groundborne vibration and groundborne noise can also be a source of annoyance to individuals who live or work close to vibration-generating activities.

Ground-borne noise is the noise generated by the indoor movement of room surfaces, such as walls, resulting from groundborne vibration. Ground-borne noise criteria are primarily applied to light rail operations in a tunnel where airborne noise is not a factor. For above-grade transit systems, groundborne noise criteria are applied to buildings that have sensitive interior spaces that are well insulated from exterior noise.

### **Vibration Descriptors**

As is the case with airborne sound, groundborne vibrations may be described by amplitude and frequency. Vibration levels are usually expressed as a single-number measure of vibration magnitude in terms of velocity or acceleration, which describes the severity of the vibration without the frequency variable. Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean square (RMS), as in RMS vibration velocity. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV and RMS are normally described in inches per second (in/sec). PPV is often used in the monitoring of blasting vibration because it is related to the stresses that are experienced by buildings (FTA 2018).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a period of 1 second. Like airborne sound, the RMS

velocity is often expressed in decibel notation, as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2018). This is based on a reference value of 1 microinch per second ( $\mu\text{in/sec}$ ).

### **Vibration Sources**

Sources of groundborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, or transient or random. Continuous vibrations result from operating factory machinery, vibratory pile drivers, large pumps, horizontal directional drilling, and compressors. Transient vibrations are generated by explosions, blasting, impact pile driving, and wrecking balls. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment.

Construction activities can generate groundborne vibrations, which can pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants (FTA 2018). Heavy construction operations can cause substantial groundborne vibration in proximity to the source. The highest vibration levels are generated by impact equipment or heavy equipment, such as pile drivers or vibratory roller, respectively.

The primary vibration sources associated with transportation system operations include heavy truck and bus traffic along roadways and train traffic along rail lines. Vehicle traffic, including heavy trucks traveling on a highway, rarely generates vibration amplitudes high enough to cause structural or cosmetic damage. In some cases, however, heavy trucks traveling over potholes or other discontinuities in the pavement have caused vibration high enough to result in complaints from nearby residents; these complaints typically can be resolved by smoothing the roadway surface. Freight trains, commuter trains, and light rail trains can also be sources of ground vibration.

### **Effects of Vibration**

The effects of groundborne vibration include movement of building floors, rattling of windows, shaking of items that sit on shelves or hang on walls, and rumbling sounds. In extreme cases, vibration can damage buildings, although this is not a factor for most projects. Human annoyance from groundborne vibration often occurs when vibration exceeds the threshold of perception by only a small margin. A vibration level that causes annoyance can be well below the damage threshold for normal buildings.

Vibrations transmitted through the ground during construction equipment operations or transportation system operations may annoy people and detrimentally affect structures and sensitive devices. Where construction vibration does cause structural damage, it is through direct damage and/or vibration-induced settlement. Structural damage depends on the frequency of the vibration at the structure, as well as the condition of the structure and its foundation. Human annoyance by vibration is related to the number and duration of events. The more events or the greater the duration, the more annoying it will be to humans.

Table 3.13-8 displays the reactions of people and the effects on buildings that continuous vibration levels produce. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to vibration complaints, even though there is very little risk of actual structural damage.

### *Existing Noise Environment*

#### Sensitive Receptors

Noise-sensitive land uses are generally considered to include those uses where quiet is an essential element of their intended purpose. This typically would include residences, schools, hospitals, nursing homes, retirement residences, places of worship, libraries, and sometimes parks, historic sites, cemeteries, and other places where low interior noise levels are essential.

**Table 3.13-8. Reaction of People and Damage to Buildings from Continuous or Frequent Intermittent Vibration Levels**

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.01	Barely perceptible	No effect
0.04	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structures
0.08	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.1	Strongly perceptible	Virtually no risk of damage to normal buildings
0.3	Strongly perceptible to Severe	Threshold at which there is a risk of damage to newer residential structures
0.5	Severe – Vibration considered unpleasant	Also, threshold at which there is a risk of damage to newer residential structures

Notes: in/sec = inches per second; PPV = peak particle velocity

Source: Caltrans 2020

There are some homes in the vicinity of the project site, but for the most part, surrounding uses are not noise sensitive. The nearest noise-sensitive uses to the project are single-family residences located approximately 700 feet to the southeast and northwest (within unincorporated Placer County), from the project site boundary. Also, there are scattered single-family homes along Country Acres Lane, South Brewer Road, and Phillips Road.

#### Community Noise Survey

A community noise survey was conducted on February 8th through February 9th, 2022, to document the existing noise environment. The dominant noise source identified



during the ambient noise survey was traffic from the Baseline Road to the south of the project site.<sup>9</sup>

Community noise survey locations are shown in Exhibit 3.13-2. The  $L_{eq}$  and  $L_{max}$  values were taken at each ambient noise measurement location presented in Table 3.13-9. During the survey, average daytime ambient noise levels ranged from 43 dB to 72 dB  $L_{eq}$ , with maximum noise levels that ranged from 62 dB to 82 dB  $L_{max}$ .

**Table 3.13-9. Summary of Measured 24-hour Long Term Ambient Noise Levels**

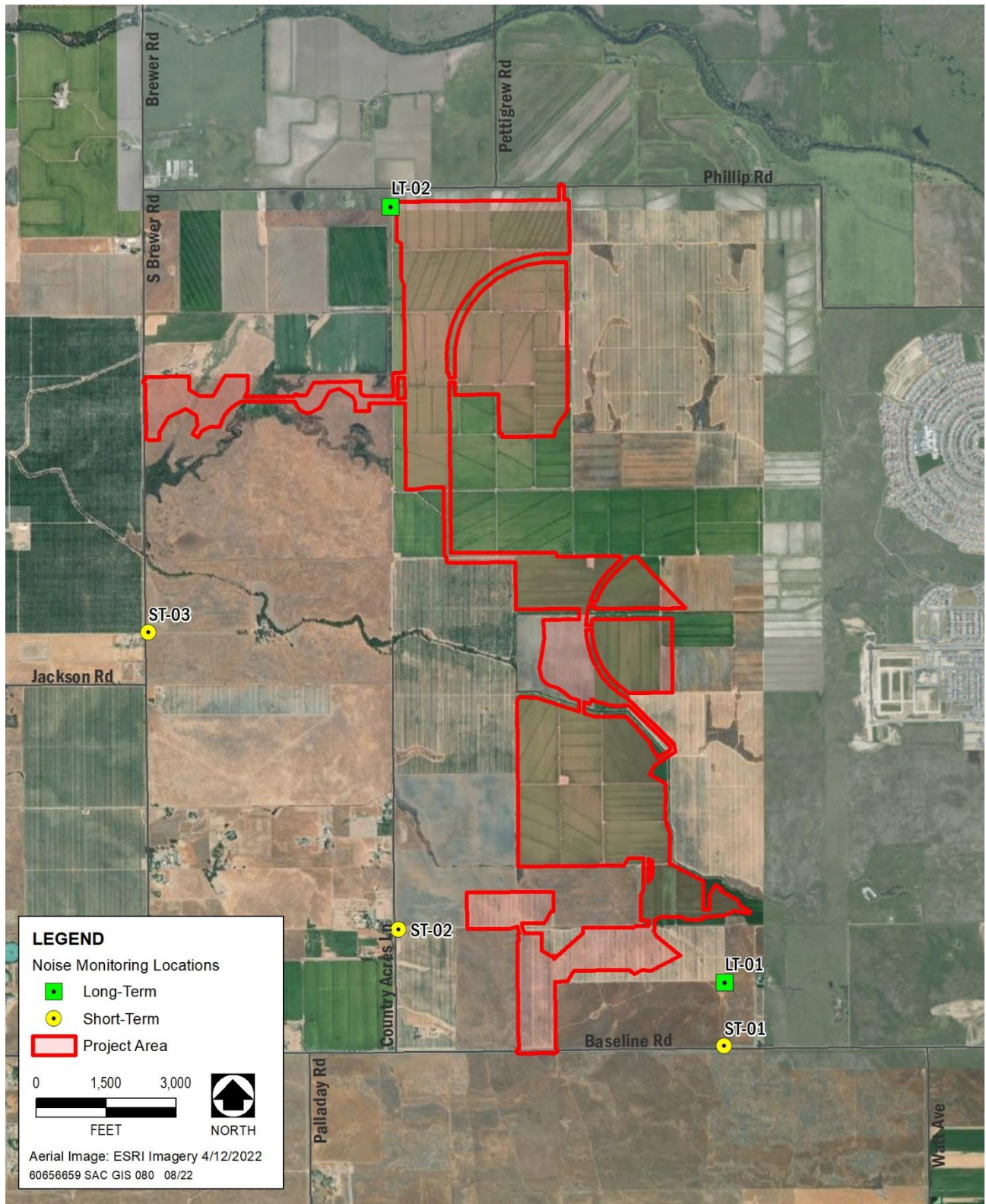
Site	Location	Date	$L_{dn}$	Average Measured Hourly Noise Levels, dBA			
				Daytime (7 a.m.–10 p.m.)		Nighttime (10 p.m.–7 a.m.)	
				$L_{eq}$	$L_{max}$	$L_{eq}$	$L_{max}$
LT-1	Southeast corner of the project site near the residence at 6690 Baseline Road	2/8/22 - 2/9/22	56.8	52.0	65.4	50.1	58.9
LT-2	Northwest corner of the project site near the residence at 8121 Phillip Road	2/8/22 - 2/9/22	44.2	43.1	61.7	35.5	49.9
ST-1	South of project site along Baseline Road	2/9/22	--	72.4	82.2	--	--
ST-2	West of project site near the residence 7622 Country Acres Lane	2/9/22	--	45.4	63.6	--	--
ST-3	West of project site near the residence at 6330 South Brewer Road	2/9/22	--	56.4	74.7	--	--

Notes: dBA = A-weighted decibels;  $L_{dn}$  = day-night average noise level;  $L_{eq}$  = the equivalent hourly average noise level;  $L_{max}$  = maximum noise level.

Monitoring locations correspond to those depicted in Exhibit 3.13-2.

Source: Data collected by AECOM 2022

<sup>9</sup> Measurements of noise levels were taken in accordance with ANSI standards. Continuous 24-hour, long-term monitoring of noise levels was conducted at three locations in the project area using Larson Davis Laboratories (LDL) Model 820 sound-level meters. The sound-level meters were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure that the measurements would be accurate. The equipment used meets all pertinent specifications of the ANSI for Type 1 sound-level meters (ANSI S1.4-1983[R2006]).



Source: AECOM 2022

**Exhibit 3.13-2. Noise Monitoring Locations Map**

### Existing Noise Sources

The primary noise sources in the project area were vehicle traffic, agricultural activities, and miscellaneous sources within rural residential communities (e.g., people talking, dogs barking, and operation of landscaping equipment).

### **Roadways**

Existing vehicle traffic noise levels in the vicinity of the project site were modeled using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108)<sup>10</sup> using traffic data from the Placer County Traffic Count Website<sup>11</sup> (Placer County 2018). The traffic noise model was calibrated based on the noise measurement at ST-01 site. Traffic volumes were concurrently counted during the measurement and were used for the model calibration. Calibration results are shown in Appendix E.

Table 3.13-10 summarizes the modeled traffic noise levels, provides noise levels at 50 feet from the centerline of the Baseline Road in the vicinity of the project site, and lists distances from the roadway centerlines to the 60 dB, 65 dB, and 70 dB  $L_{dn}$  traffic noise contours. These traffic noise modeling results are based on existing average daily traffic (ADT) volumes. As shown in Table 3.13-10, the location of the 60 dB  $L_{dn}$  contour is 924 feet and the location of the 70 dB  $L_{dn}$  contour is 92 feet from the centerline of the modeled roadway. The extent to which noise-sensitive uses in the area are affected by existing traffic noise depends on their respective proximity to the modeled roadway and their individual sensitivity to noise.

**Table 3.13-10. Summary of Modeled Levels of Existing Traffic Noise**

Roadway	Segment		$L_{dn}$ (dB) 50 Feet	Distance (feet) from Roadway Centerline to $L_{dn}$ Contour		
	From	To		70 dB	65 dB	60 dB
Baseline Road	Watt Avenue	East and West of Watt Avenue	72.7	92	292	924
Country Acres Lane	Baseline Road	End of Country Acres Lane	45 dB, $L_{eq}$ *	--	--	--
South Brewer Road	Baseline Road	Phillip Road	56 dB, $L_{eq}$ *	--	--	--

Notes: dB = weighted decibels; FHWA = Federal Highway Administration;  $L_{dn}$  = day-night average noise level;  $L_{eq}$  = Equivalent Sound Level.

\* Noise levels along Country Acres Lane and South Brewer Road were measured at 50 feet from the roadways, 45 dB and 56 dB, respectively, as shown in Table 3.13-9.

Source: FHWA 1978, Data modeled by AECOM in 2022

<sup>10</sup> The FHWA model is based on CALVENO reference noise factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receptor, and ground attenuation factors.

<sup>11</sup> [https://gis-placercounty.opendata.arcgis.com/datasets/26ad0e4c5c154698b80e25b98a69a093\\_0/explore?location=39.014037%2C-120.742407%2C10.37](https://gis-placercounty.opendata.arcgis.com/datasets/26ad0e4c5c154698b80e25b98a69a093_0/explore?location=39.014037%2C-120.742407%2C10.37)

### 3.13.3 Environmental Impacts and Mitigation Measures

#### *Methods and Assumptions*

Data included in Chapter 2 of this EIR, “Project Description,” and obtained during on-site noise monitoring was used to determine potential locations of sensitive receptors and potential noise- and vibration-generating land activities associated with the project. Noise-sensitive land uses and major noise sources near the project site were identified based on existing documentation (e.g., County’s General Plan, aerial images) and site reconnaissance data.

#### Construction Noise

To assess the impacts of short-term construction noise on sensitive receptors, the sensitive receptors and their relative exposure to the impacts were identified, along with construction equipment that would be used, noise levels of construction equipment that would be used, and the resulting noise levels experienced by sensitive receptors. Construction noise was predicted by using the Federal Highway Construction Noise Model (RCNM, FHWA 2006). The emission noise levels referenced, and the usage factors were based on the Federal Highway Administration Roadway Construction Noise Model.

#### Construction Vibration

Construction vibration was estimated using Federal Transit Noise and Vibration Impact Assessment methodology (FTA 2018). Groundborne vibration impacts were qualitatively assessed based on existing documentation (e.g., vibration levels produced by construction equipment) and the distance of sensitive receptors from the given source. The analysis factors in the vibration levels of the construction equipment that would be used and the resulting vibration levels experienced by sensitive receptors.

#### Construction and Operational Traffic Noise

Traffic noise modeling was conducted based on project-related construction traffic volumes. Traffic noise modeling for project-related operational traffic volumes were not conducted as the project would generate very low traffic volumes during operation. Project construction and operational traffic volumes are discussed in more detail in Section 3.17, “Transportation.” The FHWA Highway Traffic Noise Prediction Model (FHWA RD 77-108) was used to calculate traffic noise levels along affected roadways, based on the trip distribution estimates, as discussed in Section 3.17, “Transportation.” The project’s contribution to the existing traffic noise levels along area roadways was determined by comparing the predicted noise levels at a reference distance of 50 feet from the roadway centerline for the baseline and cumulative conditions with and without project-generated traffic.

### Operational Stationary Noise

Potential noise impacts from long-term (operation-related) stationary sources were assessed based on existing documentation (e.g., equipment noise levels) and site reconnaissance data. This analysis also included an evaluation of noise-generating uses that could affect noise-sensitive receptors near the proposed project.

Potential long-term (operational) noise impacts from stationary non-transportation sources and other area noise sources (e.g., battery energy storage facility, inverter, transformer) were assessed based on existing documentation (equipment noise levels) and site reconnaissance data.

### *Thresholds of Significance*

Based on Appendix G of the CEQA Guidelines, a noise and vibration impact is considered significant if the implementation of the proposed project under consideration would result in any of the following:

- 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 (*Policies 9.A.2, 9.A.5, 9.A.11, 9.A.12 and Policy 9.B.3 for Non-Transportation Noise Sources, and Policies 9.A.6 and 9.A.9 for Transportation Noise Sources*), (Table 3.13-3 for Allowable Noise Exposure for Non-Transportation Noise Sources and Table 3.13-5 for Allowable Noise Exposure for Transportation Noise Sources, and Section 9.36.060 of the Placer County Code);
- Generation of excessive groundborne vibration or groundborne noise levels (Vibration impacts would be significant if vibration levels would exceed the Caltrans-recommended a threshold of 0.2 in/sec PPV with respect to the prevention of structural damage or FTA's maximum-acceptable vibration standard of 80 VdB with respect to human response (i.e., annoyance) at nearby vibration-sensitive land uses, such as residences);
- 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, exposure for people residing or working in the project to excessive noise levels (*Significant if the project would expose people to excessive noise levels from an airport or private airstrip, or if located within the 60 dB L<sub>dn</sub>/CNEL contour of any airport*).

### *Issues Not Discussed Further*

- **Excessive Noise from an Airport**—Future development would not expose people to excessive noise levels from an airport or private airstrip. Because the project site is not located in an area exposed to excessive aircraft-generated noise levels (e.g., not within the 60 dB L<sub>dn</sub>/CNEL contour of any airport) and

because the project would not affect airport traffic or noise, there would be no impact related to aircraft noise, and therefore this issue is not discussed further in this EIR.

### *Impact Analysis*

#### **Impact 3.13-1. Temporary, short-term exposure of sensitive receptors to construction noise.**

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The project would generate short-term construction noise that could be perceptible to nearby noise-sensitive receptors. In addition, if construction activities were to occur during more noise-sensitive hours, construction source noise levels could also result in annoyance and/or sleep disruption to occupants of existing and proposed noise-sensitive land uses and create a substantial temporary increase in ambient noise levels. This impact could be **potentially significant**.

The project will produce temporary noise during construction. Residences located adjacent to areas of construction activity could be exposed to construction noise from on-site construction activity and off-site construction activities, such as movement of construction equipment along area roadways. Existing overhead distribution lines adjacent to and within the project site may be used to provide energy to project infrastructure and personnel during the construction and operation of the project. Additional poles and lines may be required to extend service to proposed project components such as the project generation substation or 230 kiloVolt (kV) switching station. Some existing distribution lines may need to be removed and/or placed underground. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise-sensitive land uses, or when construction lasts for an extended period of time.

The proposed project would include the installation of solar panels, energy storage building, a new substation, and interconnection lines to the existing SMUD transmission system. The duration of construction would be approximately two years for all phases. Major noise-generating construction activities under the proposed project could include site grading and excavation, installation of infrastructure, and paving. The highest construction noise levels are typically generated during site grading, and excavation while relatively lower noise levels would be expected for installation of infrastructure, paving, and landscaping.

Construction equipment operates in two modes, mobile and stationary. Mobile equipment sources move around a construction site performing tasks in a recurring manner (e.g., loaders, graders, dozers). Stationary equipment operates in a given location to perform continuous or periodic operations. Thus, it is necessary to determine the location of stationary sources during specific phases, or the effective acoustical center of operations for mobile equipment during various phases of the construction process. Operational characteristics of heavy construction equipment are additionally

typified by short periods of full-power operation followed by extended periods of operation at lower power, idling, or powered-off conditions.

Without feasible noise control, large pieces of earth-moving equipment, such as graders, excavators, and dozers, generate maximum noise levels of 85 dBA to 90 dBA at a distance of 50 feet. Project-related construction noise is summarized in Table 3.13-11.

Noise from localized point sources (such as construction sites) typically decreases by 6 dB to 7.5 dB with each doubling of distance from source to receptor. The existing intervening ground type at the project area is currently soft and attenuates noise due to absorption; therefore, an attenuation rate of 7.5 dB per doubling of distance was assumed and accounted for in construction noise level predictions. The nearest residences to the project boundaries are located approximately 750 feet to the southeast, 950 feet to the northeast, and 1,600 feet to the west of the project site. The resulting unmitigated construction noise at the nearest noise-sensitive uses would be 51 to 59 dB,  $L_{eq}$ , during the peak construction period.

**Table 3.13-11. Construction Phases, Equipment, and Calculated Noise Levels, dB**

Phase	Anticipated Type of Equipment that May Be Utilized by the Contractor*	Noise Level at 50 Feet	
		$L_{max}$ , dBA	$L_{eq}$ , dBA
Solar Facility Construction	Dump Truck	76	72
	Backhoe	78	74
	Dozer	82	78
	Excavator	81	77
	Tractor	84	80
	Man Lift	75	68
	Generator	81	78
	Front End Loader	79	75
	Vacuum Street Sweeper	82	72
	Roller	80	73
	Vacuum Street Sweeper	82	72
	Excavator	81	77
	Pickup Truck	75	71
	Dump Truck	76	72
	Welder / Torch	74	70
Max. and Combined Noise Level		84	87
Storage Building Construction	Crane	81	73
	Backhoe	78	74
	Man Lift	75	68
	Dump Truck	76	72
	Jackhammer	89	82
	Roller	80	73
	Compressor (air)	78	74
	Generator	81	78



Phase	Anticipated Type of Equipment that May Be Utilized by the Contractor*	Noise Level at 50 Feet	
		L <sub>max</sub> , dBA	L <sub>eq</sub> , dBA
	Vibrating Hopper	87	84
	Pumps	81	78
	Max. and Combined Noise Level	89	88
Substation Construction	Generator	81	78
	Dozer	82	78
	Man Lift	75	68
	Backhoe	78	74
	Excavator	81	77
	Compactor (ground)	83	76
	Jackhammer	89	82
	Dump Truck	76	72
	Welder / Torch	74	70
	Excavator	81	77
	Auger Drill Rig	84	77
	Concrete Mixer Truck	79	75
	Pickup Truck	75	71
	Max. and Combined Noise Level	89	88
Switchyard Construction	Crane	81	73
	Generator	81	78
	Backhoe	78	74
	Man Lift	75	68
	Backhoe	78	74
	Excavator	81	77
	Compactor (ground)	83	76
	Jackhammer	89	82
	Dump Truck	76	72
	Welder / Torch	74	70
	Excavator	81	77
	Auger Drill Rig	84	77
	Pickup Truck	75	71
	Max. and Combined Noise Level	89	87

Notes: dB = A-weighted decibels; L<sub>eq</sub> = the equivalent hourly average noise; L<sub>max</sub> = maximum noise level. In certain cases above, multiple pieces of equipment are listed for the purpose of calculating the combined noise level of construction equipment use.

Source: Data modeled by AECOM in 2022.

As stated above under “County Noise Ordinance”, Section 9.36.030 A.7 of the Ordinance provides an exception for construction noise so long as all construction equipment is “fitted with factory-installed muffling devices and that all construction equipment [is] maintained in good working order.” Allowable time periods for this construction noise are as follows: 6 a.m. to 8 p.m., Monday through Friday; and 8 a.m. to 8 p.m., Saturdays and Sundays. However, Planning Commission revisions to the Placer County Board of Supervisors Minute Order 90-08 indicate the following:



“Construction noise emanating from any construction activities for which a Grading or Building Permit is required is prohibited on Sundays and Federal Holidays, and shall only occur:

- Monday through Friday, 6:00 a.m. to 8:00 p.m. (during daylight savings)
- Monday through Friday, 7:00 a.m. to 8:00 p.m. (during standard time)
- Saturdays, 8:00 a.m. to 6:00 p.m.

In addition, temporary signs shall be located throughout the project, as determined by the Development Review Committee, at key intersections depicting the above construction hour limitations.”

Project-related construction noise would cause a significant increase in noise levels compared with ambient conditions. As shown in Table 3.13-9, measured ambient noise levels near the noise-sensitive uses in the project area (sites represented by LT-1, LT-2, ST-2, and ST-3) range between 43 dB to 56 dB,  $L_{eq}$ . Project-related construction noise levels of 51 dB to 59 dB,  $L_{eq}$  would temporarily exceed the ambient noise levels and would conflict with Placer County’s General Plan guidance for ambient noise levels affecting “other residential” properties (50 dBA). This impact is considered **potentially significant**.

#### *Mitigation Measures*

##### **Mitigation Measure 3.13-1. Implement Noise-Reducing Construction Practices, Prepare and Implement a Noise Control Plan, and Monitor and Record Construction Noise near Sensitive Receptors.**

The project applicant(s) and primary contractors for engineering design and construction of all project phases shall employ noise-reducing construction practices and ensure that the following requirements are implemented at each worksite in any year of project construction to avoid and minimize construction noise effects on sensitive receptors. Measures that shall be used to limit noise shall include the measures listed below:

- Noise-generating construction operations shall be limited to the hours between 6 a.m. and 8 p.m. Monday through Friday, and between 8 a.m. and 6 p.m. on Saturdays.
- Construction equipment and equipment staging areas that could produce noise perceptible at the adjacent property boundary shall be located as far as feasible from nearby noise-sensitive land uses.
- All construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers’ recommendations. Equipment engine shrouds shall be closed during equipment operation.

- All motorized construction equipment shall be shut down when not in use to prevent idling.
- Individual operations and techniques shall be replaced with available quieter procedures and equipment (e.g., using welding instead of riveting, mixing concrete off-site instead of on-site).
- Noise-reducing enclosures shall be used around stationary noise-generating equipment (e.g., compressors and generators).
- Construction-related traffic shall be limited along roadways within residential uses such as South Brewer Road and Phillip Road as discussed in Mitigation Measure 3.17-1 Prepare and Implement Traffic Control Plan and Mitigation Measure 3.17-2 Prepare and Implement a Construction Transportation Plan.
- Written notification of construction activities shall be provided to all noise-sensitive receptors located within 700 feet of construction activities. The notification shall include anticipated dates and hours during which construction activities are anticipated to occur and contact information, including a daytime telephone number, for the project representative to be contacted in the event that noise levels are deemed excessive. Recommendations to assist noise-sensitive land uses in reducing interior noise levels (e.g., closing windows and doors) shall also be included in the notification.
- Acoustic barriers (e.g., lead curtains, sound barriers) shall be used, particularly during site grading and excavation activities, when construction equipment operates along the project site boundaries within 700 feet of existing residential uses, to reduce construction-generated noise levels at affected noise-sensitive land uses. The barriers shall be designed to obstruct the line of sight between the noise-sensitive land use and on-site construction equipment.

### Significance after Mitigation

With the implementation of Mitigation Measure 3.12-1, construction would be limited to daytime hours and impacts from temporary, short-term exposure of sensitive receptors to increased equipment noise from the project would be reduced. Most of the construction equipment activity would occur in locations away from the edges of the project site, closer to the interior of the site, and at a relatively greater distance from adjacent properties, which would attenuate noise levels by at least 5 dB based on the distance, and would result in construction noise levels of 46 dB to 54 dB,  $L_{eq}$ . Properly maintaining the equipment and equipping with noise-reduction intake and exhaust mufflers and engine shrouds; shutting down all motorized equipment when not in use to prevent idling; using available quieter procedures and equipment (e.g., using welding instead of riveting, mixing concrete off-site instead of on-site); and using noise-reducing

enclosures around stationary noise-generating equipment (e.g., compressors and generators) could further reduce project construction noise levels by at least 5 dB, resulting in construction noise levels of 41 dB to 49 dB. When installed properly, acoustic barriers can reduce construction noise levels by approximately 8–10 dB to approximately of 37 dB to 45 dB,  $L_{eq}$  during peak construction periods, as experienced at the closest noise-sensitive uses in the vicinity of the project site (EPA 1971). These levels of construction noise would not exceed the County's threshold of 50 dB shown in Table 3.13-3 for other residential uses and would not exceed the ambient noise levels in the project area. Therefore, this impact is considered **less than significant** with mitigation measures implemented.

### **Impact 3.13-2. Temporary, short-term exposure of sensitive receptors to increased traffic noise levels from project construction.**

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The proposed project would result in temporary increases in roadway traffic noise associated with project construction. Construction-generated traffic volume from movement of construction equipment and materials could expose sensitive receptors to noise levels along on- and off-site roadways that would not exceed the applicable noise standards and/or result in a substantial increase in ambient noise levels. This impact would be **less than significant**.

During the construction of the proposed project, there would be a temporary increase in construction-related traffic from delivery trucks and construction workers traveling to and from the project sites. The number of workers would vary over the life of the construction activity. The maximum number of workers who would be commuting to the project area at any given time is anticipated to be approximately 650 workers per day and up to 50 vendors and haul trucks per day during the peak construction period. As shown in Table 3.13-12, construction-related vehicular traffic is estimated to result in a noise level of 69 dB at 50 feet from the roadway centerline; noise from trucking activity would be intermittent and generally consistent with ambient noise levels. As shown in Table 3.13-12, construction-related traffic noise would cause an increase of up to 5 dB over existing traffic noise only at the residences along Phillip Road. This level of increase is a perceptible increase above the existing noise condition. However, the resulting traffic noise level of 48.1 dB is below the County's threshold of 60 dB. Also, this level of traffic noise would not cause any disturbance at nighttime. Furthermore, Placer County Code Noise Ordinance (Article 9.36 NOISE, 9.36.030 Exemptions), exempts sound or noise emanating from construction (e.g., construction, alteration or repair activities) between the hours of 6 a.m. and 8 p.m. Monday through Friday, and between the hours of 8 a.m. and 8 p.m. Saturday and Sunday provided, however, that all construction equipment shall be fitted with factory-installed muffling devices and that all construction equipment shall be maintained in good working order. The project will comply with County's Noise Ordinance and Noise Thresholds. Therefore, this impact is **less than significant** with respect to existing traffic noise in the project area

**Table 3.13-12. Summary of Modeled Levels of Existing and Construction Traffic Noise**

Roadway Segment	From	To	Existing Traffic Noise Leq (dB)	Construction Workers Traffic Noise Leq (dB)	Existing Plus Construction Workers' Traffic Noise Leq (dB)	Increase in Construction Workers' Traffic Noise Leq (dB)	Construction Truck Traffic Noise Leq (dB)	Existing Plus Construction Truck Traffic Noise Leq (dB)	Increase in Construction Truck Traffic Noise Leq (dB)
Baseline Road (at 50 feet)	Watt Avenue	West of Watt Avenue	72.9	59.6	73.1	0.2	62.9	73.3	0.4
South Brewer Road (at 50 feet)	Baseline Road	Phillip Road	56	54.2	58.2	2.2	58.1	60.2	4.2
Phillip Road (at 300 feet)	South Brewer Road	Project Site	43	40.2	44.8	1.8	58.1	48.1	5.1

Notes: dB = weighted decibels; L<sub>dn</sub> = day-night average noise level; L<sub>eq</sub> = the equivalent hourly average noise.

Source: Data modeled by AECOM in 2022

### *Mitigation Measures*

No Mitigation is required.

### **Impact 3.13-3. Temporary, short-term exposure of sensitive receptors to potential groundborne noise and vibration from project construction.**

Project construction would not expose sensitive receptors to groundborne noise and vibration levels that exceed applicable standards that would not cause human disturbance or damage structures. This impact is considered less than significant.

Construction activities have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used, the location of construction activities relative to sensitive receptors, and the operations/activities involved. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The type and density of soil can also affect the transmission of energy. Table 3.13-13 provides vibration levels for typical construction equipment.

**Table 3.13-13. Typical Vibration Levels for Construction Equipment**

Equipment		PPV at 25 Feet (in/sec)	Approximate Lv (VdB) at 25 Feet
Pile Driver (Impact)	Upper Range	1.518	112
	Typical	0.644	104
Pile Driver (Sonic)	Upper Range	0.734	105
	Typical	0.170	93
Vibratory Roller		0.21	94
Large Bulldozer/Hoe Ram		0.089	87
Drill		0.089	87
Truck		0.076	86
Jackhammer		0.035	79
Small Bulldozer		0.003	58
Significance Threshold		0.2/0.08 1	80

Notes:

<sup>1</sup> For normal residential buildings and buildings more susceptible to structural damage, respectively.

in/sec = inches per second

Lv = the velocity level in decibels referenced to 1 micro inch per second and based on the root-mean-square velocity amplitude

PPV = peak particle velocity

VdB = Vibration Decibel, logarithmic velocity unit.

Sources: Caltrans 2020, FTA 2018

The movement and operation of the project's construction equipment may generate temporary ground-borne vibration. The California Department of Transportation (Caltrans) has developed criteria that are commonly applied as an industry standard to determine the impacts of project vibration relative to human annoyance and structural damage. Caltrans determines that the vibration level of 80 VdB (0.04 in/sec PPV) would be distinctly perceptible. Therefore, remaining less than 80 VdB at residential uses would avoid human annoyance. Also, Caltrans recommends staying below 0.2 in/sec PPV at residential structures to avoid structural damage (Caltrans 2020).

Loaded, heavy duty trucks and bulldozers would create the most vibration. The vibration level associated with the use of a large bulldozer is 0.089 in/sec PPV (87 VdB) at 25 feet (FTA 2018). The vibration-sensitive uses nearest to the construction sites are the residential uses are approximately 750 feet away from the closest edge of the project site. At these distances, the most substantial vibration generated by project construction equipment would attenuate to 43 VdB and 0.001 in/sec PPV, which would be less than the criteria of 80 VdB and 0.2 in/sec PPV recommended by Caltrans.

Vibratory rollers are frequently used for backfill and paving work. As shown in Table 3.13-13, vibratory rollers have a higher reference value of 0.21 in/sec PPV at 25 feet (Caltrans 2020). The resulting vibration level from the vibratory roller would be 50 VdB and 0.001 in/sec PPV at a distance of 750 feet, which would be below the 0.2 in/sec PPV recommended by Caltrans for structural damage, and also below the criteria of 80 VdB for annoyance.

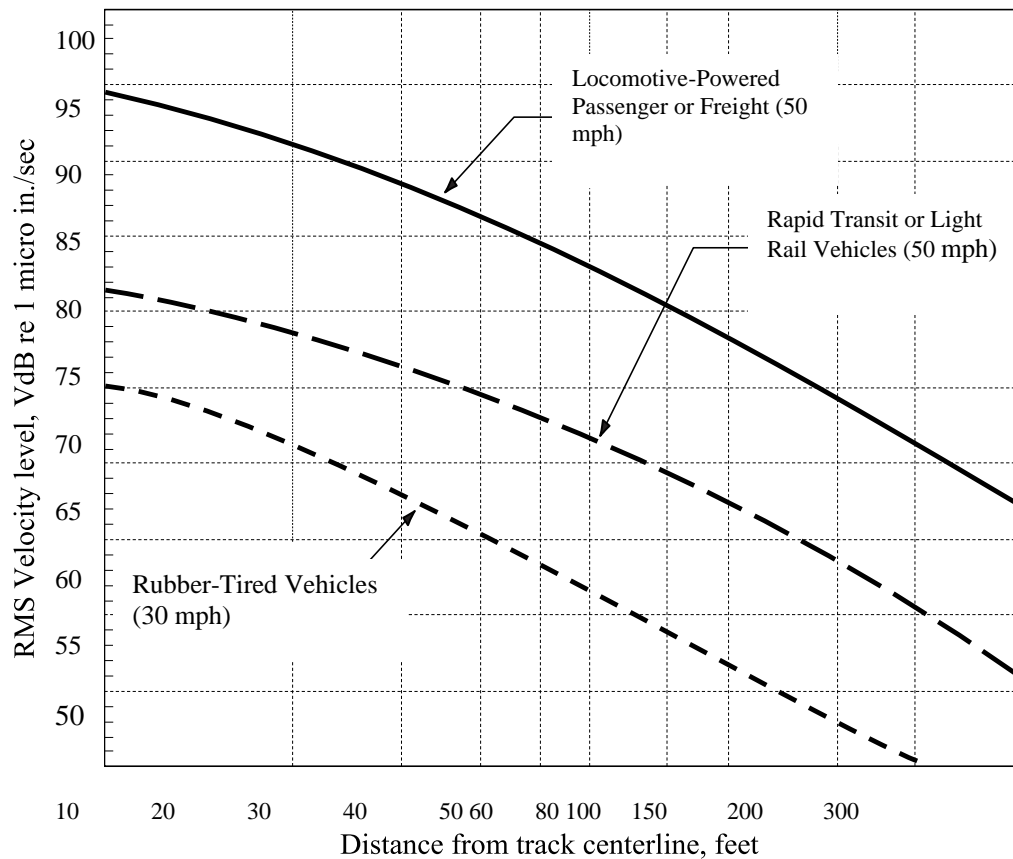
Short-term construction of the project would not exceed the threshold for structural damage, and would not expose persons to or generate excessive ground-borne noise or vibration. For these reasons, this impact would be **less than significant**.

Long-term project operation would not include any major new sources of groundborne noise or vibration, including the pump station facilities. Maintenance vehicles and water haul trucks would be restricted to existing public roadways, and the limited number of trips generated would not have the potential to substantially increase vibration levels at adjacent land uses.

With respect to vibration from loaded construction trucks, based on FTA data, rubberized vehicles operating at 30 miles per hour (mph) would generate groundborne vibration of approximately (66 VdB) at a distance of 50 feet from the roadway's centerline as shown in Exhibit 3.13-3. As intuitively expected, higher speeds result in higher vibration levels. Doubling speed usually results in a vibration level increase of 4 to 6 decibels (FTA 2018). The trucks' speed along the roadways near the project site would be lower than 35 mph and would result in 70 VdB or lower vibration levels at the nearest sensitive uses, which is below the criteria of 80 VdB for annoyance; therefore, this impact would be **less than significant**.

#### *Mitigation Measures*

No Mitigation is required.



Source: FTA 2018

**Exhibit 3.13-3. Generalized Ground-Surface Vibration Curves**

#### **Impact 3.13-4. Permanent, long-term exposure of sensitive receptors to increased noise level from project operation.**

Future development would not expose sensitive receptors to noise levels that exceed local standards. This impact is considered **less than significant**.

As described in Section 2, Project Description, the project would include construction and operation of a PV solar power and battery storage facility and interconnection facilities, including a substation, switch station, and interconnection lines, that would provide a new power production capacity of up to 344 megawatt (MW) delivered at the point of interconnection with the grid managed by SMUD. The project site would generally comprise PV solar modules, foundation piles, racking, direct current (DC) collection, alternative current (AC) collection, fencing, roads, inverters, medium voltage transformers, an interconnection line between the generation substation and switch station, battery storage equipment, and interconnection lines to the existing SMUD transmission system. The transformer, the inverter, and the battery storage facility would be the dominant noise sources within the project site. Reference noise levels for these sources are shown in Table 3.13-14.

**Table 3.13-14. Operational Equipment, and Calculated Noise Levels, dB**

Equipment	Distance (feet)			
	33	75	50	750
	Leq, dB			
BESS <sup>1</sup>	64.7	57.6	61.1	37.6
Inverter <sup>2</sup>	66.0	58.9	62.4	38.9
Transformer <sup>3</sup>	67.4	60.3	56.7	40.3
Combined	70.9	63.8	65.4	43.8

Notes: dB = A-weighted decibels; Leq = the equivalent hourly average noise.

1- Battery Energy Storage System (BESS), reference level obtained from SMA Solar Technology,

2- Reference level obtained from INGECON SUN,

3- Reference level measured by AECOM at Rancho Seco Power Plan Facility.

Source: Data modeled by AECOM in 2022.

Conservatively, assuming all the project operational noise generating equipment operates at one location, the combined noise levels would be 65.4 dB, Leq at 50 feet. As shown in Table 3.13-14, the resulting noise level from all three equipment at the nearest sensitive receptor (at least 750 feet away) would be 44 dB. This noise level would not conflict with Placer County's policy of 60 dBA Ldn for exterior noise environment for non-transportation noise sources (Table 3.13-3). Implementing the project would not require any additional stationary equipment that would generate noise that could be perceptible at a sensitive receptor. Thus, with respect to long-term increases in noise levels from stationary sources, the impact would be **less than significant**.

With respect to maintenance activities during project operation, as described in Section 2, Project Description, the project would operate seven days per week; one regular on-site employee may be required, and some personnel may visit the site to monitor, maintain, and if needed, repair, the system. It is estimated that solar panels would be washed once per year in case of excessive soiling. The project may also require occasional repair or replacement of project components. Inverters may require replacement every 10 years, while PV panels generally last 30 to 40 years. Thus, infrastructure replacement is expected to be rare. Other operational activities would include BESS equipment maintenance interconnection equipment maintenance, production reporting, equipment inspecting, and testing, and similar activities. General site maintenance would include vegetation management, road maintenance, and general upkeep of the facility.

Pickup trucks, water truck and flatbeds, forklifts, and loaders may be used for normal maintenance. Large, heavy-haul, transport equipment would be occasionally used to repair or replace equipment. Predicted noise levels for project maintenance activities are shown in Table 3.13-15. As shown, the combined noise levels from the maintenance activities at the nearest noise-sensitive uses in the project area would be 52 dB, Leq, which would not conflict with Placer County's policy of 60 dBA Ldn for



exterior noise environment for non-transportation noise sources. Therefore, this impact is **less than significant**.

**Table 3.13-15. Project Operational Maintenance, and Calculated Noise Levels, dB**

<b>Location</b>	<b>Distance to Nearest Receiver in feet</b>	<b>Combined Predicted Noise Level (L<sub>eq</sub> dBA)</b>
Project Maintenance	50	82
Nearest Residence (Southeast)	750	52

Notes: dB = A-weighted decibels; L<sub>eq</sub> = the equivalent hourly average noise.  
Source: Data modeled by AECOM in 2022.

#### *Mitigation Measures*

No Mitigation is required.

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### 3.14 Population and Housing

This section discusses potential impacts on population and housing related to the project. This section describes the regulatory and environmental setting, the criteria used to evaluate the potential for significant impacts, the methods used in evaluating these impacts, and the results of the impact assessment.

#### 3.14.1 Regulatory Setting

The study area evaluated in this section conservatively includes all incorporated cities within Placer County and each county that shares a border with Placer County, including Sacramento, El Dorado, Sutter, and Yolo counties, as these areas are all within 60 miles of the project site and could potentially provide workforce for the project.

##### *Federal*

No federal statutes, regulations, or policies govern population and housing on the project site.

##### *State*

No state statutes, regulations, plans, or policies govern population and housing on the project site.

##### *Local*

The following program is taken from the Placer County General Plan Housing Element (2021), and is applicable to this project.

**Program HE-12: Construction Labor Force** - The County shall collaborate with local community colleges, trade school programs, and contractors to promote construction trade training programs (e.g., Sierra College Bootcamp). The County shall also engage with the construction community to attract workers beyond the traditional labor force (e.g., students, veterans, formerly incarcerated individuals, women).

#### 3.14.2 Environmental Setting

##### *Population*

The project site is located in unincorporated Placer County, immediately west of the city of Roseville, 2.5 miles east of the Sutter County Line and 3.5 miles north of the Sacramento County line. The mean commute time in Placer County is 27.4 minutes (Index Mundi 2022). Given the location of the project being in close proximity of many neighborhoods and incorporated cities, this analysis will consider the population of all incorporated cities within the counties adjacent to Placer County and in close proximity to the project site. The cities within Placer County that will be considered are as follows:

- Auburn (26 miles northeast), Colfax (42 miles northeast), Lincoln (16 miles northeast), Loomis (18 miles east), Rocklin (15 miles east), and Roseville (immediately east)

The following towns and cities that are located in counties other than Placer County, but are still within 75 miles of the project site, are as follows:

- Sacramento County: Citrus Heights (17 miles southeast), Elk Grove (38 miles south), Folsom (25 miles southeast), Galt (55 miles south), Isleton (60 miles south), Rancho Cordova (27 miles south), Sacramento (23 miles south)
- Sutter County: Live Oak (42 miles north), Yuba City (34 miles north)
- Yolo County: Davis (34 miles southwest), West Sacramento (25 miles south), Winters (47 miles southwest), Woodland (28 miles southwest)
- El Dorado County: Placerville (51 miles east)

**Table 3.14-1. Historical Population Growth, 2000-2020**

County/City	2000	2005	2010	2015	2020
<b>Placer County</b>	248,399	307,710	348,432	371,234	399,015
Auburn	12,462	12,809	13,330	13,991	14,372
Colfax	1,520	1,813	1,963	2,069	2,154
Lincoln	11,205	28,083	42,819	46,137	48,584
Loomis	6,260	6,166	6,430	6,635	6,787
Rocklin	36,330	51,206	56,974	60,550	69,702
Roseville	79,921	104,105	118,788	129,730	143,493
<b>Sacramento County</b>	1,223,499	1,350,523	1,418,788	1,481,641	1,553,157
Citrus Heights	85,071	85,153	83,301	85,659	87,788
Elk Grove	0	125,703	153,015	164,606	176,036
Folsom	51,884	66,362	72,203	75,340	81,106
Galt	19,472	22,485	23,647	24,688	26,006
Isleton	828	811	804	810	832
Rancho Cordova	0	55,476	64,776	71,059	78,333
Sacramento	407,018	442,662	466,488	485,119	513,626
<b>El Dorado County</b>	156,299	171,739	10,389	182,530	193,519
Placerville	9,610	10,210	21,403	10,509	10,964
<b>Sutter County</b>	78,930	87,097	94,737	96,051	101,339
Live Oak	6,229	6,603	8,392	8,453	9,232
Yuba City	36,758	57,975	64,925	66,904	70,901
<b>Yolo County</b>	168,660	186,530	200,849	210,785	221,276
Davis	60,308	63,889	65,622	66,787	68,915

County/City	2000	2005	2010	2015	2020
West Sacramento	31,615	40,289	48,744	51,535	54,208
Winters	6,125	6,753	6,624	6,950	7,257
Woodland	49,155	52,474	55,468	58,110	60,809

a) CDF 2012; b) CDF 2020; c) CDF 2021

## Housing

Table 3.14-2 outlines housing data for Placer, Sacramento, El Dorado, Sutter, and Yolo counties, along with the cities within these counties. Vacancy rates for these jurisdictions ranged from 2.7% (Davis) to 22.9% (Isleton). In 2021, Placer County had an estimated 171,735 housing units with a vacancy rate of 11.8%; the City of Roseville had an estimated 56,935 housing units with a vacancy rate of 3.8%; and the City of Rocklin had an estimated 26,631 housing units with a vacancy rate of 4.8%.

**Table 3.14-2. 2021 Housing Data Estimates**

County/City	Total Housing Units	Occupied Housing Units	Vacant Housing Units	Vacancy Rate
<b>Placer County</b>	171,735	151,405	20,330	11.8%
Auburn	6,389	6,132	257	4.0%
Colfax	939	894	45	4.8%
Lincoln	19,652	18,757	895	4.6%
Loomis	2,560	2,450	110	4.3%
Rocklin	26,631	25,360	1,271	4.8%
Roseville	56,935	54,768	2,167	3.8%
<b>Sacramento County</b>	583,631	552,252	31,379	5.4%
Citrus Heights	35,176	33,542	1,634	4.6%
Elk Grove	56,107	54,329	1,778	3.2%
Folsom	29,809	28,852	957	3.2%
Galt	8,213	7,810	403	4.9%
Isleton	433	334	99	22.9%
Rancho Cordova	28,827	28,090	737	2.6%
Sacramento	200,686	188,862	11,824	5.9%
<b>El Dorado County</b>	93,146	76,578	16,568	17.8%
Placerville	4,748	4,430	318	6.7%
<b>Sutter County</b>	34,631	32,303	2,328	6.7%
Live Oak	2,833	2,594	239	8.4%
Yuba City	23,848	22,555	1,293	5.4%
<b>Yolo County</b>	79,472	76,555	2,917	3.7%
Davis	27,471	26,732	739	2.7%
West Sacramento	20,369	19,428	941	4.6%
Winters	2,651	2,530	121	4.6%

County/City	Total Housing Units	Occupied Housing Units	Vacant Housing Units	Vacancy Rate
Woodland	21,483	20,854	629	2.9%

Source: CDF 2020

The number of households is expected to increase by 37% in Placer County over the period from 2016 to 2040. In the cities of Roseville and Rocklin, the number of households are expected to increase by 39% and 38% respectively in the 24-year time period (SACOG 2019).

#### *Temporary Housing*

The cities of Roseville, Rocklin, and Sacramento have numerous full service hotels and motels. Numerous tent and RV campgrounds are available for temporary housing accommodations.

### 3.14.3 Environmental Impacts and Mitigation Measures

#### *Methods and Assumptions*

Potential impacts associated with population and housing is evaluated based on the potential for the project activities to induce substantial unplanned population growth, either directly or indirectly, and the potential for the project activities to displace existing people or housing. The evaluation of these impacts uses relevant population and housing data from the project's surrounding areas to support the answers to the following checklist questions.

#### *Thresholds of Significance*

Based on Appendix G of the State CEQA Guidelines, the project would result in a potentially significant impact related to population and housing if it would:

- Induce substantial unplanned 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);
- Displace substantial numbers of existing people or housing, necessitating the construction or replacement of housing elsewhere.

#### *Impact Analysis*

**Impact 3.14-1. 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)?**

The proposed project would not include the construction of any new homes or businesses, and thus, would not directly induce population growth. The project would

not indirectly induce population growth as a result of the construction of access roads and internal roads, or from other project infrastructure within the project site because these features would not be accessible to the public.

Construction of the project is estimated to employ 177 on-site personnel on average, with a maximum of approximately 650 personnel during the 18 to 24 month construction period. The duration of construction requiring peak workforce is expected to be approximately 17 months out of the 18 to 24 month construction period.

Due to the substantial population of the areas surrounding the project site, it is anticipated that the workforce would be primarily hired from the immediately surrounding areas. Once operational, the project would infrequently require a small number of on-site personnel. One regular on-site employee may be required for the day-to-day operation of the facility, and some additional personnel may be required on an as-needed basis to monitor, maintain, and, if needed, repair the system. Panel washing is estimated to occur once a year, requiring a limited number of staff for a short amount of time.

The California Employment Development Department estimated that the annual average unemployment rate in Placer County in 2021 was approximately 3.3 percent compared to the statewide unemployment rate of 5 percent. The unemployment rate in the Sacramento-Roseville-Arden Arcade metropolitan statistic area (MSA), a key area from which this project's construction workers will commute from, was 4.4 percent in December 2021. In December 2021, the construction industry employed an average of 76,700 individuals in El Dorado, Placer, Sacramento, and Yolo Counties, representing a 4.5% increase from the year prior (EDD 2022). The project site is approximately 2.5 miles from the Sutter county line, so it is reasonable that some construction personnel may commute from towns, cities, or unincorporated parts of this county. Industry and unemployment data suggests that the number of jobs created by the project's construction and operation could be served by the existing labor pool in Placer County.

Due to the abundance of available construction staff within the incorporated cities near the project site, workers would be expected to commute from their homes in nearby communities, rather than relocate. Therefore, construction and operation activities associated with the project are not expected to require substantial numbers of new housing units, the construction of which could cause environmental impacts. Additionally, even if construction workers working on this project were to relocate to be closer to the project site, the County's housing market would have the capacity to absorb the increase in residents without requiring the construction of new housing units. California Department of Finance housing estimates from 2021 indicated that the County had approximately 20,030 vacant housing units.

In summary, the project is not expected to induce population growth directly or indirectly. While this project is expected to increase the availability of electricity capacity and storage, it will provide renewable energy to existing communities, and is not expected to induce substantial population growth. Therefore, the energy produced by

this project would not directly or indirectly encourage new development or induce population growth and **no impact** would occur.

**Impact 3.14-2. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?**

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The proposed project, if approved, will be built on land currently being used for agricultural or fallow land. There are no homes or people living within the area that will be displaced by the project, eliminating the need to construct housing elsewhere to replace homes. Therefore, **no impact** would occur.

*Mitigation Measures*

No Mitigation is required.



### **3.15 Public Services**

This section discusses the regulatory setting of public services within the State and County, the environmental setting including which public service districts serve the area occupied by the project, and the impacts that the project will have on public services in the area.

#### **3.15.1 Regulatory Setting**

This section includes a summary of applicable regulations related to public services, a description of public services provided at and near the project site, and a discussion of the public services impacts associated with the Country Acres Solar Project.

##### *Federal*

There are no federal statutes, regulations, plans, or policies governing public services that are applicable to this project.

##### *State*

##### *California Fire Code*

The California Fire Code adopts by reference the International Fire Code (IFC) with necessary State amendments. California Fire Code is updated every three years and includes provisions and standards for emergency planning and preparedness, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution. Typical fire safety requirements include: installation of sprinklers in all high-rise buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildlife hazard areas.

##### *California Occupational Safety and Health Administration*

In accordance with the California Code of Regulations, Title 8, Sections 1270 “Fire Prevention” and 6773 “Fire Protection and Fire Fighting Equipment,” the California Occupational Safety and Health Administration has established minimum standards for fire suppression and emergency medical services. The standards include guidelines on the handling of highly combustible materials, fire hose sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all firefighting and emergency medical equipment.

*Local**Placer County General Plan (Updated in 2013)*

The following policies from the “Public Facilities and Services,” “Recreation and Cultural Services,” and “Healthy and Safety” elements of the Placer County General Plan (2013; 2021) are applicable to the project.

**Policy 4.H.5.** The County shall consider public safety issues in all aspects of commercial and residential project design, including crime prevention through environmental design.

**Policy 4.I.9.** The County shall ensure that all proposed developments are reviewed for compliance with fire safety standards by responsible local fire agencies per the Uniform Fire Code and other County and local ordinances.

*Placer County Office of Emergency Services*

Emergency preparedness activities in Placer County are conducted through Placer County Office of Emergency Services (OES). OES, in cooperation with local cities, special districts, and fire and law enforcement agencies, provides emergency management services. OES prepares emergency and contingency plans, ranging from the County’s Emergency Operations Plan to hazard-specific and incident support annexes such as wildfire and transportation. These plans establish an Operational Area incident management organization which will support and coordinate with on-scene response, including maintenance of situational awareness, facilitation of effective communication between operation centers at various levels of government, maintain continuity of government, and interaction with public information sources.

### 3.15.2 Environmental Setting

*Fire Protection*

The project site is served by the Placer County Fire Department (PCFD). The site is located within County Service Area (CSA) Number 28, Zone of Benefit 165, Dry Creek Fire which covers 19,800 acres in the southwest corner of the County. This CSA was established in 2001 when its residents voted to dissolve Dry Creek Fire District. Placer County subsequently assumed responsibility for providing fire protection and emergency medical services within this area (Placer County 2019). As indicated in Policy 4.I.2 of the Placer County General Plan, the County strives to maintain response times for fire protection of 6 minutes in suburban areas and 10 minutes in rural areas.

The PCFD operates out of eight full-time stations with paid staff and seven volunteer stations. The closest station to the project site is Station 100 located at 8350 Cook Riolo Road in Roseville, approximately 6.5 miles southeast of the project site.

### *Police Protection*

The Placer County Sheriff's Department provides patrol and investigation services and dispatch services in the unincorporated areas of Placer County (Placer County 2013: 6-2). As indicated in Policy 4.H.2 of the Placer County General Plan, the County strives to maintain police response times of 8 minutes in suburban areas, 15 minutes in rural areas, and 20 minutes in remote rural areas.

The Patrol Division personnel are the first to respond to emergencies within the county. Patrol Deputies handle the enforcement of criminal and vehicle code regulations, investigate misdemeanors and felony crimes, and enforce some of the County Code ordinances. The Patrol Division is staffed by approximately 120 uniformed officers and supervisors who provide 24-hour coverage through a three-shift system. The closest Sheriff's office to the project site is the Dry Creek Service Center located at 2955 PFE Road in Roseville, approximately 9 miles southeast of the project site.

### *Schools*

The project site falls within the Elverta Joint Elementary School District, Roseville City School District, and Center Joint Unified School District (CJUSD) elementary school districts, as well as the CJUSD, Roseville Joint Union High School District, and Twin Rivers Unified School District high school districts (Placer County 2022). There are three schools within 3 miles of the project site, West Park High School, Chilton Middle School, and Junction Elementary School.

### *Parks*

- There are multiple community parks within the nearest residential neighborhood Westpark, located to the east of the eastern project boundary in the City of Roseville. Additionally, Gibson Ranch Regional Park, a 355-acre facility including a large equestrian center and many other amenities, is located approximately 5 miles south of the project site, in Sacramento County (Sacramento County 2022).

### *Other Public Facilities*

Other public services may include healthcare, libraries, and community centers. The nearest hospitals are Kaiser Permanente Roseville Medical Center located at 1600 Eureka Road in Roseville, and Sutter Health Hospital located at 1 Medical Plaza Drive in Roseville. Both of these hospitals are located approximately 9-11 miles east from the project site. The nearest library to the project site is the Martha Riley Community Library located at 1501 Pleasant Grove Boulevard, approximately 5 miles east of the project site. The nearest community centers are Destiny Community Center located at 6850 Five Star Boulevard, Rocklin approximately 8.7 miles east of the project site, and Foothill Community Center located at 5510 Diablo Drive approximately 8.4 miles southeast of the project site.

### 3.15.3 Environmental Impacts and Mitigation Measures

#### *Methods and Assumptions*

Potential impacts associated with public services were evaluated based upon the likelihood of the project's activities to contribute to an increased need for public services in the area, or otherwise interfere with or alter existing public services to the extent that new public services facilities would need to be constructed or altered.

#### *Thresholds of Significance*

Based on Appendix G of the State CEQA Guidelines, the project would result in a potentially significant impact related to public services if it would:

- 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

#### *Impact Analysis*

**Impact 3.15-1. 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:**

The project's construction, operation, and maintenance would not significantly affect public services to the extent that new public services facilities would need to be constructed, existing facilities would need to be expanded, or additional personnel would need to be hired. Therefore, this DEIR does not identify a significant impact related to public services resulting from the project. Nonetheless, SMUD recognizes that the provision of services is of concern to the County and has been working closely with the County to address this issue. As discussed in Section 2.0 "Project Description," SMUD will retain the services of an economic consultant to assist SMUD and the County with determining the reasonable costs to the County of providing public services to the project. As noted in the project description, SMUD will pay a fee to the County (formalized in an MOU between SMUD and the County prior to or concurrent with the CUP) to cover a reasonable share of these costs.

**Fire protection?**

As discussed in EIR Section 3.14, “Population and Housing,” the project would not result in any unplanned population growth, and thereby not affect the current demand for fire protection within or near the project area. Construction, operation, and maintenance activities associated with the project could increase demand for fire protection services; however, compliance with all applicable regulations would minimize the risk of fire to the extent that no new fire protection service facilities would need to be constructed or expanded.

The workforce is expected to reach a peak of approximately 650 workers with the average number of workers on-site during construction anticipated to be approximately 177. The workforce required for construction would be temporary (18 to 24 months). The developer would hire local construction and maintenance staff, described in Section 3.14, so that the project’s workforce would not contribute to a substantial increase in population resulting in the need for the provision or alteration of government facilities, impacts to service ratios, response time, or performance objectives of fire protection. Project-related construction could temporarily affect the demand for fire protection and emergency response services if construction activities were to accidentally ignite a fire that required an emergency response. However, the construction contractor would be responsible for implementing on-site safety training.

Although construction of the project may result in a short-term minor increase in demand for fire protection services, this increase would not be significant and would not require the construction of new or altered facilities. Additionally, the marginal increase in demand would not affect the PCFD’s ability to respond to incidents within the recommended time periods described in General Plan Policy 4.I.2. Based on standard construction practices and SMUD operating procedures, health and safety plans would be developed for both the construction and operational phases of the project, reducing the risk of incident and the demand on local emergency services.

Increases in long-term demand for fire protection services typically are associated with substantial increases in population. Operation and maintenance activities may require one regular on-site employee and occasional visits by additional personnel to visit the site, monitor, maintain, and if needed, repair the system. These activities would likely occur infrequently, as the project is self-operational in nature. Operation or maintenance personnel would not contribute to a substantial increase in population or generate a demand on emergency services that would require the provision of new or physically altered governmental facilities.

Additionally, as discussed in Chapter 2, Project Description, the project facilities would follow the latest national fire protection safety codes which include requirements governing fire prevention, mitigation, and suppression systems. Compliance with requirements would avoid or reduce potential adverse impacts to fire-related risk.

In summary, the project could result in a minor increase in the demand for fire protection and emergency services, which would be temporary and short-term during the project's construction phases. Because these impacts would be minimal, the project's construction, operation, and maintenance of the project would not result in physical or operational changes that would interfere with PCFD response times or performance objectives such that provision of new or physically altered PCFD facilities would be required. Therefore, the impact to fire and emergency services is **less than significant**.

### **Police protection?**

Construction, operation, and maintenance activities could affect the demand for police protection services, but would not increase such that the construction of new or expansion of existing police service facilities or the hiring of additional law enforcement personnel would be required.

Exterior perimeter fencing would be installed as part of the project as a security measure to restrict access to authorized personnel, improve safety, isolate electrical equipment, and protect on-site improvements from theft and vandalism. Minor nighttime lighting at entrances would be on motion sensors or would only be on from dusk until dawn, and some motion sensor lights would be installed along perimeters for security. These security measures would reduce the need for additional police protection; therefore, the project's impact on police services would be **less than significant**. The proposed project does not include a residential component that would necessitate additional police coverage in the long term.

### **Schools?**

The proposed project is an industrial project; as such, it does not include or require school facilities. As discussed in EIR Section 3.14, "Population and Housing," the project would not result in any population growth in nearby communities. Project implementation would not contribute to a change in the number of students served by schools in the area. The project would not generate students, nor the need for expanded or new school facilities whose construction could result in an environmental impact. Therefore, **no impact** to schools would occur.

### **Parks?**

As discussed in EIR Section 3.14, "Population and Housing," the project would not result in any unplanned population growth, and thereby would not affect the current demand for or use of parks or other public recreation facilities within the area. Construction and operation of the project would not generate increased demand for parks. Additionally, the proposed project is restricted to the development of a photovoltaic facility on land currently used for agriculture or fallow land. There are no public parks within the project area that would be affected by the construction and operation of the proposed project, and no public parks are planned to be constructed within the project area. Therefore, **no impact** to parks would occur.

**Other public facilities?**

As discussed in EIR Section 3.14, "Population and Housing," the project would not result in any unplanned population growth, and thereby would not affect the current demand for or use of other public facilities within the area. Construction and operation of the project would not generate demand for additional public facilities such that new public facilities need to be constructed. Therefore, **no impact** would occur to other public facilities.

*Mitigation Measures*

No mitigation is required.

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### 3.16 Recreation

This section identifies and evaluates issues related to Recreation in the context of the project. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment.

#### 3.16.1 Regulatory Setting

##### *Federal*

There are no federal statutes, regulations, plans, or policies governing recreation that are applicable to this project.

##### *State*

There are no State statutes, regulations, plans, or policies governing recreation that are applicable to this project.

##### *Local*

The following policies from the “Recreation and Cultural Services” element of the Placer County General Plan (2013) may be applicable to the project.

**Policy 5.C.4:** The County shall require the proponents of new development to dedicate rights-of-way and/or the actual construction of segments of the countywide trail system pursuant to trails plans contained in the County’s various community plans.

**Policy 5.C.5:** The County shall encourage the preservation of linear open space along rail corridors and other public easements for future use as trails.

#### 3.16.2 Environmental Setting

Recreational opportunities within Placer County include regional parks, city parks, state and national parks, national forests, wilderness areas, hiking trails, privately operated sports and amusement facilities, and other facilities. There are no recreational facilities within the project site; however, there are multiple recreational facilities within close proximity to the project site. There are more than ten community parks within the adjacent neighborhoods of Westpark, Quail Glen, Sun City, and more. Table 3.16-1 provides information on nearby recreation facilities, excluding the small community parks located within the neighborhoods adjacent to the project site. This table displays the wide variety of recreation facilities near the project site.

**Table 3.16-1. Local Recreational Facilities**

<i>Recreational Facility</i>	<i>Managing Agency</i>	<i>Approximate Distance from the Project Site</i>
<i>Gold Country Equestrian Center</i>	Privately owned	0.6 mi to the southwest
<i>Gibson Ranch Regional Park</i>	Sacramento County	2.5 miles to the south
<i>Wake Island Water Park</i>	Privately owned	2.5 miles to the southwest
<i>Dry Creek Hiking Trailhead</i>	City of Clovis	2.5 miles southeast
<i>Timber Creek Golf Course</i>	Privately owned	3 miles to the east
<i>Mahany Nature Preserve</i>	City of Roseville	3.5 miles to the east
<i>Veteran's Memorial Park</i>	City of Roseville	3.5 miles to the east
<i>Blue Oaks Park</i>	City of Roseville	4.5 miles to the east
<i>Cherry Island Soccer Complex</i>	Sacramento County	5 miles to the south

Information sourced from Sacramento County (2022a; 2022b), City of Roseville (2022a; 2022b; 2022c), and City of Clovis (2022)

### 3.16.3 Environmental Impacts and Mitigation Measures

#### *Methods and Assumptions*

The project's impact on recreation were analyzed using the thresholds of significance described in this section. Recreation facilities within 5 miles of the project were evaluated for potential impacts.

#### *Thresholds of Significance*

Based on Appendix G of the State CEQA Guidelines, the project would result in a potentially significant impact related to recreation if it would:

- 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; or
- include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

#### *Impact Analysis*

##### **Impact 3.16-1. 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?**

As discussed in Section 3.14 Population and Housing, the project would not result in a net increase of residents within this area, thus, the project would not 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. The

project is located in close proximity to the Westpark residential neighborhood. While there are parks within this neighborhood, there are no recreational facilities within the project vicinity. Thus, there are no parks whose access will be restricted or affected in any way during the project activities, thereby leading the increased use and subsequent accelerated physical deterioration of other parks within the area. Therefore, the project would not result in a substantial increase in the existing demand for parks and other recreational facilities and **no impact** would occur.

**Impact 3.16-2. 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?**

---

The project would not include the construction of any recreational facilities. As described in Section 3.14 Population and Housing, the project would not result in population growth within Placer County, and therefore, would not generate increased demand for recreation facilities to remain consistent with the ratio described in General Plan Policy 5.A.1. Therefore, the project would not require the construction or expansion of recreational facilities and **no impact** would occur.

*Mitigation Measures*

No Mitigation is required.

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### 3.17 Transportation

This chapter describes potential transportation impacts associated with the proposed project. The impact analysis examines the vehicular, transit, bicycle, pedestrian, and goods movement (by truck) components of the transportation system in the project area. To provide context for the impact analysis, this chapter begins with a discussion of the regulatory framework, which provides part of the basis for impact significance thresholds used in the impact analysis. Next, the environmental setting describes the existing and physical operational conditions for the transportation system. The section concludes with significant criteria, impact analysis findings, and recommended mitigation measures.

#### 3.17.1 Regulatory Setting

##### *Federal*

There are no federal plans, policies, regulations, or laws related to transportation and circulation which are applicable to the proposed project.

##### *State*

The California Department of Transportation (Caltrans) is responsible for planning, designing, constructing, operating, and maintaining the State Highway System (SHS). Federal highway standards are implemented in California by Caltrans. Any improvements or modifications to the SHS would need to be approved by Caltrans.

Caltrans' Local Development – Intergovernmental Review Program Interim Guidance (Caltrans, December 2020) provides guidance on the evaluation of traffic impacts to State highway facilities. The document recommends that CEQA reviewers comment on vehicle miles traveled (VMT), "applying local agency thresholds or absent those, thresholds recommended in adopted CEQA Guidelines or Governor's Office of Planning and Research's (OPR's) approved Technical Advisory."

##### *Senate Bill 743*

Governor Brown signed SB 743 in September 2013, which created a process to change the way that transportation impacts are analyzed under CEQA. Specifically, SB 743 required OPR to amend the CEQA Guidelines to provide an alternative to level of service (LOS) for evaluating transportation impacts, as well as recommend methodologies and significance thresholds. SB 743 does not change the discretion that lead agencies have to select methodology or define significance thresholds.

Under SB 743, the focus of transportation analysis essentially shifted from the social inconvenience of traffic congestion to adverse physical effects associated with vehicular travel demand. Measurements of transportation impacts may include total vehicle miles traveled (VMT), VMT per capita, automobile trip generation rates, or automobile trips generated. VMT has long been a common metric to use to measure travel demand. A

VMT is one vehicle traveling on a roadway for one mile. Many communities have been estimating and developing policy related to VMT for years, including estimates and goals for VMT per person, VMT per employee, or other methods of normalization. SB 743 directs revisions to the CEQA Guidelines that would create criteria for assessing travel demand, such as “vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated” (PRC Section 21099[b][1]). Once the CEQA Guidelines went into effect on July 1, 2020, delay related to congestion is no longer considered a significant impact under CEQA (OPR 2016).

### California Air Resources Board

The California Air Resources Board (CARB) has guidance for VMT thresholds in the *CARB 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals* (January 2019). This document provides recommendations for VMT reduction thresholds that would be necessary to achieve the state’s GHG reduction goals and acknowledges that the sustainable communities strategies (SCS) targets alone are not sufficient to meet climate goals. CARB concluded that a 14.3-percent reduction in total VMT per capita and a 16.8-percent reduction in light-duty VMT per capita over then-current conditions (2015-2018) was needed to meet these goals.

### *Regional and Local*

Sacramento Area Council of Governments (SACOG) is responsible for preparing the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) every four years in coordination with the 22 cities and six counties in the greater Sacramento region. The MTP/SCS proactively links land use, air quality, greenhouse gas emissions, and transportation needs. The current adopted 2020 MTP/SCS is for the years 2020 to 2040. Goals of the MTP/SCS are:

- Build vibrant places for today’s and tomorrow’s residents.
- Foster the next generation of mobility solutions.
- Modernize the way we pay for transportation infrastructure.
- Build and maintain a safe, reliable, and multimodal transportation system.

Federal law requires the MTP to conform to air quality goals for the region, satisfy financial constraints such that all proposed projects can be reasonably funded, and undergo extensive public review. State law further requires the MTP process to include careful environmental analysis and review.

The MTP/SCS indicates that VMT per capita in the SACOG region, which dipped significantly during the Great Recession, increased starting in 2011. The MTP/SCS projects a 10-percent reduction in VMT per capita by 2040 for the SACOG region. SACOG has initiated an update to the MTP/SCS, the 2024 Blueprint.

*Placer County Regional Transportation Plan*

Placer County Transportation Planning Agency (PCTPA) is the State-designated Regional Transportation Planning Agency for Placer County and is responsible for making decisions about the County's transportation system. In addition to developing and adopting the regional transportation plans and strategies, PCTPA also allocates the local transportation fund and has entered into a Memorandum of Understanding with Caltrans and SACOG to govern federal transportation planning and programming in Placer County.

PCTPA prepared the 2040 Regional Transportation Plan (RTP), which is a long-range transportation funding document to help local agencies gain access to federal and state transportation funds. Its purpose is to address existing congestion and improve future mobility given the growth anticipated over the next 20 years. The plan was adopted by the PCTPA Board at their December 4, 2019, meeting. The RTP contains individual chapters pertaining to the regional roadway network, public transit, passenger rail, aviation, goods movement, bicycle, pedestrian and low-speed vehicles, and recreational travel. It also contains chapters related to air quality, climate change, as well as policy and financial elements.

*Placer County General Plan*

Placer County's General Plan describes assumptions, goals, and planning principles that provide a framework for land use decisions throughout the unincorporated County. The following goals and policies identified in the transportation and circulation element of the County's General Plan (Placer County 2013), are provided for context.

**GOAL 3.A:** To provide for the long-range planning and development of the County's roadway system to ensure the safe and efficient movement of people and goods.

**Policy 3.A.7.** The County shall develop and manage its roadway system to maintain the following minimum levels of service (LOS), or as otherwise specified in a community or specific plan.

1. LOS "C" on rural roadways, except within one-half mile of state highways where the standard shall be LOS "D."
2. LOS "C" on urban/suburban roadways except within one-half mile of state highways where the standard shall be LOS "D."
3. An LOS no worse than specified in the Placer County Congestion Management Program (CMP) for the state highway system.

Temporary slippage in LOS C may be acceptable at specific locations until adequate funding has been collected for the construction of programmed improvements.

The County may allow exceptions to the level of service standards where it finds that the improvements or other measures required to achieve the LOS standards are unacceptable based on established criteria. In allowing any exception to the standards, the County shall consider the following factors:

- The number of hours per day that the intersection or roadway segment would operate at conditions worse than the standard.
- The ability of the required improvement to significantly reduce peak hour delay and improve traffic operations.
- The right-of-way needs and the physical impacts on surrounding properties.
- The visual aesthetics of the required improvement and its impact on community identity and character.
- Environmental impacts including air quality and noise impacts.
- Construction and right-of-way acquisition costs.
- The impacts on general safety.
- The impacts of the required construction phasing and traffic maintenance.
- The impacts on quality of life as perceived by residents.
- Consideration of other environmental, social, or economic factors on which the County may base findings to allow an exceedance of the standards.

Exceptions to the standards will only be allowed after all feasible measures and options are explored, including alternative forms of transportation.

**Policy 3.A.9.** The County shall strive to meet the level of service standards through a balanced transportation system that provides alternatives to the automobile.

**Policy 3.A.11.** The County shall require an analysis of the effects of traffic from all land development projects. Each such project shall construct or fund improvements necessary to mitigate the effects of traffic from the project consistent with Policy 3.A.7. Such improvements may include a fair share of improvements that provide benefits to others.

**Policy 3.A.12.** The County shall secure financing in a timely manner for all components of the transportation system to achieve and maintain the adopted level of service standards.

**GOAL 3.D:** To provide a safe, comprehensive, and integrated system of facilities for non-motorized transportation.



**Policy 3.D.1.** The County shall promote the development of a comprehensive and safe system of recreational and commuter bicycle routes that provide connections between the County's major employment and housing areas and between its existing and planned bikeways.

**Policy 3.D.8.** The County's Engineering and Surveying Division and the Department of Public Works shall view all transportation improvements as opportunities to improve safety, access, and mobility for all travelers and recognize cycling, pedestrian, and transit modes as integral elements of the transportation system.

**Policy 3.D.10.** Consider the accessibility and accommodation of cycle and pedestrian traffic, where appropriate, on and across major thoroughfares.

**Policy 3.D.11.** The County shall work to achieve equality of convenience and choice among all modes of transportation – pedestrian, cycling, transit, and motor vehicles, through a balanced and interconnected transportation system.

**Policy 3.D.12.** Provide safe and comfortable routes for walking, cycling, and where feasible, public transportation, to encourage the use of these modes of transportation, enable convenient and active travel as part of daily activities, reduce pollution, and meet the needs of all users of the roadway system.

#### *County of Placer Transportation Study Guidelines*

The County of Placer Transportation Study Guidelines (Placer County 2021) are intended to describe the transportation analysis requirements for land development projects and major land plans (e.g., specific plans, community/area plans, etc.) in Placer County. The Guidelines acknowledge legislative changes that have occurred relative to transportation impact analysis and distinguish between the path forward for compliance with Placer County General Plan policies versus compliance with the CEQA, both of which may be required for an individual project. These Guidelines are subject to revision at any time due to future changes in analysis techniques, policies, guidelines, or statutes. These Guidelines are intended to provide a clear and consistent technical approach to preparing Transportation Studies in Placer County. According to the County's transportation study guidelines, a transportation study may include two types of analysis:

- A CEQA impact assessment that addresses compliance with the State CEQA requirements and expectations.
- A local transportation assessment (LTA) that demonstrates project consistency with General Plan goals and policies.

Not all projects will require both a CEQA impact assessment and LTA. Some projects that do not require a CEQA impact assessment would typically only prepare an LTA, while some minor projects may not require a Transportation Study at all (CEQA impact assessment or an LTA).

*Types of Projects That Require a Transportation Study*

County staff will determine the need for a Transportation Study in conformance with CEQA and County policies. The following types of projects, which involve development in and around Placer County and affect the County's transportation system, may require a Transportation Study:

- Transportation infrastructure modification or expansion, including Capital Improvement Program (CIP) projects on County roads and state highways.
- Land use entitlements requiring discretionary approval by Placer County, which include General Plan amendments, Community/Area Plans, and any amendments, Specific Plans and any amendments, zoning changes, conditional use permits, minor use permits, parcel maps, variances, design review permits, tentative maps, etc.
- Land use activity that is inconsistent with the Linking Tahoe: 2020 Regional Transportation Plan.
- Land use activity advanced by agencies other than Placer County that is subject to the County's review under state and federal law.
- Land use activity advanced by agencies other than Placer County that is inconsistent with the County's General Plan.

If the project falls into one of the categories listed above, the project parameters below will inform whether a Transportation Study is required.

*Does the Project Require a Transportation Study?*

Unless waived by the County, a Transportation Study is required when a project requires a permit application which is subject to discretionary approval and any one of the following conditions is met:

- The project has the potential to create a significant environmental impact under CEQA that has not previously been addressed in a certified CEQA document, as determined by County staff.
- The project will substantially alter physical or operational conditions on a County roadway, bikeway, sidewalk, or another transportation facility.
- The project may affect roadway safety.
- The project generates a significant percentage of heavy vehicle trips.
- The project has the potential to generate 110 or more new passenger vehicle trips per day.

If a Transportation Study is required, either by CEQA or the County, the scope of the Transportation Study will depend on the location and size of the proposed project, the prevailing conditions in the surrounding area, and the technical questions being asked by decision-makers and the public. County staff may determine additional triggers for study requirements due to location, project complexity, local transportation system complexity, and other factors. If a project is consistent with the applicable planning documents and generates less than 200 new passenger vehicle trips per day, the Transportation Study scope may be substantially reduced in consultation with County staff.

### VMT Assessment

The Transportation Study Guidelines present direction for assessing VMT impacts for land development projects within Placer County in compliance with CEQA Guidelines Section 15064.3.

VMT refers to the amount and distance of vehicle travel attributable to a project. VMT generally represents the number of vehicle trips generated by a project multiplied by the average trip length for those trips. For CEQA transportation impact assessment, VMT shall be calculated using the origin-destination VMT method, which accounts for the full distance of vehicle trips with one end from the project.

VMT can also serve as a proxy for impacts related to energy use (fuel consumption), air pollution emissions, greenhouse gas (GHG) emissions, safety, and roadway maintenance. The historical use of VMT in environmental impact analysis is to estimate mobile air pollution emissions, GHG emissions, and energy consumption

Threshold for determination of a significant transportation VMT impact for Western Placer County is as follows:

- Industrial/ Agricultural Employment (Work VMT per employee): 15% below western County baseline.
- Residential (VMT per resident): 15% below western County baseline.
- Office Employment (Work VMT per employee): 15% below western County baseline.
- Hotel/ Campground (VMT per room or per site): 15% below western County baseline.
- Commercial Retail, Recreation Destination, and Transportation (Total VMT): Zero net increase.

In addition to the VMT thresholds, the Guidelines include screening criteria that can be used to quickly identify whether sufficient evidence exists to presume a project will have

a less than significant VMT impact without conducting a detailed study. The following screening criteria have been adopted by Placer County:

- Small projects
- Affordable housing
- Local-serving non-residential development
- Projects in low VMT-generating areas
- Recreational amenities
- Seasonal recreation
- Active transportation and transit

Small projects are defined as a project that generates 110 average daily vehicle trips or 880 daily VMT or fewer in western Placer County. Refer to the Guidelines for detailed descriptions of each screening criteria.

### 3.17.2 Environmental Setting

This section provides a contextual background to the County's transportation system in the project area.

#### *Existing Roadways*

The project site is accessible from existing local roadways. Access to the project site would be provided by Baseline Road to the south, South Brewer Road to the west, and via Phillip Road to the north (refer to Exhibit 2-2 in Chapter 2, "Project Description"). Regional roadway access is provided by SR 99 via Baseline Road. The following sections provide a summary of the existing roadways within the project area.

#### State Route 99/70

SR 99/70 is a north-south state highway with two lanes in each direction, and with 49,000 trips per day around Riego Road, closest to the project site (Caltrans 2020). This highway provides regional access to the project site through Baseline Road.

#### Baseline Road

Baseline Road is a major east-west arterial that connects the project area with SR 70/99 in Sutter County. Within Sutter County, the roadway becomes Riego Road, while east of Foothills Boulevard the roadway becomes Main Street. Baseline Road has two lanes from SR 70/99 to Walerga Road, four lanes near Westbrook Boulevard, three lanes (two westbound and one eastbound) from Walerga Road to Brady Lane and four lanes from Brady Lane to Foothills Boulevard. The posted speed limit on Baseline Road is 45 mph west of Foothills Boulevard. The proposed project site would be accessed through Baseline Road, to the south. The County counted approximately 18,000 vehicles per day on Baseline Road in 2018 (Placer County 2018).

### South Brewer Road

South Brewer Road is a north-south roadway from Baseline Road to Nicolaus Road, where it becomes Brewer Road. This is a two-lane roadway with one lane in each direction. South Brewer Road served approximately 250 vehicles per day in 2017. Three narrow bridges including the bridge over King Slough are located along South Brewer Road. The proposed project site would be accessed through South Brewer Road, to the west.

### Country Acres Lane

Country Acres Lane is a north-south roadway extending approximately one mile from Baseline Road to the north. This is a two-lane roadway with one lane in each direction. Country Acres Lane provides access to agricultural uses and several existing homes.

### Phillip Road

Phillip Road is an east-west roadway extending from South Brewer Road to the east to Westpark Drive. This is a two-lane roadway with one lane in each direction. Phillip Road served approximately 45 vehicles per day in 2012. The proposed project would be accessed through Phillip Road, to the north.

### *Bikeways, Pedestrians and Transit*

There are no transit, bicycle, and pedestrian facilities in the project area. The 2018 Placer County Regional Bikeway Plan shows a planned buffered bike lane along Baseline Road south of the project site and a planned buffered bike lane along a planned extension of Watt Avenue east of the project site, and a planned bike lane along the planned University Boulevard in Placer County's Regional University Specific Plan (Placer County 2018).

## 3.17.3 Environmental Impacts and Mitigation Measures

### *Methods and Assumptions*

Activities during the proposed project operation would include the use of pickup trucks, flatbeds, forklifts, and loaders for normal maintenance. Large, heavy-haul, transport equipment would be occasionally used to repair or replace equipment. A total of up to 10 pickup trucks per day would be added to area roadways due to the proposed project during the project operation and maintenance. Also, for repair or replacement of equipment, a total of up to two large heavy haul transport vehicles per month would be added to the area roadways during the project operation and maintenance. Because the proposed project would not add 110 or more passenger vehicle trips per day to any intersections and roadway segments, if this were a County project, based on the County's Transportation Study Guidelines, a detailed transportation study (TS) would not be required.

Activities during the proposed project construction would include up to 20 trucks per day and up to 650 workers' trips to and from the project site per day during the peak construction phase (Solar Construction). There are no thresholds and standards in the County's Transportation and Circulation element for construction-related traffic impacts. This analysis incorporates the screening criterion recommended by the Institute of Transportation Engineers (ITE 1988) for assessing the effects of construction projects that create temporary traffic increases. To account for the large percentage of heavy trucks associated with typical construction projects, the Institute of Transportation Engineers recommends a threshold level of 50 or more new peak-direction (one-way) trips during the peak hour to require a detailed traffic study. Project-related truck trips of up to 20 truck trips per day would be below the ITE threshold. Workers' trips would be distributed along multiple roadways in the project area, and would access the project sites from multiple access points including along Baseline Road, South Brewer Road, and Phillip Road. Therefore, the number of trips along any single roadway would be less than 650 trips per hour. However, if these trips occur during the peak hours, 7 am to 9 am, and 4 pm to 6 pm, the impact would be significant. Due to the nature of these trips being temporary and varying during the construction period, mitigation measures discussed below will be incorporated, which would include limiting construction-related vehicular trips along affected roadways during the peak hours to and from the project site.

With respect to the analysis of VMT required under Section 15064.3(b) of the CEQA Guidelines, the project would involve minimal activities during operations and would only require up to two permanent new employees. Similarly, the duration and intensity of construction activities have limited potential to generate substantial additional VMT. Therefore, the discussion provided below applies a qualitative approach to the analysis of potential VMT impacts.

#### *Thresholds of Significance*

Based on the CEQA Guidelines, the proposed project would result in a potentially significant impact on traffic or circulation if it would:

- conflict with adopted program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;
- conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b);
- cause a substantial increase in hazards attributable to a geometric design feature or incompatible uses; or
- result in inadequate emergency access.

The proposed project would not conflict with any policies supporting alternative transportation. Because the proposed project would have no impact on these resources, they are not discussed further in this EIR.

*Impact Analysis***Impact 3.17-1. Conflict with a program, plan, ordinance, or policy addressing the circulation system in the roadway facilities.**

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*Operational Impacts*

During project operations, long-term maintenance activities for the proposed project would include occasionally repairing or replacing equipment and periodic inspections and maintenance as needed. The proposed project would only add a total of up to 10 pickup trucks per day to the area roadways, and a total of up to two large heavy haul transport vehicles per month would be added to the area roadways during the project operation and maintenance. Because the proposed project would not add 110 or more passenger vehicle trips per day to any intersections and roadway segments within the jurisdiction of the County during the project operation, the project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. After completion of project construction, project operation would not result in substantial changes in the project area relative to existing conditions. This relatively low level of use would not conflict with any programs, plans, ordinances, or policies addressing the circulation system, including roadways, and not adversely affect transportation and circulation on local roadways. The project would also not conflict with any dedicated future road alignments such as Placer Parkway, or the future Regional University Specific Plan roadway network. The project improvements have been designed to avoid these easements including a 312-foot-wide corridor for Placer Parkway, in addition to the ultimate 60-foot-wide planned right-of-way for South Brewer Road and Phillip Road. Baseline Road has an existing highway easement/right-of-way that is 100 feet wide, therefore the setback line would be 100 feet from the edge of the right-of-way. SMUD is continuing to work closely with Placer County Department of Public Works and Placer County Transportation Planning Agency to accommodate any future planned road networks. Furthermore, multiple routes are available for maintenance trips in the proximity of the proposed project, thereby limiting effects on any one roadway. This impact would be **less than significant**.

*Construction Impacts*

During the construction of the proposed project, there may be necessary access improvements required and there would be a temporary increase in construction-related traffic from delivery trucks and construction workers traveling to and from the project sites. The number of workers would vary over the life of the construction activity. The maximum number of workers who would be commuting to the project area at any given time is anticipated to be approximately 650 workers per day and up to 20 vendors and haul trucks per day during the peak construction period. Applying a passenger-car equivalent value of 2.0, this number of truck trips would be equivalent to 40 passenger-car trips per day to roadways in the project area throughout the 8-hour work window, therefore, resulting in less than 3 trips per hour to the roadways in the project area.

Because the proposed project would not generate more than 50 new truck trips during the a.m. or p.m. peak hour, based on the ITE screening criteria the project would not cause a substantial increase in traffic relative to the existing traffic load and capacity of the street system (ITE 1988). Workers' trips are assumed to occur twice a day, to the project site in the morning and from the project site in the afternoon. A maximum of 450 workers' trips per hour would be added to the project area roadways during the peak construction period. Workers would arrive at the project site between 6 a.m. to 7 a.m. (before the a.m. peak hour) and would leave the project site between 4 p.m. to 5 p.m. (during the p.m. peak hour for the surrounding transportation network). Also, construction workers would be traveling to and from the project site from all directions in the project area. To account for the large percentage of heavy trucks associated with typical construction projects, the Institute of Transportation Engineers recommends a threshold level of 50 or more new peak-direction (one-way) truck trips during the peak hour to require a detailed traffic study. Applying a passenger-car equivalent value of 2.0, the ITE threshold would be 100 or more new peak-direction (one-way) passenger vehicle trips during the peak hour. Project-related workers trip of 650 workers per day would be distributed over area roadways that would include Baseline Road, South Brewer Road from Baseline Road to the south, and from Sunset Boulevard to the north; and Phillip Road. Also, construction traffic will be coming through the City of Roseville to Phillip Road. Baseline Road has a higher capacity and carries approximately 18,000 vehicles per day or 1,800 vehicles per hour (Placer County 2018). Phillip Road is a low-volume roadway and is mostly unpaved in the project area. However, the workers' trips could likely result in more than 100 trips during the peak hours and would result in temporary disruption to traffic flow due to increases in traffic volumes particularly along Baseline Road, South Brewer Road and Phillip Road during the project construction. Therefore, this impact is **potentially significant**.

### *Mitigation Measures*

#### **Mitigation Measure 3.17-1. Prepare and Implement a Traffic Control Plan**

- Prior to the start of construction, the construction contractor shall prepare and submit a Traffic Control Plan (TCP) to Placer County for review and approval. The TCP shall be implemented to minimize construction-related traffic impacts on affected roadways. The contractor shall coordinate the development and implementation of this plan with agencies with jurisdiction over the affected routes (i.e., Placer County), as appropriate, and consider any other nearby construction happening at the same time. The TCP shall, at a minimum: define traffic controls, such as flag persons, warning signs, lights, barricades, cones, and detours, etc. to provide safe work areas and to warn, control, protect, and expedite vehicular traffic, based on County requirements and any conditions of project approval and shall aim to coordinate with other projects to minimize disruption to local and regional traffic flows during construction;



- show any proposed construction access location and encroachment onto a County roadway. The construction access location shall be reviewed and approved by the County at the time of Improvement Plan submittal. All approved construction access locations shall include an appropriate construction encroachment designed to the satisfaction of the County that may exceed typical construction encroachment designs (i.e. Baseline Road construction encroachment may be required to include larger radii and acceleration and deceleration tapers).
- require the installation and maintenance of construction area signs in accordance with the current edition of the California Department of Transportation Manual on Uniform Traffic Control Devices (CA MUTCD) and/or California Department of Transportation Manual of Traffic Controls for Construction and Maintenance Work Zones, Traffic Control Plans must follow California MUTCD (Chapter 6) guidelines;
- discuss work hours and haul routes, delineate work areas, and identify traffic control methods and plans for flagging;
- develop and implement a process for communicating with affected residents and landowners about the project before the start of construction. The public notice shall include posting notices and appropriate signage regarding construction activities. The written notification shall include the construction schedule, the exact location and duration of activities on each roadway (e.g., which roads/lanes and access points/driveways will be blocked on which days and for how long), and contact information for questions and complaints;
- notify the public regarding alternative routes that may be available to avoid delays;
- include measures to avoid disruptions or delays in access for emergency service vehicles and to keep emergency service agencies fully informed of road closures, detours, and delays. Police departments, fire departments, ambulance services, and paramedic services shall be notified at least one month in advance by the construction contractor of the proposed locations, nature, timing, and duration of any construction activities and advised of any access restrictions that could impact their effectiveness; and
- identify all emergency service agencies, include contact information for those agencies, assign responsibility for notifying the service providers, and specify coordination procedures. TCPs shall be provided to all affected police departments, fire departments, ambulance and paramedic services.

**Mitigation Measure 3.17-2. Prepare and Implement a Construction Transportation Plan**

- Where construction traffic has the potential to significantly affect regional and local roadways (e.g., Baseline Road, South Brewer Road, and Phillip Road) by generating additional vehicle trips, or potentially causing unsafe situations by construction vehicles making left hand turns into the construction site, the construction contractor shall prepare and implement a Construction Transportation Plan (CTP) describing alternate traffic routes, timing of commutes, reduction in crew-related traffic, potential temporary turning lanes/pockets, if required, and other mitigation methods for reducing construction-generated additional traffic on regional and local roadways and to guarantee safe local traffic patterns during construction. The CTP shall also require the following:
  - distribute worker trips to multiple roadways and limit construction-related trips along South Brewer Road and Phillip Road to 100 worker trips or less during the peak hours (7 a.m. – 9 a.m. and 4 p.m. – 6 p.m.);
  - if deemed necessary by the County to ensure safe traffic conditions during construction based on advanced designs, include temporary turning lanes/pockets off Baseline Road, South Brewer Road, and Phillip Road in the CTP; these temporary turning lanes/pockets shall be engineered according to County standards, and shall be used temporarily only during construction; following construction, any turning lanes/pockets shall be removed, and the road conditions shall be restored to pre-construction conditions;
  - avoid construction-related trips during the morning and afternoon peak hours; and
  - construction workers park personal vehicles at staging yards and carpool to work sites within the project area.

The construction contractor shall submit the CTP to Placer County for review and approval 30 days prior to commencing construction activities.

### *Significance after Mitigation*

With the implementation of Mitigation Measure 3.17-1, a TCP would be prepared and implemented that would identify construction-related traffic controls, identify haul routes, communicate with local residents and landowners, and provide emergency access. With the implementation of Mitigation Measure 3.17-2, a CTP would be prepared and implemented that would describe alternate traffic routes, timing of commutes, reduction in crew-related traffic, and other methods for reducing construction-generated additional traffic on regional and local roadway. Construction worker trips and truck trips associated with the project construction would generally be dispersed in the project area, and not concentrated in any one particular roadway segment or intersection. Therefore, the project would not result in substantial disruption in traffic flow and would

not result in safety issues or traffic disruption. Therefore, the proposed project would not conflict with adopted applicable policies or plans related to the performance of the circulation system. This impact is considered **less than significant** with mitigation measures implemented.

**Impact 3.17-2. Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b).**

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The proposed project would not have a significant impact relative to Section 15064.3(b) of the CEQA Guidelines – a section of the CEQA Guidelines that was enacted to fulfill a directive of SB 743. As noted in OPR’s VMT Technical Advisory, Section 21099 of the Public Resources Code states that the criteria for determining the significance of transportation impacts must promote: (1) reduction of greenhouse gas emissions, (2) the development of multimodal transportation networks, (3) and a diversity of land uses. The project, when operational, would attract very low vehicular travel demand. The intent of SB 743 was to address greenhouse gas emissions associated with the operation of residential and commercial development, where a diversity of land uses in proximity would help to reduce vehicular travel demand. The project, since it would generate very little traffic once operational, would not benefit from the development of multimodal transportation networks. However, the first criterion listed under Public Resources Code Section 21099 – to “promote the reduction of greenhouse gas emissions” is an important purpose of the project. Among the Project Objectives is, “...to support the SMUD Board of Directors’ 2030 Zero Carbon Plan.”

During project operations, long-term maintenance activities for the proposed project would include occasionally repairing or replacing equipment and periodic inspections and maintenance as needed. The proposed project would only add a total of up to 10 pickup trucks per day to the area roadway, and a total of up to two large heavy haul transport vehicles per month would be added to the area roadways during the project operation and maintenance due to the proposed project. Because the proposed project would not add 110 or more passenger vehicle trips per day, the project qualifies for screening under the County’s small project screening criteria for VMT. Projects that qualify for screening can be presumed to have a less than significant VMT impact, according to the County’s adopted screening criteria.

This project is designed to reduce GHG emissions through solar energy production that can replace higher-GHG sources of electricity. As stated above (Impact 3.9-1), during construction up to 20 truck trips and up to 650 workers (each assumed to generate 2 trips per day to/from the project site) per day would be added to the project area roadways. There is no VMT threshold for construction-related trips in the County’s or OPR’s guidelines. Also, construction trips are temporary. Because the project fulfills the intent of SB 743, falls under Placer County’s adopted screening criteria, and does not represent a long-term source of VMT that could lead to any potentially significant effect, this impact is considered **less than significant**.

*Mitigation Measures*

No mitigation required.

**Impact 3.17-3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).**

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The project will take access from multiple points along public roads including Baseline Road. Hazards to motorists are considered to be **potentially significant**.

*Construction Impacts*

Project construction vehicles and equipment would maneuver among the general-purpose vehicles on local roads, which could cause safety hazards. The presence of haul trucks and other on-road construction vehicles could increase hazard risks on existing roadways. The risk of traffic safety hazards could increase because of the potential for:

- conflicts where construction vehicles enter a public right-of-way from the project work site;
- conflicts where road width is narrowed or a roadway is closed during construction activities, which could cause delays for emergency vehicles passing through the project area; or
- increased truck traffic (and the trucks' slower speeds and wider turning radii) during construction.

The use of large trucks to transport equipment and materials to and from the worksite could also affect roadway conditions on the access routes by increasing the rate of roadway wear. The degree to which this impact would occur would depend on the design (pavement type and thickness) and the existing condition of the roadway. The specific routes that would be used for project construction trips are very likely to be Baseline Road, South Brewer Road, and Phillip Road. These roadways are designed to accommodate a mix of vehicle types, including heavy trucks as they provide access to the agricultural lands along these roadways.

The proposed project would result in temporary disruption to traffic flow, and localized increases in traffic disruptions. As a result, drivers would be presented with unexpected driving conditions and obstacles, which could increase the occurrence of automobile or haul truck accidents. Therefore, the impact of an increased traffic hazard risk created by project construction would be **potentially significant**.

### Operational Impacts

Project operations would generate negligible traffic for maintenance operations. Typical traffic volumes would include a pickup truck associated with the periodic inspection of facilities and maintenance of activities and would be negligible. The project will be required to construct Placer County standard encroachments onto County Roads to the current standards (i.e. Plate 116) to the satisfaction of the County for the ultimate operation of the site. This anticipated increase in traffic during project operations has no potential to substantially increase traffic safety hazards on area roadways, and **no impact** would result from project operations. No mitigation is required.

*Mitigation Measures: Implement Mitigation Measures 3.17-1 and 3.17-2, and;*

#### **Mitigation Measure 3.17-3: Resurface, Repair and/or Restore Roadways to Pre-Construction Condition.**

Prior to Improvement Plan approval, the applicant shall provide a video/photo survey of the existing surfacing condition of South Brewer and Phillip Roads to the satisfaction of the County. A cash security deposit (i.e., cash, CD, letter of credit – no bonds) shall also be provided to the County in an amount determined by the County and SMUD for the repair and restoration of the roadways to their original condition, including removal of any temporary turning lanes/pockets as discussed under Mitigation Measure 3.17-2 that would be constructed under the CTP, if deemed necessary based on advanced designs. Upon completion of construction of the project improvements (i.e., beginning operation/use of the site; and/or prior to Building Permit Certificate of Occupancy; and/or acceptance of the project construction as complete by the County), the existing South Brewer and Phillip roadway surfaces shall be repaired and/or restored to their original condition by the developer, including removal of any temporary improvement to ensure safe access, such as temporary turning lanes/pockets. The improvements required for repair and restoration shall be described by and at the sole discretion of the County and shall be constructed to County standards and to the satisfaction of the County. Improvement Plans and/or Encroachment Permits will need to be obtained by the developer for any required improvements, repair and restoration construction. After completing the repair and restoration to the satisfaction of the County, the cash security deposit will be released.

### *Significance after Mitigation*

With the implementation of Mitigation Measure 3.17-1 and 3.17-2, construction-related traffic controls, improvements and management will be implemented. Work hours and haul routes, traffic control methods, and plans for flagging or temporary turning lanes/pockets will be identified. A process for communicating with affected residents and landowners about the project before the start of construction will be developed and implemented. The public notice will include posting notices and appropriate signage regarding construction activities. The written notification will include the construction

schedule, the exact location and duration of activities on each roadway (e.g., which roads/lanes and access points/driveways will be blocked on which days and for how long), and contact information for questions and complaints. The public will be notified regarding alternative routes that may be available to avoid delays. Administrators of police and fire stations, ambulance service providers, and recreational facility managers will be notified regarding the timing, location, and duration of construction activities and the locations of detours and lane closures, where applicable. Access will be maintained for emergency vehicles in and/or adjacent to roadways affected by construction activities at all times. With implementation of Mitigation Measure 3.17-3, the affected roadway rights-of-way will be repaired and restored to their original condition after construction is completed. Also, because construction traffic would be temporary, the proposed project would not result in a long-term degradation of the performance of any roadway in the project vicinity. Therefore, the impact of an increased traffic hazard risk created by project construction would be **less than significant** with mitigation measures implemented.

#### **Impact 3.17-4. Result in inadequate emergency access?**

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Construction activities for the proposed project could reduce emergency access to roadways in the project area. Slow-moving trucks entering and exiting the project sites along roadways in the vicinity of the project sites could delay the movement of emergency vehicles. Therefore, this impact would be **potentially significant**. Once constructed, the site will be operating with a small number of additional trips, based on worker occupancy, and no changes over baseline conditions are anticipated. This impact is **less than significant**.

##### *Mitigation Measures*

Mitigation Measure: Implement Mitigation Measure 3.17-1.

##### *Significance after Mitigation*

Implementing Mitigation Measure 3.17-1 would reduce the potentially significant impact of project construction activities on emergency access to a **less-than-significant** level because the traffic control plan would be used to develop detours to ensure acceptable traffic flow through and/or around the construction zone, minimize impacts on emergency access by providing alternate routes for all traffic users, and minimize traffic congestion.

### **3.18 Tribal Cultural Resources**

#### **3.18.1 Regulatory Setting**

This section analyzes and evaluates the potential impacts of the project on known and unknown Tribal Cultural Resources (TCRs). TCRs, as defined by Assembly Bill (AB) 52, Statutes of 2014, in Public Resources Code (PRC) Section 21074, are sites, features, places, cultural landscapes, sacred places and objects, with cultural value to a Tribe. A Tribal Cultural Landscape is defined as a geographic area (including both cultural and natural resources and the wildlife therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. Unanticipated Native American human remains would also be considered a TCR and are therefore analyzed in this section.

Two comment letters regarding TCRs were received in response to the Notice of Preparation (see Appendix F). The Native American Heritage Commission (NAHC) letter dated November 22, 2021, requested AB 52 and Senate Bill (SB) 18 compliance information; SB 18 does not apply to the project because there is no General Plan amendment associated with the project (which is the trigger for SB 18 compliance). Additionally, SB 18 is not a CEQA requirement and therefore is not discussed in this section. AB 52 compliance, which began prior to the Notice of Preparation and includes a record of communication, is described in Section 3.18.2, below.

In response to the Notice of Preparation, the United Auburn Indian Community letter (email) dated November 23, 2021, requested that 1) the Cultural Resources and TCR chapters of the Draft EIR be separate and distinct; 2) mitigation measures for TCRs should be separate and distinct from cultural resources; 3) the TCR chapter adequately discuss the TCRs with the same level of analysis and professionalism that archaeologists are given; 4) archaeologists shall directly coordinate with consulting Tribes when identifying, evaluating, or making recommendations for cultural items or sites that are considered TCRs; 5) a number of resources UAIC identifies as TCRs; 6) the TCR chapter and report does not refer to tribes and their ancestors as “prehistoric”; and 7) aesthetic, natural, scenic, and historic environmental qualities are analyzed for TCRs in the TCR chapter if any are identified in the project area.

#### *Federal*

##### *National Register of Historic Places*

The National Register of Historic Places (NRHP) is the nation’s master inventory of known historic properties. It is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level.

The formal criteria (36 CFR 60.4) for determining NRHP eligibility are as follows:

1. The property is at least 50 years old (however, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP);
2. It retains integrity of location, design, setting, materials, workmanship, feeling, and associations; and
3. It possesses at least one of the following characteristics:
  - Criterion A Is associated with events that have made a significant contribution to the broad patterns of history (events).
  - Criterion B Is associated with the lives of persons significant in the past (persons).
  - Criterion C Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction (architecture).
  - Criterion D Has yielded, or may be likely to yield, information important in prehistory or history (information potential).

Listing in the NRHP does not entail specific protection or assistance for a property but it does guarantee consideration in planning for federal or federally-assisted projects, eligibility for federal tax benefits, and qualification for federal historic preservation assistance. Additionally, project effects on properties listed in the NRHP must be evaluated under CEQA.

### *State*

#### *California Register of Historical Resources*

All properties in California that are listed in or formally determined eligible for listing in the NRHP are also listed in the California Register of Historical Resources (CRHR). The CRHR is a listing of State of California resources that are significant in the context of California's history. It is a Statewide program with a scope and with criteria for inclusion similar to those used for the NRHP. In addition, properties designated under municipal or county ordinances are also eligible for listing in the CRHR.

A historical resource must be significant at the local, state, or national level under one or more of the criteria defined in the California Code of Regulations Title 15, Chapter 11.5, Section 4850 to be included in the CRHR. The CRHR criteria are tied to CEQA because any resource that meets the criteria below is considered a significant historical resource under CEQA. As noted above, all resources listed in or formally determined eligible for listing in the NRHP are automatically listed in the CRHR.



The CRHR uses four evaluation criteria:

- Criterion 1. Is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.
- Criterion 2. Is associated with the lives of persons important to local, California, or national history.
- Criterion 3. Embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of a master; or possesses high artistic values.
- Criterion 4. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Similar to the NRHP, a historical resource must meet one of the above criteria and retain integrity to be listed in the CRHR. The CRHR uses the same seven aspects of integrity used by the NRHP.

California Environmental Quality Act

CEQA requires public agencies to consider the effects of their actions on “Tribal Cultural Resources.” PRC Section 21084.2 establishes that “[a] project with an effect that may cause a substantial adverse change in the significance of a Tribal Cultural Resource is a project that may have a significant effect on the environment.” PRC Section 21074 states:

- a) “Tribal Cultural Resources” are either of the following:
  - 1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that are either of the following:
    - i.) Included or determined to be eligible for inclusion in the CRHR.
    - ii.) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
  - 2) 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American Tribe.

- b) A cultural landscape that meets the criteria of subdivision (a) is a Tribal Cultural Resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.
- c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a “nonunique archaeological resource” as defined in subdivision (h) of Section 21083.2 may also be a Tribal Cultural Resource if it conforms with the criteria of subdivision (a).

AB 52, signed by the California Governor in September of 2014, established a new class of resources under CEQA: “Tribal Cultural Resources,” defined in PRC Section 21074. Pursuant to CEQA requirements, lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation before the release of an EIR, negative declaration, or mitigated negative declaration.

*Health and Safety Code, Section 7052*

Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If they are determined to be those of a Native American, the coroner must contact NAHC.

*California Native American Historical, Cultural, and Sacred Sites Act*

The California Native American Historical, Cultural, and Sacred Sites Act (PRC Section 5097.9) applies to both State and private lands. The act requires, upon discovery of human remains, that construction or excavation activity cease and that the county coroner be notified. If the remains are those of a Native American, the coroner must notify the Native American Heritage Commission (NAHC), which notifies (and has the authority to designate) the most likely descendants (MLD) of the deceased. The act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

*Public Resource Code Section 5097*

PRC Section 5097 specifies the procedures to be followed in the event of the unexpected discovery of human remains on nonfederal land. The disposition of Native American human burials falls within the jurisdiction of the NAHC. Section 5097.5 of the Code states the following:

No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public

agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

#### *Local*

Placer County policies related to the protection and preservation of cultural resources are summarized in Section 3.5 Cultural Resources. The policy specifically addressing Native American concerns is summarized as follows:

- **Policy 5.D.3.** The County shall solicit the views of the Native American Heritage Commission, State Office of Historic Preservation, North Central Information Center, and/or the local Native American community in cases where development may result in disturbance to sites containing evidence of Native American activity and/or to sites of cultural importance.

### 3.18.2 Pre-Colonial Environmental Setting

The project area is situated within the traditional territory of the Nisenan. The language of the Nisenan, which includes several dialects, is classified within the Maiduan family of the Penutian linguistic stock. Kroeber (1925) recognized three Nisenan dialects: Northern Hill, Southern Hill, and Valley. The Nisenan territory included the drainages of the Yuba, Bear, and American Rivers, and the lower drainages of the Feather River, extending from the crest of the Sierra Nevada to the banks of the Sacramento River. According to Bennyhoff (1961:204–209), the southern boundary with the Miwok was probably a few miles south of the American River, bordering a shared area used by both Miwok and Nisenan groups that extended to the Cosumnes River. It appears that the foothills Nisenan distrusted the valley peoples but had a mostly friendly relationship with the Washoe to the east. Elders recall intergroup marriage and trade, primarily involving the exchange of acorns for fish procured by the Washoe (Wilson 1972:33). The northern boundary has not been clearly established due to similarities in language with neighboring tribes (Wilson and Towne 1978:387–389).

Nisenan settlement locations depended primarily on elevation, exposure, and proximity to water and other resources. Permanent villages were usually located on low rises along major watercourses. Houses were domed structures measuring 10 to 15 feet in diameter and covered with earth and tule reeds or grass. Brush shelters were used in the summer and at temporary camps during food-gathering rounds. Larger villages often had semi-subterranean dance houses that were covered in earth and tule reeds or brush, with a central hole at the top to allow the escape of smoke, and an east-facing entrance. Another common village structure was the granary, which was used for storing acorns.

Several political divisions in the Nisenan territory, constituting tribelets, had headmen in the larger villages. However, the relative levels of influence in these larger population centers are unknown. All of these larger villages were located in the foothills. More substantial and permanent Nisenan villages generally were not established on the

valley plain between the Sacramento River and the foothills, although this area was used as a rich hunting and gathering ground. One tribelet consisted of people occupying the territory between the Bear River and the Middle Fork American River (Wilson and Towne 1978). According to Kroeber (1925:831), the larger villages could have had populations exceeding 500 individuals, although small settlements consisting of 15 to 25 people and extended families were common.

The Nisenan occupied permanent settlements from which specific task groups set out to harvest the seasonal bounty of flora and fauna provided by the rich valley environment. The Valley Nisenan economy involved riparian resources, in contrast to the Hill Nisenan, whose resource base consisted primarily of acorn and game procurement. The only domestic plant was native tobacco (*Nicotiana* sp.), but many wild species were closely husbanded. The acorn crops from the blue oak (*Quercus douglasii*) and black oak (*Q. kelloggii*) were carefully managed resources. Acorns were stored in granaries in anticipation of winter. Deer, rabbit, and salmon were the chief sources of animal protein in the aboriginal diet, but many insect and other animal species were taken when available (Wilson and Towne 1978:389).

The decimation of the Nisenan culture in the nineteenth century as a result of European colonization, coupled with a reluctance to discuss Nisenan spiritual beliefs and practices, makes it difficult for non-tribal people to describe these practices in any detail. However, historic records document a number of observances and dances, some of which are still performed today, that were important ceremonies in early historic times. Kuksu, the basic religious system noted throughout Central California, appeared among the Nisenan. Membership was restricted to those initiated in its spirit and deity-impersonating rites. However, Kuksu was only one of several levels of religious practice among the Nisenan. Various dances associated with mourning and the change of seasons were also important. One of the last major additions to Nisenan spiritual life occurred sometime shortly after 1872 with a revival of Kuksu as an adaptation to the Ghost Dance religion (Wilson and Towne 1978). Today, Nisenan descendants are reinvesting in their traditions and represent a growing and thriving community.

#### *United Auburn Indian Community*

Following documentation by the Department of Interior for the existence of a separate, cohesive band of Maidu and Miwok Indians, occupying a village on the outskirts of the City of Auburn in Placer County, the United States acquired land in trust for the Auburn Band in 1917 near the City of Auburn and formally established a reservation, known as the Auburn Rancheria. Tribal members continued to live on the reservation as a community despite great adversity.

However, in 1967, the United States terminated federal recognition of the Auburn Band, and, in 1970, President Nixon declared the policy of termination a failure. In 1976, both the United States Senate and House of Representatives expressly repudiated this policy in favor of a new federal policy entitled Indian Self-Determination.

In 1991, surviving members of the Auburn Band reorganized their tribal government as the United Auburn Indian Community and requested that the United States formally restore their federal recognition. In 1994, Congress passed the Auburn Indian Restoration Act, which restored the Tribe's federal recognition. The Act provided that the Tribe may acquire land in Placer County to establish a new reservation.

Today, Nisenan descendants and other tribes are reinvesting in their traditions and represent a growing and thriving community that is actively involved in defining their role as stewards of their ancestors' sites including the identification of TCRs. TCRs provide the backdrop to religious understanding, traditional stories, knowledge of resources such as varying landscapes, bodies of water, animals and plants, and self-identity. Knowledge of place is central to the continuation and persistence of culture, even if former Nisenan and Miwok occupants live removed from their traditional homeland. Consulting Tribes view these interconnected sites and places as living entities; their associations and feeling persist and connect with descendant communities.

Specifically, United Auburn Indian Community (UAIC), a federally recognized Tribe comprised of both Miwok and Maidu (Nisenan) Tribal members are traditionally and culturally affiliated with the project area. The Tribe has deep spiritual, cultural, and physical ties to their ancestral land and are contemporary stewards of their culture and landscapes. The Tribal community represents a continuity and endurance of their ancestors by maintaining their connection to their history and culture. It is the Tribe's goal to ensure the preservation and continuance of their cultural heritage for current and future generations.

### *Records Searches and Consultation*

#### Records Search

On August 7, 2020, a search of records was conducted within one-quarter mile of the project site was conducted at the North Central Information Center (NCIC), at California State University, Sacramento (SAC-20-117). The following information was reviewed:

- site records of previously recorded cultural resources,
- previous cultural studies,
- NRHP and CRHR,
- the California Historic Resources Inventory, and
- the Office of Historic Preservation Historic Properties Directory.

The records search revealed that seventeen cultural resource investigations have been conducted within portions of the current project, and an additional six studies have been conducted within 0.25 mile of the project. Two previously recorded resources are located within the project area, and another six previously documented cultural resources have been identified within 0.25 mile of the project area. One of the previously documented resources (P-31-003280) is an electrical transmission line and the other (P-31-006131) is a maintained and well-used county road (Baseline Road).

Those within the search radius consist of a prehistoric isolated biface, historic-era refuse, irrigation pipe, corral, and isolated tin canister.

*NAHC Consultation and Sacred Lands File Search*

The NAHC was contacted by AECOM via email on February 2, 2021, for a Sacred Lands File & Native American Contacts List Request. The NAHC responded via email on February 11, 2021, with negative results and attached a list of Native American tribes that may have knowledge of cultural resources in the project area. This correspondence was included in the Cultural Resources Inventory Report and is included as Appendix C to this CEQA Document.

The NAHC also recommended the following be provided to Native American Tribes.

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:
  - A listing of any and all known cultural resources have already been recorded on or adjacent to the Area of Potential Effect (APE), such as known archaeological sites;
  - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
  - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the APE; and
  - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.
2. The results of any archaeological inventory survey that was conducted, including:
  - Any report that may contain site forms, site significance, and suggested mitigation measures. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code Section 6254.10.
3. The result of the Sacred Lands File (SFL) check conducted through the Native American Heritage Commission, which was negative.
4. Any ethnographic studies conducted for any area including all or part of the potential APE; and
5. Any geotechnical reports regarding all or part of the potential APE.

*Tribal Consultation***CEQA - AB 52**

Pursuant to Public Resources Code 21090.3.1(b)(1), tribal notifications were sent to participating tribes (Shingle Springs Band of Miwok Indians, Lone Band of Miwok Indians, Wilton Rancheria, and United Auburn Indian Community) on August 25 and 26, 2021. Correspondence included a project description, and supporting graphic depicting the project location. Written correspondence was received from Shingle Springs Band of Miwok Indians (SSBMI), Wilton Rancheria (Wilton), and the UAIC.

SMUD received a letter via email from SSBMI on September 23, 2021 requesting consultation, which was acknowledged on the same day by SMUD, and added the request to the bimonthly meeting on September 27, 2021. As requested by SSBMI at the AB 52 meeting on September 27, 2021 SMUD provided SSBMI with a KMZ of the project location. On October 13, 2021 SSBMI was notified via email to participate in a site visit during the week of November 8, 2021. No response was received from SSBMI.

UAIC confirmed receipt of AB 52 notification on August 25, 2021 and requested consultation in an email message on September 14, 2021. On September 21, 2021, SMUD acknowledged receipt of request for consultation, updated UAIC on the status of the cultural studies and organized a site visit, which was conducted by UAIC on November 8, 2021. Travis Young, UAIC representative conducted the site visit with SMUD personnel and stated that he had no major concerns and would recommend spot monitoring to the UAIC Tribal Historic Preservation Officer (THPO) Matthew Moore and SMUD in areas with heavy grading (substation, switch station). This request is addressed in Mitigation Measure 3.18-1 below.

In addition, UAIC provided specific language regarding inadvertent/unanticipated discoveries to be included in the mitigation measure for TCRs. This language is included in Mitigation Measure 3.18-1.

Wilton sent a letter via email on September 23, 2021 requesting consultation. SMUD acknowledged receipt of the request at the monthly meeting on September 28, 2021 at which time Wilton requested a site visit. SMUD representatives met with Wilton representative Vanessa Cruz on November 10, 2021. Because of unsafe conditions due to recent rains the visit could not be completed and was rescheduled for some time in the spring. Vanessa had no major concerns and stated that she would recommend to the THPO that UAIC's request for spot monitoring at the location of the substation/switch station areas would be sufficient.

lone did not respond to the AB 52 notification letter, but SMUD meets with Jereme Dutschke regularly for AB52 consultation. SMUD has discussed the project with lone at these meetings and the Tribe has not requested consultation at this time.

**Section 106 of the National Historic Preservation Act**

In partial fulfillment of Section 106 requirements, the US Army Corps of Engineers will be conducting government to government consultation with Native American Tribes during the Clean Water Act Section 404 permitting process.

**3.18.3 Environmental Impacts and Mitigation Measures***Methods and Assumptions**Analysis Methodology*

Information related to TCRs is based on findings reported in the NAHC Sacred Lands File database search, the records search results (NCIC File Number SAC-21-27), as well as the results of Native American consultation under AB 52. The analysis is also informed by the provisions and requirements of federal, state, and local laws and regulations that apply to cultural resources.

In addition, UAIC conducted a records search for the identification of TCRs for this project, which included a review of pertinent literature and historic maps, and a records search using UAIC's Tribal Historic Information System (THRIS). UAIC's THRIS database is composed of UAIC's areas of oral history, ethnographic history, and places of cultural and religious significance, including UAIC Sacred Lands that are submitted to the Native American Heritage Commission (NAHC). The THRIS resources shown in this region also include previously recorded indigenous resources identified through the California Historic Resources Information System Center (CHRIS) as well as historic resources and survey data.

*Issues or Potential Impacts Not Discussed Further*

All potential Tribal cultural resources issues identified in the significance criteria are evaluated below.

*Thresholds of Significance**Thresholds of Significance/Significance Criteria*

Based on Appendix G of the State CEQA Guidelines, the project would result in a potentially significant impact on cultural resources if it would:

- disturb any human remains, including those interred outside of dedicated cemeteries; or
- cause a substantial adverse change in the significance of a Tribal cultural resource, defined in PRC 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.

### *Impact Analysis*

**Impact 3.18-1. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 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:**

**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**

**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 § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.**

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No unique archaeological resources or TCRs have been identified on the project site and the NAHC Sacred Lands Database search was negative. However, these resources may be encountered during ground disturbing activities (i.e., grading and trenching). Therefore, TCRs may exist at the project site and could be affected by the project. This impact would be **potentially significant**.

### *Mitigation Measures*

Although TCRs have not been identified for this project, the following mitigation measure was provided by UAIC and is intended to address the evaluation and treatment of inadvertent/ unanticipated discoveries of potential TCRs, archaeological, or cultural resources during a project's ground disturbing activities.

#### **Mitigation Measure 3.18-1**

The following method is intended to minimize impacts to existing or previously undiscovered Tribal Cultural Resources (TCRs), archaeological, or cultural resources during a project's ground disturbing activities at the following locations: substation, switch yard, battery storage area. The project proponent and its construction contractor(s) will implement the following methods to identify TCRs at the earliest possible time during project-related earthmoving activities:

- A compensated (paid) Tribal Monitor from a traditionally and culturally affiliated Native American Tribe shall be retained to monitor specified ground disturbing project related activities in the substation, switch yard, and battery storage area of the project area.

- The specified ground disturbing activities include grading, trenching, and ground disturbance to a depth of up to approximately 6 feet.
- Spot monitoring at these locations will be done by the Tribal Monitor in coordination with the construction schedule.
- Consulting Tribes shall be contacted at least 2 weeks prior to project ground-disturbing activities in order to retain the services of a paid Tribal Monitor. The duration of the monitoring and construction schedule shall be determined at this time.
- Field-monitoring activities will be documented on a Tribal Monitor log. The total time commitment of the Tribal Monitor will vary depending on the intensity and location of construction and the sensitivity of the area, including the number of finds.
- The Tribal Monitor/s shall wear the appropriate safety equipment and shall have the necessary background training in construction safety protocols.
- The Tribal Monitor/s will have all necessary background training to identify and recommend appropriate treatment for any discoveries, including sites and objects of cultural value, that are a potential TCR.
- Tribal Monitors or Tribal Representatives have the authority to request that work be temporarily stopped, diverted, or slowed within 100 feet of the direct impact area if sites or objects of significance are identified. Only a Tribal Monitor or Representative from a culturally affiliated tribe can recommend appropriate treatment and final disposition of TCRs.
- When avoidance is infeasible, preservation in place is the preferred option for mitigation of TCRs under CEQA and Tribal protocols, and every effort shall be made to preserve the resources in place, including through project redesign, if feasible. Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, or returning objects to a location within the project area where they will not be subject to future impacts. Permanent curation of TCRs will not take place unless approved in writing by consulting Tribes.
- The contractor shall implement any measures deemed by the CEQA lead agency to be necessary and feasible to preserve in place, avoid, or minimize impacts to the resource, including, but not limited to, facilitating the appropriate tribal treatment of the find, as necessary. Treatment that preserves or restores the cultural character and integrity of a TCR may include Tribal Monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil.

- Work at the discovery location cannot resume until all necessary investigation and evaluation of the discovery under the requirements of the CEQA, including AB 52, have been satisfied.

**Significance after Mitigation**

Implementation of Mitigation Measure 3.5-2 'Halt ground-disturbing activity upon discovery of human remains' (see Chapter 3.5 "Cultural Resources") and Mitigation Measure 3.18-1 would reduce impacts associated with TCRs to a **less-than-significant** level because it would require the performance of professionally and Native American accepted and legally compliant procedures for the discovery of previously undocumented significant TCRs.

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### 3.19 Utilities and Service Systems

This section describes the existing utilities and infrastructure onsite and assesses the project's short- and long-term impacts on utilities. The analysis evaluates whether the project would require the construction of additional water, wastewater, or solid waste treatment or disposal facilities, and its potential impacts on utility services. The section also discusses the addition of the proposed electrical interconnection facilities to the local grid.

#### 3.19.1 Regulatory Setting

##### *Federal*

No federal plans, policies, regulation, or laws pertaining to utilities and service systems are applicable to this project.

##### *State*

##### California Energy Commission

The California Energy Commission is the state's primary energy policy and planning agency. Responsibilities of the California Energy Commission include, but are not limited to, forecasting future energy needs and keeping historical energy data, licensing thermal power plants 50 megawatts or larger, promoting energy efficiency, supporting renewable energy by providing market support, and planning for and directing state response to energy emergencies. SB 1389 requires the California Energy Commission to conduct "assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices." The California Energy Commission reports the results of these assessments and forecasts every 2 years to the governor, the legislature, and the California public in the Integrated Energy Policy Report.

##### *Senate Bill 610*

The State of California has enacted legislation that is applicable to the consideration of larger projects under CEQA. SB 610 (Chapter 643, Statutes of 2001; Section 21151.9 of the Public Resources Code and Section 10910 et seq. of the Water Code) requires the preparation of "water supply assessments" for large developments (i.e., more than 500 dwelling units or nonresidential equivalent; shopping centers or business establishments employing more than 1,000 persons or having more than 500,000 square feet of floor space; commercial office buildings employing more than 1,000 persons or having more than 250,000 square feet of floor space; or industrial, manufacturing, processing plants, or industrial parks planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area).

These assessments, prepared by “public water systems” responsible for serving project areas, address whether existing and projected water supplies are adequate to serve the project, while also meeting existing urban and agricultural demands and the needs of other anticipated development in the service area in which the project is located. If the Urban Water Management Plan (UWMP) did not account for the project’s water demand, or if the public water system has no UWMP, the project’s water supply assessment (WSA) must discuss whether the system’s total projected water supplies (available during normal, single-dry, and multiple-dry water years during a 20-year projection) would meet the project’s water demand in addition to the system’s existing and planned future uses, including agricultural and manufacturing uses.

### California Green Building Standards Code

The standards included in the 2019 California Green Building Standards Code (CALGreen Code) (Title 24, Part 11 of the California Code of Regulations) became effective on January 1, 2020. The CALGreen Code was developed to enhance the design and construction of buildings, and the use of sustainable construction practices, through planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental air quality (California Building Standards Commission 2019). The most significant efficiency improvements to the residential standards in the 2019 CALGreen Code include improvements for attics, walls, water heating, and lighting and standards for residential plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) to reduce indoor demand for potable water.

Chapters 4 and 5 of the 2019 CALGreen Code requires residential and nonresidential developments to comply with a local water efficient landscape ordinance or the current California Department of Water Resources’ Model Water Efficient Landscape Ordinance, whichever is more stringent. Both chapters require all residential and nonresidential construction contractors to reduce construction waste and demolition debris by 65 percent. Code requirements include preparing a construction waste management plan that identifies the materials to be diverted from disposal by efficient usage, recycling, reuse on the project, or salvage for future use or sale; determining whether materials will be sorted on-site or mixed; and identifying diversion facilities where the materials collected will be taken. The code also specifies that the amount of materials diverted should be calculated by weight or volume, but not by both. In addition, the 2019 CALGreen Code requires that 100 percent of trees, stumps, rocks, and associated vegetation and soils resulting primarily from land clearing be reused or recycled.

### *Sustainable Groundwater Management Act (2014)*

In 2014, a three-bill legislative package was signed into law by Governor Brown. The three-bill package comprised of AB 1739, SB 1168, and SB 1319, known as the Sustainable Groundwater Management Act. The Act requires governments and water agencies of high and medium priority basins to manage over drafting in order to bring

groundwater basins to balanced levels of pumping and recharge. The Sustainable Groundwater Management Act empowers local agencies to form Groundwater Sustainability Agencies to manage basins and adopt Groundwater Sustainability Plans for crucial groundwater basins in California.

### *California Integrated Waste Management Act*

The California Integrated Waste Management Act (CIWMA) of 1989 is the result of two pieces of legislation, Assembly Bill (AB) 939 and SB 1322. The CIWMA was intended to minimize the amount of solid waste that must be disposed of by transformation and land disposal by requiring all cities and counties to divert 25 percent of all solid waste from landfill facilities by January 1, 1995, and 50 percent by January 1, 2000.

The CIWMA created the California Integrated Waste Management Board (now known as CalRecycle). CalRecycle is the agency designated to oversee, manage, and track California's 92 million tons of waste generated each year. CalRecycle provides grants and loans to help cities, counties, businesses, and organizations meet the state's waste reduction, reuse, and recycling goals. In addition to many programs and incentives, CalRecycle promotes the use of new technologies for the practice of diverting resources away from landfills. CalRecycle is responsible for ensuring that waste management programs are primarily carried out through local enforcement agencies (LEAs).

The State Water Resources Control Board and the Central Valley RWQCB also regulate waste disposal (the latter regulated solid waste prior to CalRecycle). In Sacramento County, the County is responsible for municipal solid waste management planning and compliance efforts required by CalRecycle.

### *Assembly Bill 341*

On October 6, 2011, Governor Brown signed AB 341, establishing a state policy goal that no less than 75% of solid waste generated be source reduced, recycled, or composted by 2020, which is now in effect. AB 341 also mandated that local jurisdictions implement commercial recycling by July 1, 2012. CalRecycle will review each jurisdiction's commercial recycling program every 2 to 4 years for compliance. Businesses and public entities generating 4 cubic yards of trash or more per week and multi-family residential dwellings with five or more units are required to establish and maintain recycling service under AB 341.

### *22 California Code of Regulations Division 4.5*

Title 22 of the California Code of Regulations discusses an array of requirements with respect to the disposal and recycling of hazardous and universal wastes. Specific standards and requirements are included for the identification, collection, transportation, disposal, and recycling of hazardous wastes. Additional standards are included for the collection, transportation, disposal, and recycling of universal wastes, where universal wastes are defined as those wastes identified in Section 66273.9 of Title 22 of the California Code of Regulations, including batteries, electronic devices, mercury

containing equipment, lamps, cathode ray tubes, and aerosol cans. Requirements include recycling, recovery, returning spent items to the manufacturer, or disposal at an appropriately permitted facility. Division 4.5 of Title 22 also provides restrictions and standards relevant to waste destination facilities and provides authorization requirements for various waste handlers. Title 22 includes California's Universal Waste Rule, as well as other additional waste handling and disposal requirements.

#### Assembly Bill 1826

In order to further reduce greenhouse gas emissions from disposing of organics materials in landfills, AB 1826 requires businesses to recycle their organic waste beginning on April 1, 2016, depending on the amount of solid waste they generate per week. Similar to AB 341, jurisdictions are required to implement an organic waste recycling program that includes the education, outreach and monitoring of businesses that must comply. Organic waste refers to food waste, green waste, landscaping and pruning waste, nonhazardous wood waste, and food-soiled paper that is mixed with food waste.

#### *Local*

#### Placer County General Plan

The following policies from the "Public Facilities and Services" chapter of the Placer County General Plan (2013a) are applicable to the project.

**Policy 4.A.1:** Where new development requires the construction of new public facilities, the new development shall fund its fair share of the construction. The County shall require dedication of land within newly developing areas for public facilities, where necessary.

**Policy 4.B.1:** The County shall require that new development pay its fair share of the cost of all existing facilities it uses based on the demand for these facilities attributable to the new development; exceptions may be made when new development generates significant public benefits (e.g., low income housing, needed health facilities) and when alternative sources of funding can be identified to offset foregone revenues.

**Policy 4.B.2:** The County shall require that new development pay the cost of upgrading existing public facilities or construction of new facilities that are needed to serve the new development; exceptions may be made when new development generates significant public benefits (e.g., low income housing, needed health facilities) and when alternative sources of funding can be identified to offset foregone revenues.

**Policy 4.B.5:** When adopting, amending, and imposing fees and developer exactions, the County shall consider the effects of such fees and exactions on project economics and the County's development goals, and for residential



development, housing affordability. This consideration shall recognize any increase in the value of property resulting from County-granted entitlements, including the redesignation of agricultural land for development.

**Policy 4.B.7:** The County may require the preparation of an economic, market or fiscal impact analysis for commercial, professional office or industrial development on 10 or more acres of land. The determination to prepare an analysis will be based upon the potential for a project to impact County facilities and services or cause an economic impact in the community in which the land use is to be established.

**Policy 4.C.1:** The County shall require proponents of new development to demonstrate the availability of a long-term, reliable water supply. The County shall require written certification from the service provider that either existing services are available or needed improvements will be made prior to occupancy. Where the County will approve groundwater as the domestic water source, test wells, appropriate testing, and/or report(s) from qualified professionals will be required substantiating the long-term availability of suitable groundwater.

**Policy 4.C.2:** The County shall approve new development based on the following guidelines for water supply:

- a. Urban and suburban development should rely on public water systems using surface supply.
- b. Rural communities should rely on public water systems. In cases where parcels are larger than those defined as suburban and no public water system exists or can be extended to the property, individual wells may be permitted
- c. Agricultural areas should rely on public water systems where available, otherwise individual water wells are acceptable.

**Policy 4.C.4:** The County shall require that water supplies serving new development meet state water quality standards.

**Policy 4.C.6:** The County shall promote efficient water use and reduced water demand by:

- a. Requiring water-conserving design and equipment in new construction;
- b. Encouraging water-conserving landscaping and other conservation measures;
- c. Encouraging retrofitting existing development with water-conserving devices; and,
- d. Encouraging water-conserving agricultural irrigation practices.

**Policy 4.C.7:** The County shall promote the use of reclaimed wastewater to offset the demand for newwater supplies.

**Policy 4.C.11:** The County shall protect the watersheds of all bodies of water associated with the storage and delivery of domestic water by limiting grading, construction of impervious surfaces, application of fertilizers, and development of septic systems within these watersheds.

**Policy 4.D.7:** The County shall promote efficient water use and reduced wastewater system demand by:

- a. Requiring water-conserving design and equipment in new construction as required in California law (AB 1881);
- b. Encouraging retrofitting with water-conserving devices; and
- c. Designing wastewater systems to minimize inflow and infiltration

**Policy 4.D.11:** The County shall permit on-site sewage treatment and disposal on parcels where all current regulations can be met and where parcels have the area, soils, and other characteristics that permit such disposal facilities without threatening surface or groundwater quality or posing any other health hazards.

**Policy 4.D.12:** The County shall require that the on-site treatment, development, operation, and maintenance of disposal systems complies with the requirements and standards of the County Environmental Health Division.

**Policy 4.D.13:** The County shall continue use of current technically-based criteria in review and approval of septic tank/leachfield systems for rural development.

**Policy 4.G.1:** The County shall require all new urban/suburban development, excluding rural development, to include provisions for solid waste collection.

**Policy 4.G.2:** The County shall promote maximum use of solid waste source reduction, recycling, composting, and environmentally-safe transformation of wastes.

#### *Placer County Local Agency Management Program*

Septic systems (also known as Onsite Wastewater Treatment Systems, or OWTS) in Placer County are regulated under the Placer County Local Agency Management Program (LAMP), as approved by the Central Valley RWQCB in 2017. The LAMP includes the County OWTS requirements contained in Placer County Municipal Code Article 8.24 and in the County's *On-Site Sewage Manual* (Placer County 2017). This manual, written by the Placer County Division of Environmental Health, establishes technical and procedural requirements for on-site subsurface sewage disposal within the County. The Regional Water Quality Control Board retains the authority to issue permits for any discharge of waste that may affect water quality, including discharges

from individual systems. This manual is authorized by Article 8.24 County Wastewater Regulations of the Placer County Code.

The County's OWTS Operation, Maintenance, and Monitoring Program (OM&M Program) is contained in Chapter 23 of the County's *On-Site Sewage Manual*. The OM&M Program is intended to ensure that all systems operate as designed; protect the environment; and provide economical, dependable, long-term service. Periodic pumping of septic tanks is required, and registered septic tank pumpers in Placer County must dispose of septage only at approved septage receiving facilities. OM&M requirements vary depending on the complexity of the system and environmental considerations. Certain types of OWTS systems require periodic inspections by a County-certified OM&M specialist, to ensure the system is operating properly. The septic system owner must operate and maintain the system in accordance with provisions stipulated at the time of permit issuance. Operation and maintenance conditions for each system will be discussed within the specific system's issued permit and will remain in effect for the life of the system, unless otherwise specified in the permit.

### 3.19.2 Environmental Setting

#### *Water Supply*

Currently, there are no public water supply facilities within the project site. Groundwater in the project area is pumped from the North American subbasin (Basin Code 5-021.64), which underlies northern Sacramento, southern Sutter, and western Placer counties. The subbasin is bounded by the Bear River on the north, the Feather River and Sacramento Rivers on the west, the American River on the south, and a north/south line extending from the Bear River south to Folsom Lake that passes about 2 miles east of the City of Lincoln. The subbasin encompasses approximately 535 square miles and approximately 351,000 acres.

The North American Subbasin has one principal aquifer (some studies have indicated it includes both an upper and lower aquifer system). Sediments within the aquifer consist of alternating layers of clays, silts, sand, and gravel and although the freshwater bearing sand and gravel layers are not continuous, they are interconnected. Groundwater is recharged from surface infiltration and from inflow from adjacent groundwater subbasins. Recharge areas include those near the Sierra Nevada foothills; areas at some creeks, canals, and rivers; and general infiltration from the surface of the subbasin. Soils within the subbasin can contain claypans and hardpans which severely restrict infiltration; however, agricultural areas can provide large volumes of recharge where water is applied or ponded throughout the growing season (AECOM 2022). More permeable soils can be found along local creeks and waterways including those present along the streambed of Curry Creek and its tributaries (AECOM 2022).

Groundwater in the subbasin is used for municipal, industrial, irrigation, domestic, stock watering, frost protection, and other purposes. There are about 3,800 domestic,

agricultural, and/or municipal production wells in the subbasin.<sup>1</sup> Most of the production wells in the subbasin are domestic wells, which are de-minimis extractors that pump less than 2 acre-feet per year (AFY) (GEI 2021). There are also larger municipal wells that supply public water systems. The subbasin is not adjudicated, nor are any of the surrounding groundwater subbasins.

Groundwater contours show a pumping depression in the central portion of the subbasin in Sacramento County that is currently about 20 to 30 feet below mean sea level. Groundwater flows radially toward this depression, from the fringes of the subbasin toward the center. This groundwater pumping depression developed in the 1960s due to agricultural and urban development, and lack of surface water supplies. Conjunctive use projects implemented since the mid-1990s have reversed the decline in groundwater levels; some areas have had substantial recoveries in groundwater elevations (up to 10 to 20 feet). The central groundwater pumping depression has stabilized, with groundwater levels declining during dry periods and recovering during wet periods (GEI 2021).

Section 3.10, “Hydrology and Water Quality.” provides further discussion of groundwater recharge, levels, subsidence, and sustainability, in the North American Subbasin.

#### Existing Groundwater Demand

Existing agricultural land uses within the project area approximately 830 acres of rice fields and 110 acres of almond orchards. The agricultural demand was calculated based on the estimated crop evapotranspiration for rice fields and almond orchards for the region.<sup>2</sup> As shown in Table 3.19-1, the reduction in agricultural demand is approximately 3,673 acre-feet per year (AFY).

**Table 3.19-1. Estimate of Crop Groundwater Demand**

Land Cover Type	Area (acres)	ETc (in/yr) <sup>1, 2</sup>	Demand (AFY)
Rice Field	829.8	47.6	3,293
Almond Orchard	110.2	41.3	379
Irrigated Pasture	0.02	13.5	<1
Non-Agricultural Lands	93.6	--	--
<b>Total</b>	<b>1,033.6</b>	<b>--</b>	<b>3,673</b>

Note: AFY = acre-feet per year; ETc = evapotranspiration for a specific crop; in/yr = inches per year

<sup>1</sup> The ETc was determined by multiplying the reference crop evapotranspiration (ETo), as estimated by monthly values provided for the California Irrigation Management Information System (CIMIS) reference evapotranspiration for Zone 14, by the crop coefficient (Kc).

<sup>2</sup> The ETc was verified based on SSWD data for rice. Applied water for rice in SSWD’s service area was 47.32 in/yr (in 2011), 49.37 (in 2012), 50.54 (in 2013), 50.70 (in 2014), and 50.07 (in 2015).

<sup>1</sup> Production wells have well casings greater than or equal to 4 inches and a total depth that is greater than or equal to 22 feet.

<sup>2</sup> Evapotranspiration is the loss of water to the atmosphere by the combined processes of evaporation from soil and plant surfaces and transpiration from plant tissues.

*Wastewater*

Wastewater service is not currently provided at the project site. Within the unincorporated areas of western Placer County, rural areas generally use on-site septic systems for wastewater disposal.

*Solid Waste Management*

Placer County is served by the Western Placer Waste Management Authority (WPWMA), which owns, operates, and maintains a sanitary landfill and all related improvements. The WPWMA's facilities consist of the Western Regional Sanitary Landfill (WRSL) and a Materials Recovery Facility (MRF). The WRSL is the only remaining active landfill in Placer County and is located on the corner of Fiddymont Road and Athens Avenue, approximately 6 miles northeast of the project site. This landfill is permitted to receive waste through January 2058 and has a permitted capacity of 36,350,000 cubic yards. As of June 30, 2020, 36.2% of the permitted capacity has been filled, leaving approximately 23,554,800 cubic yards available (WPWMA 2015, 2021). The MRF is designed and operated to recover recyclable materials from mixed waste, process green and wood wastes for composting or biomass, receive and process source-separated recyclables, and provide for receipt and recycling/disposal of household hazardous waste. Materials not recovered via MRF processing are disposed in the WRSL. The project area is within Placer County Solid Waste Franchise Area 1, and is thus subject to the Franchise Area 1 & 4 Garbage Collection Fees in the event that non-hazardous waste need to be collected from the project site (Placer County 2013a, 2013b).

*Gas and Electric Facilities*

Existing overhead distribution lines adjacent to and within the project site may be used to provide energy to project infrastructure and personnel during both construction and operation of the project. The project area is serviced by Pacific Gas and Electric Company (PG&E) (California Energy Commission 2020). There is one 230-kV transmission line owned by PG&E that crosses over the western portion of the project site, one 230-kV overhead transmission line owned by SMUD that crosses over the southern portion of the project site, and two 230-kV overhead transmission lines owned by Western Area Power Agency (WAPA) that cross over the southern portion of the site and run parallel to the SMUD-owned line. (California Energy Commission 2021).

### 3.19.3 Environmental Impacts and Mitigation Measures

*Methods and Assumptions*

The analysis of project impacts on utilities and service systems was based on a review of existing information about the utilities present within and near the site, and the service systems that serve the area occupied by the proposed project and the *Water Supply Assessment* prepared for the proposed project by AECOM (2022; Appendix D).

The information obtained from these sources was reviewed and summarized to establish existing conditions and identify potential environmental effects, based on the standards of significance presented in this section.

In determining the level of significance, the analysis assumes that the proposed project would comply with relevant federal, state, and local ordinances and regulations (see Section 3.19.1, “Regulatory Setting”).

### *Thresholds of Significance*

Based on Appendix G of the State CEQA Guidelines, the proposed project would result in a potentially significant impact related to utilities and service systems if it would:

- require or result in the relocation or construction of new or expanded water, wastewater treatment facilities, or storm water drainage, electrical power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects;
- not have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years;
- result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments;
- 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; or
- not comply with federal, State, or local management and reduction statutes and regulations related to solid waste.

Impacts related to stormwater drainage facilities are addressed in EIR Section 3.10, “Hydrology and Water Quality.”

### *Impact Analysis*

#### **Impact 3.19-1. Require or result in the relocation or construction of new or expanded water, wastewater treatment, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?**

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#### Water

The project site is not served by a municipal water service provider. The project will likely use water from the existing wells on-site, or a new well may be installed for project activities (see Impact 3.19-2 for further discussion of water supply). If a new well is

installed, all applicable local, state, and federal guidelines will be followed. The project would not require new or relocated municipal water supply infrastructure or new or expanded water treatment facilities.

### Wastewater

No new or expanded wastewater treatment facilities are proposed as part of the project nor would wastewater treatment facilities be required as a result of the Project.

Restrooms for construction crews and post-construction maintenance staff would be provided via portable restroom facilities, which would be replaced and transported off-site on an as-needed basis. The construction contractor would contract with a portable restroom supplier to provide facilities and pump wastewater for off-site disposal.

To comply with County regulations, up to two restroom facilities would be installed for the operational phase of the project. These restrooms would require installation of two small, on-site septic systems, one for the switch station and one for the substation. The operation of these systems would occur under Placer County's LAMP and thus, is required to comply with the County's Operation, Maintenance, and Monitoring guidelines that are discussed within the *On-Site Sewage Manual* and that will be outlined in the issued permit. Thus, the project would not require new or relocated municipal wastewater collection and conveyance infrastructure or new or expanded municipal wastewater treatment facilities, and **no impact** would occur.

### Electric Power

The project itself involves the construction and maintenance of a photovoltaic (PV) energy generating facility, a battery storage facility, and interconnection facilities, including a generation substation, switch station, and interconnection lines, that would provide new power production capacity of up to 344 MW delivered at the point of interconnection with the grid managed by SMUD. The energy generation components of the project would include solar modules that convert sunlight into DC power, inverters to transform the DC power into AC power, and underground AC power cables that would connect array transformers to a medium voltage combining switchgear which would then connect to the proposed generation substation. The energy storage system proposed to be constructed within the project footprint would either consist of an AC-coupled system or a DC-coupled system, and would connect to the proposed generation substation via an overhead or underground collection system similar to the solar component of the project. The proposed onsite substation would be a minimum of 600 feet by 300 feet and include one or more generation step-up transformers, breakers, buswork, protective relaying, meters, Site Control Center building, backup power, associated substation equipment, and a dedicated perimeter fence. The interconnection of the project to SMUD's grid would be accomplished through the removal of a section of existing SMUD transmission lines and the installation of new overhead double circuit lines. More in-depth details of the project design can be found in Chapter 2, Project Description.

The proposed transmission system upgrades may include a line reactor installation and reconductoring of one or more lines. The upgrades would be designed and built to meet SMUD's specification, guidelines and standards. The line reactor installation would be connected in series with an underground transmission line. The reconductoring would be accomplished through removal of the existing transmission lines and installation of new underground and overhead lines. One or more poles may be replaced to accommodate the installation of the new overhead lines.

Existing overhead distribution lines adjacent to and within the project site may be used to provide energy to project infrastructure and personnel during both construction and operation of the project. Additional poles and lines may be required to extend service to proposed project components such as the project generation substation or 230 kV switch station. Some existing distribution lines may need to be removed and/or placed underground.

The project will require electricity for the use of external safety lighting and permanent lighting on the switch station, substation, entrances to the arrays, and certain array or BESS-related equipment. Temporary construction lighting may also be necessary for nighttime construction activities. Lighting at inverters medium voltage combining switchgear, substation, and switch station would only be switched on if maintenance is required outside of daylight hours and lighting at entrances would be on motion sensors or on from dusk until dawn.

Service is likely to be provided via one of the adjacent electrical distribution lines or emergency generators may be installed for operations. Electricity would be consumed by the project, as required for operation, when the Project is not powered by on-site energy generation.

Electric facilities and connections proposed as part of the Project could result in potential environmental impacts. These impacts are discussed extensively throughout this EIR.

### Natural Gas

Solar PV facilities do not require the use of natural gas for the power generation process. Therefore, no natural gas facilities are proposed as part of this project, nor would the project result in the relocation or construction of new or expanded natural gas facilities that would cause an adverse environmental effect. The irrigation wells may be powered by electrical distribution lines, diesel, or propane fuel. If a new well is constructed on-site, it will likely utilize existing electrical distribution lines. Thus, there would be **no impact** related to natural gas facilities.

### Telecommunications Facilities

Telecommunications would be provided from a local provider or a microwave/satellite communications tower. Underground and/or overhead fiber optic cables would be installed onsite and along the interconnection and collection between the solar plant,



BESS yard, the generation substation and the switch station. The impacts of the telecommunications-related components of the project are analyzed on a resource-by-resource basis throughout this Chapter 4.

**Impact 3.19-2. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?**

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The project site is currently served by onsite wells and future demands from the project are expected to be met by existing or new onsite wells. A WSA was prepared by AECOM (2022) for the proposed project to determine whether the projected available water supplies would meet the proposed project's water demand (Appendix D).<sup>3</sup> In estimating the effects of groundwater supplies for the proposed solar facilities, AECOM evaluated the potential reduction of groundwater storage from the solar facilities' construction, operational, and maintenance phases as compared to the existing groundwater storage underlying the project site.<sup>4</sup> As shown in Table 3.19-2, the proposed solar facilities would require a total of 250 AF of groundwater over the projected project life.

**Table 3.19-2. Groundwater Demand for Proposed Solar Facilities**

Project Phase	Water Demand	Primary Use
Construction (18-24 months)	100 acre-feet over 18 to 24 months	Soil compaction and dust control
Operations and Maintenance <sup>1</sup>	Up to 11 acre-feet per year	Panel washing, domestic use by onsite employees, and compatible agricultural activities such as grazing and/or pollinator habitat

Source: AECOM 2022

<sup>1</sup> This total consists of approximately 5.8 acre-feet per year for grazing and/or pollinator habitat, approximately 5 acre-feet per year for panel washing, and approximately 0.1 acre-foot per year for restrooms and drinking water.

Effects to regional water supplies were considered in the context of existing modeling results for current and future conditions in the groundwater basin as analyzed in existing water resource management plans (see Appendix D). The groundwater subbasin is currently within balance and projected conditions with climate change results in only a

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<sup>3</sup> The State of California has enacted legislation that is applicable to the consideration of larger projects under CEQA. Senate Bill 610 (Chapter 643, Statutes of 2001; Section 21151.9 of the California Public Resources Code and Section 10910 et seq. of the California Water Code) requires the preparation of "water supply assessments" (WSAs) for large developments. The proposed project satisfies the statutory definition of a "project" for the purpose of determining Senate Bill 610 applicability because it is considered an industrial facility in excess of 40 acres in size, per 10912(a)(5) of the California Water Code.

<sup>4</sup> Section 10910(c)(4) of the California Water Code states the water assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

slight imbalance. Modeling for the North American Subbasin, including the projected conditions (i.e., future development through 2040), estimates greater average annual inflows than outflows in the subbasin under long-term average conditions, resulting in an increase in groundwater storage. However, the groundwater budget for projected conditions, when factoring in climate change, estimates a storage deficit; but with implementation of specific projects included in the groundwater sustainability plan for the North American Subbasin, the subbasin should continue to have a surplus of water in the future, but in lesser amounts. During dry and critically dry water years, net decreases in groundwater storage within the subbasin are expected, but this storage is typically recovered during subsequent wet years. As such, the groundwater subbasin is not projected to experience any undesirable results within the 2042 planning horizon.

The proposed project would reduce agricultural water demands by approximately 3,673 AFY due to the conversion of irrigated lands to non-irrigated land uses and cause a net increase in groundwater storage on an average annual basis, and would not substantially decrease groundwater supplies. The WSA concluded that adequate supplies to support the project would be available under normal, single dry, and multiple dry water years and this impact would be **less than significant**. Please see Impact 3.10-2 in Section 3.10, "Hydrology and Water Quality," for further discussion of groundwater supplies and recharge.

**Impact 3.19-3. 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?**

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Low amounts of liquid waste would be generated during construction, operation and maintenance. Portable restroom facilities would be provided for workers during construction, and would be replaced as needed. Up to two on-site permanent restrooms would be installed for the operational phase of the project. These restrooms would be connected to a septic system and would comply with the County Municipal Code Article 8.24 and the County's On-Site Sewage Manual (Placer County 2017). Appropriate on-site septic systems would be designed and operated to meet County requirements to protect human health and the environment. Therefore, this impact would be **less than significant**.

**Impact 3.19-4. 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?**

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The project is expected to generate 22 cubic yards of solid waste per week during the short-term construction phase, and 1 cubic yard of waste per week during the project's operation and maintenance activities.

Construction activities would generate waste that would require off-site disposal. Solid waste generated would consist of trash, cardboard, wood products, inert organics, non-hazardous solar panels, and concrete. The project activities would not include large-

scale demolition of existing facilities, so the amount of solid waste that would be generated is expected to be adequately served by existing facilities. All solid waste generated during construction of the project would be collected and disposed of or recycled by the contractor at Western Regional Sanitary Landfill.

Operation of the project would generate solid waste through the repair and replacement of inverters and PV panels, which are expected to need replacement every 10 and 30 to 40 years, respectively. Waste generated through project operation would be collected and disposed of or recycled in accordance with state and federal laws. As described in section 3.19.2, the Western Regional Sanitary Landfill is permitted to collect waste until the year 2058 and has a remaining capacity of approximately 23,554,800 cubic yards, as of June 2020. The Western Regional Sanitary Landfill would have adequate capacity to accept the project's solid waste and would account for a miniscule percentage of the landfill's over 23 million cubic yards of remaining capacity. Landfill waste generated by the project would not exceed its permitted daily tonnage or deplete substantial long-term capacity. If for any reason the Western Regional Sanitary Landfill is not operational, non-hazardous solid waste may be taken to North Area Recovery Station, 10 miles south of the project site, or L and D Landfill, approximately 17 miles south of the project site.

Although the project could increase total waste generation in the area, the project would not 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. Therefore, this impact would be **less than significant**.

#### **Impact 3.19-5. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?**

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During initial demolition and construction, the Project would be required to comply with the CalGreen Code. Construction equipment uses various hazardous materials (e.g., diesel fuel, oil, solvents) and these materials would be disposed of off-site in accordance with all applicable laws pertaining to the handling and disposal of hazardous waste. All waste shipped offsite would be transported in accordance with the Department of Transportation, Code of Federal Regulations (CFR) Title 49, Subtitle B, Chapter I and CCR, Title 13, Division 2. Organic agriculture biomass, such as any removed orchard trees, would be chipped on site and used as mulch.

During the operational phase of the project, non-hazardous waste would be collected in designated locations and picked up/disposed of by a local waste disposal or recycling company. Therefore, the project would not negatively impact the provision of solid waste services or the attainment of solid waste reduction goals and this impact would be **less than significant**.

#### *Mitigation Measures*

No Mitigation is required.

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## 3.20 Wildfire

This section summarizes regulations applicable to wildfire, describes the environmental setting for wildfire in the project area, and provides an assessment of potential changes to those conditions that would result from implementation of the proposed project. Effects of the proposed project on wildfire are generally defined in terms of the proposed project's physical characteristics, location, impacts on an emergency response plan or emergency evacuation plan, and exacerbation of wildfire risks associated with pollutant concentrations or uncontrolled spread of wildfire. Also considered is the project-related installation or maintenance of associated infrastructure that may include activities that could present a fire risk, and exposure of people or structures to significant secondary wildfire risks, although overall, maintenance activities are often aimed at reducing fire risk. In addition, this analysis identifies design features and compliance with existing safety procedures, standards, and regulations related to managing fire risk that would be part of the project.

### 3.20.1 Regulatory Setting

#### *Federal*

##### *Disaster Mitigation Act of 2000*

The Disaster Mitigation Act of 2000 provides the legal basis for the Federal Emergency Management Agency's (FEMA) mitigation planning requirements for state, local, and tribal governments as a precursor to mitigation grant assistance. The Disaster Mitigation Act of 2000 requires that local governments prepare a Local Hazard Mitigation Plan (LHMP) that must be reviewed by the State Mitigation Officer, approved by FEMA, and renewed every 5 years. The LHMP must include a planning process, a risk assessment, a mitigation strategy, and plan maintenance and updating procedures to identify the natural hazards, risks, and vulnerabilities of the area under the jurisdiction of the government. Natural hazards include, but are not limited to, earthquakes, tsunamis, tornadoes, hurricanes, flooding, and wildfires.

##### *National Fire Protection Association Codes, Standards, Practices, and Guides*

National Fire Protection Association (NFPA) codes, standards, recommended practices, and guides are developed through a consensus standards development process approved by the American National Standards Institute. This process brings together professionals representing varied viewpoints and interests to achieve consensus on fire and other safety issues. NFPA standards are recommended guidelines and nationally accepted good practices in fire protection but are not law or "codes" unless adopted as such or referenced as such by the California Fire Code or the local fire agency.

**NFPA 70, National Electrical Code**

*NFPA 70, National Electrical Code (NEC)*, sets the foundation for electrical safety in residential, commercial, and industrial occupancies. It is consistently reviewed and updated, with input from active professionals in the field, to stay ahead of the constant changes in technology and safety. Article 480 (Storage Batteries), Article 690 (Solar Photovoltaic Systems), and Article 691 (Large-Scale Solar Photovoltaic Electrical Supply Stations) of the 2020 NEC edition specifically address installation and operation of PV systems and associated facilities (NFPA 2020).

**NFPA 850, Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations**

NFPA 850, Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations, was prepared for the guidance of those charged with the design, construction, operation, and protection of electric generating plants and high voltage direct current converter stations. This document provides fire hazard control recommendations for the safety of construction and operating personnel, the physical integrity of plant components, fire protection systems and equipment, and the continuity of plant operations.

**NFPA 855, Standard for the Installation of Stationary Energy Storage Systems**

NFPA 855, Standard for the Installation of Stationary Energy Storage Systems, provides minimum requirements for mitigating hazards associated with energy storage systems. This document provides recommendations for exhaust ventilation; smoke and fire detection; explosion control; fire protection systems and equipment; and installing, operating, maintaining, and decommissioning energy storage systems.

*State**California Fire Code*

The California Fire Code (Title 24, Chapter 9 of the California Code of Regulations) contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire safety requirements for new and existing buildings and the surrounding premises. The following sections in Chapter 12 of the 2019 California Fire Code with July 2021 Supplements contains specialized technical regulations related to energy systems.

**Section 1204**

Section 1204 (Solar Photovoltaic Power Systems) of the California Fire Code requires a clear, brush-free area of 10 feet around all ground-mounted PV arrays and a building(s)

containing a rapid shutdown system with permanent labels describing the rapid shutdown process.

**Section 1205**

Section 1205 (Stationary Fuel Cell Power Systems) of the California Fire Code identifies requirements for installation and operation of stationary fuel cell power systems, including ventilation and exhaust, gas detection systems, fuel supply, and fire suppression equipment.

**Section 1206**

Section 1206 (Electrical Energy Storage Systems [ESS]) of the California Fire Code outlines construction and operation permit requirements for stationary and mobile energy storage systems as well as installation, replacement, and maintenance requirements.

**California Public Resources Code****Section 4291**

Section 4291 of the California Public Resources Code (PRC) defines and describes fire protection measures and responsibilities for mountainous, forest, brush, and grass covered lands. These measures include, but are not limited to, the following:

- Maintenance of defensible space of 100 feet from each side and from the front or rear of a structure, but not beyond the property line.
- Removal of a portion of a tree that extends within 10 feet of the outlet of a chimney or stovepipe.
- Maintenance of a tree, shrub, or other plant adjacent to or overhanging a building free of dead or dying wood. Construction or rebuilding of a structure must comply with all applicable state and local building standards.

**Section 4292**

PRC Section 4292 sets forth the basic requirements for clearances around poles and towers. This section requires that flammable fuels be cleared for a minimum 10-foot radius from the outer circumference of certain poles and towers (nonexempt or subject poles or towers). The minimum clearance requirements are based on the type of hardware affixed to the line at the pole or tower. The distances for clearance requirements must be measured horizontally, not along the surface of sloping ground.

**Section 4293**

PRC Section 4293 sets forth the basic requirements for clearances around electrical conductors. This section requires that all vegetation be cleared for a specific radial

distance from conductors, based on the voltage carried by the conductors: 4 feet for voltages between 2,400 and 72,000 volts; 6 feet between 72,000 and 110,000 volts; and 10 feet for voltages greater than 110,000 volts. In addition, this section calls for removal or trimming of trees that are dead, decadent, rotten, decayed, or diseased, and could fall into the line or cause other surrounding trees to fall into the line.

**Section 4427**

PRC Section 4427 limits the use of any motor, engine, boiler, stationary equipment, welding equipment, cutting torches, tarpots, or grinding devices from which a spark, fire, or flame may originate, when the equipment is located on or near land covered by forest, brush, or grass. Before such equipment may be used, all flammable material, including snags, must be cleared away from the area around such operation for a distance of 10 feet. A serviceable round point shovel with an overall length of not less than 46 inches and a backpack pump water-type fire extinguisher, fully equipped and ready for use, must be maintained in the immediate area during the operation.

**Section 4428**

PRC Section 4428 limits industrial operations on or near any land covered by forest, brush, or grass between April 1 and December 1 of any year, or other times when ground litter and vegetation will sustain combustion permitting the spread of fire. Such operations must provide and maintain, for firefighting purposes only, suitable and serviceable tools in the following amounts, manner, and locations:

- A sealed box of tools must be located in the operating area, at a point accessible in the event of fire. The fire toolbox must contain a backpack pump-type fire extinguisher filled with water, two axes, two McLeod fire tools, and enough shovels for each employee at the operation to be equipped to fight fire.
- Each passenger vehicle used must be equipped with a shovel and an ax, and any other vehicle used must be equipped with a shovel. Each tractor used must also be equipped with a shovel.

**Section 4431**

PRC Section 4431 requires users of gasoline-fueled internal combustion-powered equipment operating within 25 feet of flammable material on or near land covered by forest, brush, or grass to have a tool for firefighting purposes at the immediate location of use. This requirement is limited to periods when burn permits are necessary. Under Section 4431, the Director of Forestry and Fire Protection specifies the type and size of fire extinguisher necessary to provide at least a minimum assurance of controlling fire caused by use of portable power tools during various climatic and fuel conditions.



**Section 4442**

PRC Section 4442 prohibits the use of internal combustion engines running on hydrocarbon fuels on any land covered by forest, brush, or grass unless the engine is equipped with a spark arrestor and is constructed, equipped, and maintained in good working order when traveling on any such land.<sup>1</sup>

**Senate Bill 901**

In September 2018, Senate Bill (SB) 901 was adopted, and requires publicly owned utilities to prepare wildfire mitigation measures if the utilities' overhead electrical lines and equipment are located in an area that has a significant risk of wildfire resulting from those electrical lines and equipment. Before January 1, 2020, and annually thereafter, these utility companies are required to prepare a Wildfire Mitigation Plan (WMP), except where its governing board determined that its federally approved fire prevention plan met the otherwise applicable requirements. The WMP must include a description of preventive strategies and programs, plans for vegetation management, plans for inspections, and description of metrics to evaluate plan performance, among many other measures.

**California Building Standards Code**

The State of California's minimum standards for structural design and construction are provided in the California Building Standards Code (CBSC) (24 California Code of Regulations). The standards set forth in the CBSC are based on the International Building Code, which is used widely throughout the United States (generally adopted on a state-by-state or district-by-district basis) and has been modified for California conditions with numerous more detailed or more stringent regulations. The CBSC provides standards for various aspects of construction, including (but not limited to) excavation, grading, and earthwork construction. In accordance with California law, certain aspects of the proposed project would be required to comply with all provisions of the CBSC. The CBSC requires certain building requirements to adhere to the Fire Code (Part 9). Local agencies must ensure that development in their jurisdictions comply with guidelines contained in the CBSC. Cities and counties can, however, adopt building standards beyond those provided in the code.

**State Responsibility Areas (Public Resources Code 4102)**

State Responsibility Areas (SRA) are defined by PRC Section 4102 as areas of the state in which the California Department of Forestry and Fire Protection (CAL FIRE) has determined that the financial responsibility for preventing and suppressing fires lies with the State of California. SRAs are lands in California where CAL FIRE has legal and

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<sup>1</sup> A spark arrestor is a device constructed of nonflammable materials specifically for the purpose of removing and retaining carbon and other flammable particles larger than 0.0232 inch from the exhaust flow of an internal combustion engine that uses hydrocarbon fuels or which is qualified and rated by the U.S. Forest Service.

financial responsibility for wildfire protection. SRA lands typically are unincorporated areas of a county, are not federally owned, have wildland vegetation cover, have housing densities lower than three units per acre, and have watershed or range/forage value. Where SRAs contain built environment or development, the local government agency assumes responsibility for fire protection (CAL FIRE 2007).

Local Responsibility Areas (LRA) include lands that do not meet criteria for SRAs or federal responsibility areas, or are lands in cities, cultivated agricultural lands, and nonflammable areas in the unincorporated parts of a county. LRAs can include flammable vegetation and wildland-urban interface areas. LRA fire protection is provided by the local fire departments, fire protection districts, county fire departments, or by contract with CAL FIRE.

*Very High Fire Hazard Severity Zones (Government Code 51177)*

Very High Fire Hazard Severity Zones (FHSZ) are defined by Government Code Section 51177 as areas designated by CAL FIRE as having the highest possibility of having wildfires. These zones are based on consistent statewide criteria and the severity of fire hazard that is expected to prevail in those areas. The Very High FHSZs are also based on fuel loading, slope, fire weather, and other factors, such as wind, that have been identified by CAL FIRE as a major cause of the spreading of wildfires. FHSZ maps are produced and maintained for each county. 2018 California Strategic Fire Plan CAL FIRE's Strategic Fire Plan provides an overall vision for a built and natural environment that is more fire resilient through the coordination and partnerships of local, state, federal, tribal, and private entities (CAL FIRE 2018). First developed in the 1930s, the Strategic Fire Plan is periodically updated; the current plan was prepared in 2018. The Plan analyzes and addresses the effects of climate change, overly dense forests, prolonged drought, tree mortality, and increased severity of wildland fires through goals and strategies. The primary goals of the 2018 Strategic Fire Plan are to do the following.

- Improve the availability and use of consistent, shared information on hazard and risk assessment.
- Promote the role of local planning processes, including general plans, new development, and existing developments, and recognize individual landowner/homeowner responsibilities.
- Foster a shared vision among communities and the multiple fire protection jurisdictions, including county-based plans and community-based plans such as Community Wildfire Protection Plans.
- Increase awareness and actions to improve fire resistance of human-made assets at risk and fire resilience of wildland environments through natural resource management.
- Integrate implementation of fire and vegetative fuels management practices consistent with the priorities of landowners or managers.

- Determine and seek the needed level of resources for fire prevention, natural resource management, fire suppression, and related services.
- Implement needed assessments and actions for post-fire protection and recovery.

California Public Utilities Commission Decision 17-12-024

To improve fire safety associated with electrical utility facilities, the California Public Utilities Commission's (CPUC) Safety and Enforcement Division adopted Decision 17-12-024, Decision Adopting Regulations to Enhance Fire Safety in the High Fire-Threat District. The decision mandated the CPUC to prepare a statewide Fire-Threat Map to identify areas of the highest risk, where stricter fire safety regulations should be incorporated. The Fire-Threat Map divides such areas into Tier 1 (High), Tier 2 (Elevated), and Tier 3 (Extreme) Hazard Zones.

*Local*

SMUD 2021 Wildfire Mitigation Plan

In 2019, SMUD published its WMP in accordance with SB 901 Section 8387, which requires every publicly owned utility to prepare and present a WMP to a governing body by January 2020, and provide comprehensive revisions to the WMP every 3 years thereafter. SMUD updated its WMP in 2021 (SMUD 2021) and utilizes it to construct, maintain and operate their electrical lines and equipment to minimize potential wildfire risk.

The WMP describes SMUD's wildfire prevention strategies and programs, including vegetation management programs and inspection and maintenance programs, to mitigate the threat of power-line ignited wildfires. In addition, the WMP provides protocols for deactivating infrastructure in severe weather or hazard conditions, a strategy for how service will be restored in the event of a wildfire, and actions SMUD is taking to mitigate the threat of infrastructure-ignited wildfires, including a variety of plans, programs, and procedures. The WMP meets or exceeds the requirements of Public Utility Commission (PUC) section 8387 for publicly owned electric utilities.

Placer County General Plan

The Placer County General Plan (Placer County 2021a) Health and Safety Element contains policies related to wildfire and fire protection and the following policies are applicable to the proposed project:

**Policy 8.C.1.1:** The County shall require that new development meet State, County, and local fire district standards for fire protection, including the California Building Standards Code, the International Wildland-Urban Interface Code, and the Placer County Municipal Code as applicable.

**Policy 8.C.1.2:** The County shall refer applicants of development projects in the unincorporated county to the appropriate local fire agencies for review for compliance with fire safety standards. If dual responsibility exists, then both agencies shall review and comment relative to their area of responsibility. If standards are different or conflicting, the more stringent standards shall be applied. For new development located within high fire hazard areas, the County shall ensure that the local fire agency(s) fire safety requirements are incorporated into the project's design prior to implementation, in order to minimize the risk from fire hazards. (Addresses California Government Code Section 65302 (g)(3)(C)(i, iv))

**Policy 8.C.1.3:** The County shall ensure that existing and new buildings of public assembly incorporate adequate fire protection measures to reduce the potential loss of life and property in accordance with state and local codes and ordinances

#### Placer County Local Hazard Mitigation Plan

The Placer County 2021 Local Hazard Mitigation Plan Update (Placer County 2021b), in accordance with the Disaster Mitigation Act of 2000, identifies potential hazards and mitigation actions and strategies to reduce or eliminate long-term risk to people and property from natural and human-caused hazards, such as wildfires. The plan provides goals, policies, objectives, and feasible implementation measures related to avoiding or minimizing wildfire hazards associated with new uses of land, developing adequate infrastructure for new development in SRAs or VHFHSZs, and working with public agencies responsible for fire protection.

### 3.20.2 Environmental Setting

#### *Wildland Fires*

The term wildfire refers to an unplanned, unwanted, wildland fire, including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to extinguish the fire (California Government Code 51177). Wildfire's characteristics depend on the circumstances where the fire is burning. Brush fires, which burn both natural vegetation and dry-farmed grain, typically burn fast and very hot, and often threaten homes in the area and lead to serious destruction of vegetation.

Short-term effects of wildfires include destruction of timber, and loss of wildlife habitat, scenic vistas, and watersheds, as well as immediate impacts on human health (e.g., wheezing, coughing, sore eyes and throat, shortness of breath) and loss of human life or injury. Long-term effects of wildfires include smaller timber harvests, reduced access to recreational areas, and destruction of community infrastructure and cultural or economic resources. Wildfires also increase the area's vulnerability to secondary impacts such as flooding, landslides, and increased runoff. Wildfire damage to life and

property is generally greatest in areas designated as wildland-urban interface, where development is in close proximity to densely vegetated areas.

In addition, climate change is expected to contribute to significant changes in fire regimes. Fire is a natural component of many ecosystems and natural community types, including grasslands, chaparral/scrub, and oak woodland. For each of these natural communities, fire frequency and intensity influence community regeneration, composition, and extent.

The project site is characterized by nearly flat topography with slopes ranging from 0 to 5%, and there are no off-site areas of steep slopes that could affect the project site. The majority is currently in agricultural production, which has low fire risk due to irrigation. Only a small part of the project is annual grassland. Traditional wildfire fuels are not present within the project area. The Cal Fire - Fire and Resource Assessment Program (FRAP) compiles fire perimeters and has established an on-going fire perimeter data capture process. Historical FRAP data shows one fire having occurred within the project footprint and multiple fires having occurred adjacent to the project area. On January 21, 2014, the Brewer Fire burned 104 acres south of Phillip Road and east of South Brewer Road. A portion of the project area falls within the area affected by this fire (Cal Fire 2022a).

There have been more than 80 fires mapped by FRAP within 10 miles of the project area, most of which are located northwest of the project area along Sunset Boulevard and south of the project area in between Baseline Road and the boundary between Placer and Sacramento counties. Of the fires directly adjacent to the project area, the 2009 Dyer Fire covered the most territory, burning 262 acres immediately south of Baseline Road. The most recent fire occurring adjacent to the project area was the 2020 Dyer Fire, which burned 194 acres just south of Baseline Road, with much of the area overlapping the area burned by the 2009 Dyer Fire. Both of these fires occurred within 500 feet of the southern boundary of the project area (Cal Fire 2022a).

#### *Fire Hazard Severity Zone*

As explained above in Section 3.20.1, *Regulatory Setting*, CAL FIRE identifies SRAs and LRAs, which are areas in which the state or local fire agencies, respectively, are responsible for wildfire management. However, because wildfires can rapidly spread across responsibility areas, local and state firefighting groups often work collaboratively to control wildland fires and fires within the urban-wildland interface. Land areas identified as SRAs and LRAs are divided into FHSZs, which include areas of moderate, high, and very high fire hazard risk.

The project site is not within a SRA. The nearest lands within a SRA are north of the City of Lincoln and east of the cities of Loomis and Roseville (CAL FIRE 2022b). The lands are designated by CAL FIRE as Moderate Fire Hazard Severity Zones. These lands are served by Battalion 17 of CAL FIRE's Nevada-Yuba-Placer Unit (CAL FIRE 2020).

The project site is within a LRA, and the Placer County Fire Department provides fire protection services to the project site.<sup>2</sup> There are no very high fire hazard severity zones within or in the vicinity of the project site (CAL FIRE 2007, 2022b). The nearest very high fire hazard severity zone is within the City of Auburn, approximately 21 miles northeast of the project site (CAL FIRE 2022b).

### 3.20.3 Environmental Impacts and Mitigation Measures

#### *Methods and Assumptions*

This analysis of the proposed project's effects related to wildfire is based on a review of CAL FIRE's Fire Hazard Severity Zone map for Placer County; regulatory safety procedures, standards, and regulations; and the information resources cited herein. Effects were identified and evaluated qualitatively based on the environmental characteristics of the project area and the magnitude and duration of activities related to the implementation of the proposed project.

#### *Thresholds of Significance*

Based on Appendix G of the State CEQA Guidelines, the proposed project would result in a potentially significant impact related to wildfire if, in areas within or near SRAs or lands classified as Very High FHSZs, it would do the following.

- Substantially impair an adopted emergency response plan or emergency evacuation plan.
- 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.
- 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.
- 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.

#### *Issues Not Discussed Further*

**Exacerbate Fire Risk or Result in Temporary or Ongoing Impacts to the Environment from Installation or Maintenance of Associated Infrastructure (such as Roads, Fuel Breaks, Power Lines, or Other Utilities)** —Infrastructure that could

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<sup>2</sup> The closest station to the project site is Station 100 located at 8350 Cook Riolo Road in Roseville, approximately 6.5 miles southeast of the project site. Station 100 includes two Type I Engines, one Type III Engine, and one water tender (CAL FIRE 2020).

exacerbate wildfire risks, in this case, refers to installation of utility infrastructure (i.e., interconnection lines, transmission system upgrades) and construction of the internal roadways. The potential for installation or maintenance of this infrastructure to result in temporary or ongoing impacts to the environment are addressed in the applicable resource sections throughout this EIR. Where development of the proposed project would result in potentially significant or significant environmental impacts, mitigation measures are identified to reduce those impacts to less-than-significant levels. There are no additional potentially significant or significant impacts associated with the installation and maintenance of infrastructure beyond those comprehensively considered throughout the other sections of this EIR, including Section 3.7, “Geology, Soils, and Paleontological Resources,” Section 3.9, “Hazards and Hazardous Materials,” and Section 3.10, “Hydrology and Water Quality.” Therefore, the installation and maintenance of additional infrastructure that could potentially exacerbate wildfire is not evaluated further in this section. Please see Impact 3.20-2 for further analysis of the potential for construction, operation, and maintenance of solar PV panels; inverters, transformers, and electrical components of the substation and switchyard; and the battery energy storage system (BESS) to exacerbate fire risks.

**Downstream Runoff, Post-Fire Slope Instability, or Drainage Changes** — The project site is characterized by nearly flat topography with slopes ranging from 0 to 5%, and there are no off-site areas of steep slopes that could affect the project site. As discussed in Section 3.10, “Hydrology and Water Quality,” the site-specific modeling performed by Black & Veatch (2022) demonstrates that during project operation, because the amount of stormwater runoff would be reduced as compared to existing conditions (due to the change from saturated rice fields to dryland grasses), proposed development in the PV array area would not result in substantial erosion or exceed the storm drainage system capacity. In addition, the project applicant is required to comply with the County’s Grading, Erosion, and Sediment Control Ordinance (Sacramento County Municipal Code Chapter 16.44), prepare a Stormwater Pollution Prevention Plan, and implement site-specific Best Management Practices that manage stormwater runoff and erosion (See Section 3.10, “Hydrology and Water Quality,” for a detailed discussion of stormwater runoff and drainage changes). Therefore, the proposed project would not create conditions that cause downstream runoff, post-fire slope instability, or drainage changes that would expose people or structures to significant risks, and this issue is not evaluated further in this section of the EIR.

### *Impact Analysis*

#### **Impact 3.20-1. Substantially impair an adopted emergency response plan or emergency evacuation plan?**

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Primary access to the project site would be provided by an entry road from Baseline Road to the south, South Brewer Road to the west, and Phillip Road to the north. All construction materials and equipment would be staged on the project site. Access to the project site during both construction and operation would be provided by existing, or newly constructed, paved, graveled, or dirt roads extending to the project site from

Baseline Road, South Brewer Road, and Phillip Road. The access from Baseline Road, South Brewer Road, and Phillip Road would provide appropriate emergency ingress and egress per Placer County requirements. While the County does not have a formally identified evacuation network, I-80 and SR-65, approximately 8.4 miles southeast and 9.0 miles east respectively, would help meet evacuation needs from different neighborhoods and communities, including the project site (Placer County 2021). Therefore, project construction and operation would not impede emergency vehicles or adopted emergency evacuation plans, and this impact would be **less than significant**.

**Impact 3.20-2. 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?**

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As stated above, Appendix G of the CEQA Guidelines determines wildfire impacts based on whether a proposed project would occur within or near a SRA or on lands classified as very high fire hazard severity zones. The proposed project would not be within a SRA or on lands classified as a very high fire hazard severity zone. The nearest lands within a SRA are north of the City of Lincoln and east of the cities of Loomis and Roseville and the nearest very high fire hazard severity zone is in the City of Auburn (CAL FIRE 2022b). However, the concern regarding wildfires has increased and the following analysis presents the potential for the proposed project to exacerbate wildfire risks.

*Construction*

During project construction, the primary fire hazards would be from vehicles and construction equipment. Construction vehicles use flammable fuels, such as diesel and gasoline, and would be operated in proximity to dry vegetation; their hot tailpipes or sparks from chains or other metal objects could ignite dry brush, especially during the warmer, dry months between June and October. Additionally, activities such as welding and grinding could generate sparks which would increase the likelihood of ignition. Therefore, dependent on the time of year and location of construction activities at the project site, there could be a temporary increase in exacerbated fire risk in the area.

Construction of the project will be required to comply with all laws, plans, policies, and regulations related to fire safety and wildfire suppression identified above in the Regulatory Setting section, including the following requirements from the California Public Resources Code:

- PRC Section 4427, which identifies appropriate fire suppression equipment and stipulates removal of flammable materials to a distance of 10 feet from any equipment that could produce a spark, fire, or flame on days when burning permits are required;
- PRC Section 4428, which identifies additional firefighting equipment requirements during the period of highest fire danger (April 1–December 1);



- PRC Section 4431, which prohibits the use of portable tools powered by gasoline-fueled internal combustion engines within 25 feet of flammable materials when burning permits are required; and
- PRC Section 4442, which requires engines be equipped with a spark arrestor.

Strict adherence to applicable PRCs requirements would ensure that wildfire risks are minimized.

Construction of the project would involve preparation, installation, and testing of electrical components such as cables, inverters, wiring, modules, and a transformer. Small quantities of potentially flammable substances, such as oils, fuels, and greases, would be stored at the site during construction. These potentially flammable substances will be required to be used and stored in accordance with all applicable federal, state and local laws, regulations and policies (see Section 3.9, “Hazards and Hazardous Materials,” for further detail).

#### *Operations and Maintenance*

The project would operate seven days per week. One regular onsite employee may be required, and some personnel may visit the site to monitor, maintain, and if needed, repair, the system. The project may also require occasional repair or replacement of project components. Inverters may require replacement every 10 years, while PV panels generally last 30 to 40 years. Thus, infrastructure replacement is expected to be rare. Other operational activities would include BESS equipment maintenance, interconnection equipment maintenance, production reporting, equipment inspecting and testing, and similar activities. General site maintenance would include vegetation management, road maintenance, removal of debris from fences, and general upkeep of the facility.

Pickup trucks and flatbeds, forklifts, and loaders may be used for normal maintenance. Large, heavy-haul, transport equipment would be occasionally used to repair or replace equipment. These intermittent maintenance activities could increase the potential for ignition on-site due to the presence of vehicles and use of equipment. Other potential causes of wildfire associated with operations and maintenance of the proposed project could include DC arc faults,<sup>3</sup> hot spot effects, electrical shorts, sparking, motor or other machinery fire, wiring and harnessing fire, overheated junction boxes, vandalism, fire in an inverter, short circuit and fire of components in or on a panel, potential for sun reflection from panels igniting vegetation, substation and switchgear fire, and thermal runaway associated with battery energy storage facilities.

The majority of the solar facility’s equipment would consist of solar PV panels and their mounting systems, which would be assembled from noncombustible, nonflammable

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<sup>3</sup> DC arc faults occur wherever there are joints in the DC cables, a breakdown of cable continuity, or a breakdown of insulation. This can occur on the solar modules, the DC connectors, the DC cabling, the joints in the DC isolators or inside the inverter.

materials, such as steel or aluminum. The fire risk in PV systems is very low and most fires are a result of installation errors, faulty equipment, and aging facilities causing DC arc faults (TUV Rheinland Energie und Umwelt GmbH 2018, Wu et al., 2020). Panels would be washed and cleared of debris, as needed, to reduce the potential of hot spot effects.<sup>4</sup> Solar PV panels are specifically designed to reduce reflection, as any reflected light cannot be converted into electricity, and as a result the solar PV panels would not cause sun reflection that could ignite vegetation. The PV system would be operated and maintained consistent with Section 1204 (Solar Photovoltaic Power Systems) of the California Fire Code and Article 690 (Solar Photovoltaic Systems) of the NEC.

The interconnection of the project to SMUD's grid would be accomplished through removal of a section of the existing SMUD transmission lines and installation of new overhead double circuit lines on galvanized steel mono structure poles or lattice structures to interconnect the new switching station.

Inverters, transformers, and electrical components of the substation and switchyard may pose a risk of fire. Assembly and installation of the electrical equipment would meet existing electrical and safety standards of the California Fire Code. Certified electricians and utility journeymen would be part of the construction workforce to ensure that all electrical equipment are assembled properly. All electric inverters and the transformer would be concrete mat foundation and tested prior to use to ensure safe operations and avoid fire risks. Ongoing maintenance would ensure all components of the project are in proper condition, thereby minimizing accidents and potential fires.

The project would incorporate a BESS. Two main types of BESSs are being considered for the project: a DC-coupled and an AC-coupled system. Potential hazards associated with battery energy storage facilities 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 BESS would be installed following all applicable design, safety, and fires standards for the installation of energy storage systems, including, but not limited to, Article 608 of the NEC, NFPA 855, and Section 1206 of the California Fire Code, all of which includes criteria for fire prevention and suppression associated with energy storage facilities installations. Implementation and compliance with these design and safety regulations would reduce potential fire risks.

Electrical components could pose a small risk of fire if they become damaged or are vandalized. The entire project site would be fenced to restrict access to authorized

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<sup>4</sup> The hotspot effect occurs when a solar panel is shaded by trees or blocked by dirt and debris and the current cannot flow around weak cells. Eventually, the current will concentrate in a few cells, causing them to overheat and potentially melt or ignite.

personnel only, improve safety, isolate electrical equipment, protect onsite improvements from vandalism.

SMUD would implement wildfire prevention strategies and programs outlined in its 2021 WMP. These strategies include regular ground inspections of all facilities and vegetation management (SMUD 2021). SMUD implements work rules and complementary training programs for its workforce to help reduce the likelihood of the ignition of wildfires (SMUD 2021).

Defensible space of 100 feet from each side of on-site structures per PRC Section 4291 would be maintained. Clearances around poles and electrical conductors would be consistent with PRC Section 4292 and PRC Section 4293, respectively. Reduction of vegetation would further reduce the availability of flammable fuels around the project site. These safety measures would provide safe operating conditions and fire response protocols to minimize the risk of wildfire.

### *Vegetation Management*

Post-construction the majority of the site would be vegetated with grazing and pollinator friendly vegetation, with the exception of the footprints for the substation, switching station, BESS yard, the solar panel support posts, the foundations for the inverters, switchgear and transformers and roadways. Throughout project operation, sheep grazing would occur at the project site around the PV arrays. The existing onsite wells will remain, and could provide supplemental water to sheep to allow for year-round grazing of the site. Grazing modifies the amount, height, and continuity of fuel through ingestion and trampling, and has been shown to reduce fuel load more effectively than mechanical methods (Nader 2019, University of California 2022). In addition, grazed grass produces substantially lower flame lengths and spreads slower by one-quarter to one-half the rate (Wildland Res Mgt et al, 2014).

### *Impact Conclusion*

The proposed project would not be within a SRA or on lands classified as a very high fire hazard severity zone and wildfire risks during construction and operation would be offset by compliance with fire safety and wildfire suppression measures identified in the Regulatory Setting discussion above. In addition, SMUD would implement its WMP, which is intended to mitigate the threat of wildfire. Adherence to these safety measures, when considered together, would minimize the risk of increased frequency, intensity, or size of wildfires and decrease the risk of exposure of people or structures to wildfire. All of the project facilities would be installed, operated, and maintained following all applicable design, safety, and fires standards. Many of the project components, such as the solar PV panels and their mounting systems; transmission structures; and structures housing inverters, transformers, and BESS, would not exacerbate fire risks due to the nonflammable nature of their foundations and constituent parts. Furthermore, sheep grazing would modify the amount, height, and continuity of fuel through the project site; moreover, grazed grass produces substantially lower flame lengths and spreads slower

by one-quarter to one-half the rate. Therefore, impacts related to the potential for the proposed project to exacerbate wildfire risks would be **less than significant**.

*Mitigation Measures*

No Mitigation is required.

## 4.0 CUMULATIVE IMPACTS

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### 4.1 CEQA Requirements

Section 15130(a) of the State CEQA Guidelines requires a discussion of the cumulative impacts of a project when the project's incremental effect is cumulatively considerable. Cumulatively considerable, as defined in CEQA Guidelines Section 15065(a)(3), means that the "incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." State CEQA Guidelines Section 15355 defines a cumulative impact as two or more individual effects that, when considered together, are considerable or that compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

### 4.2 Cumulative Impact Approach

CEQA Guidelines Section 15130 identifies two basic methods for establishing the cumulative environment in which a project is considered: the use of a list of past, present, and probable future projects or the use of adopted projections from a general plan, other regional planning document, or a certified EIR for such a planning document. This cumulative analysis uses a combination of the "list" approach and the "projections" approach to identify the cumulative setting. The effects of past and present projects on the environment are reflected by the existing conditions in the project area.

In the case of the proposed Country Acres Solar Project, the project site and surrounding area have been modified from its natural conditions by human activity. Much of the project site is occupied by agricultural rice fields in the northern and central portions of the project site, while the southern extent of the project site consists entirely of almond orchards. There are some grasslands and seasonal wetlands within the project site.

A list of probable future projects is provided below. Probable future projects are those in the project vicinity that have the possibility of interacting with the project to generate a cumulative impact and either:

1. are partially occupied or under construction;
2. have received final discretionary approvals;
3. have applications accepted as complete by local agencies and are currently undergoing environmental review, or
4. have been discussed publicly by an applicant or otherwise have become known to the lead agency, provided sufficient information is available about the project to

allow at least a general analysis of environmental impacts and an evaluation of the likelihood of implementation.

The analysis also considers planning efforts that address regional environmental issues, such as conservation and water quality improvement programs, and potential effects associated *with* climate change. These plans, programs, and effects are discussed in relevant resource discussions below.

## 4.3 Cumulative Setting

### 4.3.1 Geographic Scope

The geographic area that could be affected by implementation of the proposed Country Acres Solar Project varies depending on the type of environmental resource being considered. When the effects of the project are considered in combination with those other past, present, and probable future projects to identify cumulative impacts, the other projects that are considered may also vary depending on the type of environmental effects being assessed. Table 4-1 presents the general geographic areas associated with the different resources addressed in this analysis.

**Table 4-1: Geographic Scope**

<i><b>Resource Topic</b></i>	<i><b>Geographic Area</b></i>
<i>Aesthetics</i>	Local (project site and surrounding public viewpoints)
<i>Agriculture</i>	Local and regional
<i>Air Quality</i>	Regional (pollutant emissions that affect the air basins) and immediate project vicinity (pollutant emissions that are highly localized)
<i>Biological Resources</i>	Local and regional
<i>Cultural Resources</i>	Local (limited to project site), with regional implications
<i>Energy</i>	Local and regional
<i>Geology, Soils, and Paleontological Resources</i>	Local
<i>Greenhouse Gases</i>	Global
<i>Hazards and Hazardous Materials</i>	Local (immediate project vicinity)
<i>Hydrology and Water Quality</i>	Local and regional
<i>Land Use and Planning</i>	Local (immediate project vicinity)
<i>Mineral Resources</i>	Local
<i>Noise</i>	Local (immediate project vicinity where effects are localized)
<i>Population and Housing</i>	Local and regional
<i>Public Services</i>	Local and regional
<i>Recreation</i>	Local and regional
<i>Transportation</i>	Local and regional
<i>Utilities and Service Systems</i>	Local and regional

<i>Wildfire</i>	Local and regional
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#### **4.4 Cumulative Impact Analysis**

For purposes of this EIR, the proposed Country Acres Solar Project would result in a significant cumulative effect if:

- the cumulative effects of related projects (past, current, and probable future projects) are not significant, and the incremental impact of implementing the proposed Country Acres Solar Project is substantial enough, when added to the cumulative effects of related projects, to result in a new cumulatively significant impact; or
- the cumulative effects of related projects (past, current, and probable future projects) are already significant, and implementation of the proposed Country Acres Solar Project makes a considerable contribution to the effect. The standards used herein to determine a considerable contribution are that either the impact must be substantial or must exceed an established threshold of significance.

Significance criteria, unless otherwise specified, are the same for cumulative impacts and project impacts for each environmental topic area. This cumulative analysis assumes that all mitigation measures identified in Sections 3.1 through 3.20 to mitigate project impacts are adopted. The analysis herein analyzes whether, after adoption of project-specific mitigation, the residual impacts of the project would cause a cumulatively significant impact or would contribute considerably to existing/anticipated (without the project) cumulatively significant effects.

**Table 4-2: City of Roseville: Past, Present, and Future Development**

Specific Plan	Description
Amoruso Ranch Specific Plan	The Amoruso Ranch Specific Plan was adopted by the City Council on June 15, 2016. The 694-acre specific plan area is located northwest of the Roseville city limits, south of West Sunset Boulevard and approximately 1.5 miles west of Fiddymment Road. The Amoruso Ranch Specific Plan includes a mix of uses, including 337 acres of low, medium, and high density residential land that could be developed with 2,827 dwelling units. The land use plan also includes three commercial parcels totaling 51 acres, a 9.6-acre elementary school site, seven neighborhood parks, and a 3-acre fire station/public facilities site. Approximately 135 acres of the site will be set aside as open space preserve. It was expected that construction of this project would begin in 2017 and be built out by 2034. As of March 2022, no development has occurred within the specific plan area (City of Roseville 2022).
Creekview Specific Plan	The Creekview Specific Plan was adopted by the City Council on September 19, 2012, and the specific plan area was annexed into the City of Roseville on April 17, 2013. The Creekview Specific Plan consists of 501 acres north and west of the West Roseville Specific Plan. It includes development of 2,011 single and multi-family residential units, 136 acres of open space, 15.7 acres of neighborhood parks, a 7-acre school site, 2.6 acres of utilities sites, and 19.3 acres for commercial development. It is expected that construction of this project would begin in 2013 and end in 2030. As of March 2022, 144 dwelling units have been constructed, 197 dwelling units are under construction, and 1,429 dwelling units have been approved but are not yet under construction (City of Roseville 2022).
West Roseville Specific Plan	The West Roseville Specific Plan was adopted by the City Council in 2004. The specific plan area consists of 3,162 acres west of Fiddymment Road, generally north of Pleasant Grove Boulevard. It includes development of 8,792 single and multi-family residential units, 57 acres of commercial, 109 acres of industrial, 255 acres of park, 705 acres of open space, and 108 acres of schools. As of March 2022, 380 dwelling units have been constructed, 311 dwelling units are under construction, and 1,639 dwelling units have been approved but are not yet under construction (City of Roseville 2022).
Sierra Vista Specific Plan	The Sierra Vista Specific Plan was adopted by the City Council in May 2010 and amended in June 2012 to entitle land uses on the Westbrook property. The Sierra Vista Specific Plan consists of 2,064 acres west of Fiddymment Road, north of Baseline Road. It includes development of 8,679 single and multi-family residential units, approximately 259 acres of commercial, 106 acres of park, 304 acres of open space, 56 acres of schools and 40 acres of urban reserve. Construction within the Sierra Vista Specific Plan area began in 2012. As of March 2022, 1,086 dwelling units have been constructed, 553 dwelling units are under construction, and 2,267 dwelling units have been approved but are not yet under construction (City of Roseville 2022).



**Table 4-3: Placer County: Past, Present, and Future Projects**

Specific Plan	Description
Placer Vineyards Specific Plan	The Placer Vineyards Specific Plan was originally adopted by the Board of Supervisors in 2007 and amended on January 6, 2015. Placer Vineyards includes approximately 5,230 acres of land located in the southwest corner of Placer County, approximately 15 miles north of the City of Sacramento. The plan area is bound to the north by Baseline Road, to the south by the Sacramento County line, to the west by the Sutter County line and Pleasant Grove Road, and to the east by Dry Creek and Walerga Road. It includes development of 14,540 single and multi-family residential units; commercial, business park, and office development; elementary, middle, and high schools; public/quasi-public uses (i.e., police and fire stations, libraries, transit stations); open space; and parks. As of May 2022, collector roadways and infrastructure improvements have occurred on parcels along Baseline Road; however, no development has occurred (Placer County 2022).
Dry Creek/West Placer Community Plan	The area covered by this plan spans 9,200 acres in the southwest corner of Placer County, and is bounded by Baseline Road on the north, Sutter County to the west, Sacramento County to the south and the City of Roseville to the east. This plan was written to guide development in this area through the year 2000 or longer.
Regional University Specific Plan	The Regional University Specific Plan was adopted by the Board of Supervisors in 2008 and amended on May 14, 2019. The Regional University Specific Plan governs future development of a 1,175-acre mixed-use community and 6,000-student university campus, located between Brewer Road and the western boundary of the city of Roseville. It includes development of 2,269 standard residential units and 2,118 university campus residential units for a total of 4,387 residential units as well as commercial development, public/quasi-public uses (i.e., police and fire stations, libraries, transit stations), open space, and parks. No development has occurred within the Regional University Specific Plan and SMUD is requesting an amendment to the RUSP for development of the proposed project.
Riolo Vineyard Specific Plan	The Riolo Vineyard Specific Plan was originally adopted by the Board of Supervisors in 2009 and amended in October 2015. The specific plan area is bordered by Watt Avenue, Walerga, and PFE Roads in unincorporated Placer County. The Riolo Vineyards Specific Plan is proposed as a residential community with 933 residential units and a mix of commercial, open space, and recreational land uses that encompasses approximately 525 acres. As of May 2022, collector roadways and infrastructure improvements have begun and development of dwelling units is anticipated to begin in summer 2022 (Placer County 2022).
Reason Farms	The City of Roseville owns this land, and Placer Land Trust holds the Conservation Easement preventing development and promoting habitat restoration. Reason Farms is part of over 2,000 contiguous acres of permanently protected habitat and an additional 1,700 acres currently maintained as open space by the City of Roseville. The property preserves grasslands, oak woodlands, and vernal pools and riparian habitat.
Sunset Area Plan/ Placer Ranch Specific Plan	The Sunset Area Plan and the Placer Ranch Specific Plan were adopted by the Placer County Board of Supervisors on December 10, 2019. The Sunset Area Plan covers 13.9 square miles in unincorporated Placer County between the cities of Rocklin, Roseville, and Lincoln. The Area Plan outlines a comprehensive development plan to achieve the County's long-term

Specific Plan	Description
	<p>vision to promote the Sunset Area as a prosperous and thriving regional center with opportunities for high-paying employment, high-quality entertainment, and access to higher education for area residents.</p> <p>The Placer Ranch Specific Plan encompasses 2,213 acres within the Sunset Area Plan. The plan area is bound to the north by Sunset Boulevard, to the south by the Westpark community, to the west by the Amoruso Ranch Specific Plan area. It includes development of 5,636 single and multi-family residential units, a California State University satellite campus, commercial development, and open space, parks. As of May 2022, no development has occurred and it is anticipated that grading will begin in summer 2022 (Placer County 2022).</p>
Western Placer County Habitat Conservation Plan and Natural Community Conservation Plan (PCCP)	<p>The Western Placer County Habitat Conservation Plan and Natural Community Conservation Plan (the PCCP) fulfills the requirements of the federal Endangered Species Act and the California Natural Community Conservation Planning Act. PCCP Permittees include Placer County, the City of Lincoln, South Placer Regional Transportation Authority, the Placer County Water Agency. The Placer Conservation Authority (PCA) administers the PCCP. In addition to the Permittees, other parties may elect to seek coverage under the PCCP as "Participating Special Entities." The PCCP describes how to avoid, minimize, and mitigate effects on endangered and threatened species by addressing the permitting requirements relevant to these species for activities conducted in the Plan Area by the Permittees. Covered Activities include urban growth and a variety of road, water, and other needed infrastructure construction and maintenance activities. The Plan also describes the responsibilities associated with operating and maintaining habitat reserves that will be created to mitigate anticipated effects resulting from growth and development activities. The PCCP addresses 14 Covered Species and includes conservation measures to protect them.</p>

The following discussion analyzed cumulative impacts of the project in light of the above listed projects.

#### 4.4.1 Aesthetics

The project site is relatively flat and open and includes grassland, agricultural rice fields, and almond orchards with scattered seasonal wetlands including vernal pools and drainages, including portions of upper Curry Creek. The vegetated ground surface appears green during the spring and summer months and brown the rest of the year, with exposed soil visible throughout the site. Agricultural irrigation practices occur during the late spring and summer and include deliberate flooding of fields for rice production and drip irrigation of almond orchards. Rice fields are also often flooded in late fall. Agricultural uses and grassland surround the project site with some residential development to the east of the project site in the City of Roseville.

The Regional University Specific Plan is within the project viewshed. This project would likely change the visual character of the area, although this project is in the planning stages and full details regarding proposed new buildings and equipment are not yet known. As described in Section 3.1, "Aesthetics," the project would have a less-than-significant impact related to the visual character of the area and light and glare. As a result, though there may be some cumulative changes in views, these changes would not substantially degrade the overall visual character or quality of the area or add new sources of substantial light or glare. Rather, the project would result in a minor change to the visual setting, and the change would be in character with the existing visual environment. Thus, the project would not contribute to a cumulative impact related to visual character or quality or related to light and glare. Planned projects adjacent to the Country Acres Solar Project site may contribute significantly to an altered visual landscape in the area, but the contribution of the Country Acres Solar Project would be minimal. The project **would not have a considerable contribution** to any significant cumulative impact related to aesthetics. In addition, the project **would not result in a new cumulatively significant impact** related to aesthetics.

#### 4.4.2 Agriculture

Geographically speaking, cumulative impacts on agriculture should be analyzed at a local and regional level.

The majority of the project site is currently in agricultural production (rice field and almond orchards). Implementation of the project will result in a significant impact on Farmland of Statewide Importance (44 acres) and Unique Farmland (858 acres) through the conversion of the land to a different land use type (solar development) that would result in a reclassification in the long run. While mitigation in the form of a conservation easement over Farmland of Statewide Importance and/or Unique Farmland at a ratio of 1:1 is proposed, the impact remains significant and unavoidable. The majority of the other regional and local projects will also result in land development and thus the conversion of important farmland to other uses. Thus, the project will have a

**considerable contribution to existing cumulative considerable impact** on important farmland. However, the project proposes mitigation at the appropriate level, consistent with guidance from the California Department of Conservation. No additional mitigation is required.

#### 4.4.3 Air Quality

Air quality effects are generally considered to be basin-wide. As discussed in Section 3.3, “Air Quality,” the Placer County Air Pollution District (PCAPD) has produced a guidebook containing guidance for analyzing construction and operation emissions. The Review of Land Use Projects under CEQA Policy includes recommendations for thresholds of significance for criteria air pollutant emissions and are considered to represent the allowable incremental contribution of emission-generating activity without having a cumulatively considerable adverse contribution to the Sacramento Valley Air Basin’s (SVAB) existing air quality conditions. Thus, thresholds of significance used in the project analysis are cumulative thresholds in themselves. In accordance with PCAPCD guidance, projects that result in emissions that exceed these thresholds are said to result in a cumulatively considerable contribution to the regional adverse air quality condition.

Sacramento County is currently in nonattainment for ozone and particulate matter (PM<sub>10</sub>) with respect to the California Ambient Air Quality Standards, and in nonattainment for ozone, PM<sub>2.5</sub>, and PM<sub>10</sub> (24-hour standard) with respect to the National Ambient Air Quality Standards. As such, a cumulative adverse air quality impact already exists within Sacramento County with respect to ozone precursors (i.e., oxides of nitrogen [NO<sub>x</sub>] and reactive organic gases [ROG]) and particulate matter (i.e., PM<sub>10</sub> and PM<sub>2.5</sub>). Construction activities that could potentially occur simultaneously and contribute to local cumulative air quality effects.

Project-related construction emissions of NO<sub>x</sub> and PM<sub>10</sub> would exceed the applicable construction mass emission thresholds established by PCAPD of 82 pounds per day (lb/day) for NO<sub>x</sub> and 82 pounds per day for PM<sub>10</sub>. Mitigation Measures 3.3-2a and 3.3-2b would reduce potential construction-related exhaust emissions of NO<sub>x</sub> and PM<sub>10</sub> by at least 20 and 45 percent, respectively, and would ensure additional off-site mitigation through participation in the PCAPCD’s offsite mitigation fee program in the case that emissions would still exceed the PCAPCD thresholds. While this mitigation would ensure that the proposed project would comply with all applicable rules and regulations with implementation of Mitigation Measure 3.3-2a and minimize exhaust emissions of NO<sub>x</sub> and PM<sub>10</sub>, fugitive dust emissions could still exceed the PCAPCD maximum daily emissions thresholds, and could, therefore, conflict with air quality plans applicable to the PCAPCD.

Furthermore, the project consists of a large-scale renewable energy facility that would contribute to the use of renewable energy resources in the State and would, over the operational lifetime of the project, reduce criteria air pollutants from electricity generation in the State and in SVAB. As shown, due to the non-attainment status of the

applicable pollutants within the basin, there is an existing cumulative adverse condition. Even with implementation of project mitigation measures, project impacts would be **significant and unavoidable**, therefore, the project **would have a considerable contribution** to any significant cumulative impact related to air quality. In addition, the project **would result in a new cumulatively significant impact** related to air quality.

#### 4.4.4 Biological Resources

Past development in Placer County, ranging from conversion of land to agricultural production more than a hundred years ago to recent expansion of urban development, has resulted in a substantial loss of native habitat to other uses. This land conversion has benefited a few species, such as those adapted to agricultural uses, but the overall effect on native plants, animals, and habitat has been adverse. Although most future projects proposed in the region would be required to mitigate significant impacts on terrestrial biological resources, in compliance with CEQA, the federal Endangered Species Act (ESA), the California Endangered Species Act (CESA), and other state, local, and federal statutes, many types of common habitats and species are provided no protection. Therefore, it can be expected that the net loss of native habitat for plants and wildlife, agricultural lands, and open space areas that support important terrestrial biological resources in Placer County will continue. Thus, cumulative conditions related to biological resources in the area would be significant.

Significant adverse impacts on sensitive habitats and special-status species adjacent to the project site would be associated with the future urban growth expected to occur near the site in Placer County and the City of Roseville as a result of buildout of planned communities described in the specific plans listed above. The EIR for the Placer County General Plan update indicates that even if the General Plan policies and programs to preserve conservation and open space elements, and project mitigation measures, were implemented, the impacts to wetland and riparian habitats, special-status species, and other sensitive resources from future conversion and reduction in quality habitat would be significant and unavoidable (Placer County 1994).

While the project is not covered by the PCCP, the proposed project's mitigation strategy is designed to achieve the mitigation standards applicable to covered activities under the PCCP. The regulatory standards applied by the regulatory agencies in their review and approval of the PCCP will also be applied to their review of the Country Acres Solar Project.

As analyzed and described in Section 3.4, "Biological Resources," implementation of the project could result in significant impacts to waters of the United States and waters of the state, western spadefoot, western pond turtle, giant garter snake, black rail, western burrowing owl, Swainson's hawk, tricolored blackbird, vernal pool fairy shrimp, vernal pool tadpole shrimp, American badger, and other nesting birds. Mitigation measures include provisions to reduce, avoid, and/or compensate for impacts in accordance with the requirements of ESA and CESA and other regulatory programs that protect habitats, such as CWA Section 404 and the Porter- Cologne Water Quality

Act, and in compliance with Placer County General Plan goals and policies for resource protection and with the PCCP's goals for species and habitat conservation. Through full implementation of the mitigation measures, potential project-related impacts would be avoided, reduced, or compensated to such an extent that they are not expected to result in a considerable contribution to a cumulative impact. Therefore, the project **would not have a considerable contribution** to any significant cumulative impact related to biological resources. In addition, the project **would not result in a new cumulatively significant impact** related to biological resources.

#### 4.4.5 Cultural Resources

The project area was historically part of large tracts of undeveloped land along various creeks in the region that were purchased to create large farms and ranches starting in the mid-1850s. Much of southwest Placer County was eventually comprised of large tracts of land owned by early settlers including the Fiddymont family, Stephen A. Boutwell, William Dunlap, James Kaseberg, and others. Stock raising sheep and cattle, and wheat and grain farming were the primary land use in the mid-to-late nineteenth century in southwestern Placer County. The development of railroads through the Sacramento Valley in the 1860s and 1870s lead to further development of the region and the creation of the railroad-centered communities of Roseville and Lincoln (City of Roseville 2016:3-37; Southern Placer Regional Transportation Authority 2007: 4-2 to 4-3).

The project, in combination with other development in the region, could cause a substantial adverse change in the significance of a unique archaeological resource. Because all significant cultural resources are unique and nonrenewable members of finite classes, meaning there are a limited number of significant cultural resources, all adverse effects erode a dwindling resource base. The loss of any one archaeological site could affect the scientific value of others in a region because these resources are best understood in the context of the entirety of the cultural system of which they are a part. The cultural system is represented archaeologically by the total inventory of all sites and other cultural remains in the region. As a result, a meaningful approach to preserving and managing cultural resources must focus on the likely distribution of cultural resources, rather than on a single project or parcel boundary.

No known unique archaeological resources are located within the boundaries of the project site; nonetheless, project-related earth-disturbing activities could potentially damage undiscovered archaeological resources, and previously unidentified human remains. Implementation of Mitigation Measure 3.5-1 would ensure that the project's contribution would not be cumulatively considerable by requiring construction work to cease in the event of an accidental find, requiring development of mitigation measures (if required) to minimize impacts to cultural resources, and requiring evaluation/treatment of the potential resource or human remains. Cumulative development could result in potentially significant archaeological resource impacts. However, with implementation of the mitigation measures proposed, the project's contribution to these impacts would be offset. Further, cumulative development would

be required to implement similar mitigation to avoid/reduce impacts to archaeological resources, TCRs, and previously unidentified human remains. Therefore, the project **would not have a considerable contribution** to any significant cumulative impact related to archaeological or historical cultural resources. In addition, the project **would not result in a new cumulatively significant impact** related to archaeological or historical cultural resources.

#### 4.4.6 Energy

Impacts on electricity is generally restricted to the PG&E service area, since they are the electricity provider for the area occupied by the proposed project. Energy impacts associated with equipment and vehicle use is generally restricted to the average travel radius of commuting workers and vehicle trips associated with equipment delivery, since these are the areas in which energy sources would be demanded and supplied for the project. The project would use energy sources during construction, operation and maintenance, and decommissioning, thus, could contribute to potential cumulative impacts during any of these phases.

No existing significant adverse conditions were identified that would be worsened or intensified by the proposed project. The proposed project would increase SMUD's overall power generation capacity and portfolio of eligible renewable resources contributing to its overall power mix. When considered in the context of the proposed renewable resource power that would be generated as a result of the proposed project, the project will generate much more energy than would be required to run the operations and maintenance components of the proposed operations. In short, the proposed project would serve the cumulative demand on energy resources in the area. In addition, the proposed project would also assist California utilities in meeting their obligations under State energy storage targets. **No significant adverse cumulative effect would result** relating to electricity use; instead, a **beneficial cumulative impact** on energy resources would result.

No existing significant adverse conditions related to efficiency of fuel use were identified that would be worsened or intensified by the proposed project. Past, present, and reasonably foreseeable future projects within close proximity to the proposed Country Acres Solar Project site could require gasoline or diesel but would not combine with the fuel demands of the proposed project to cause a significant adverse cumulative impact relating to the wasteful, inefficient, or unnecessary consumption or use of fuel. In the event of a future shortage, higher prices at the pump would curtail unnecessary trips that could be termed "wasteful" and would moderate choices regarding vehicles, equipment, and fuel efficiency. Under these conditions, the proposed project's less-than-significant impact relating to wasteful, inefficient, or unnecessary consumption or use of fuel would **not be cumulatively considerable**.

#### 4.4.7 Geology, Soils, and Paleontological Resources

Impacts on geology and soils are generally localized and do not result in regionally cumulative impacts. Unless a project would alter the soils and rock underlying other adjacent projects or affect surrounding land because of landslides, impacts related to geology, soils, and seismic hazards would be limited to the project site. Therefore, the geographic scope of cumulative impacts related to geology, soils, or seismic hazards, only includes projects that overlap the project site, which includes the Regional University Specific Plan. Construction of these projects would be conducted in accordance with all applicable codes and regulations and seismic safety requirements and recommendations contained in project-specific geotechnical reports. It is anticipated, therefore, that any potential impacts associated with geologic and soil conditions would be mitigated within the respective sites of these projects. As such, the future cumulative condition for geology, soils, and seismicity within the affected environment would not be adverse, relative to existing conditions.

Project impacts from strong seismic ground shaking and project impacts on soil erosion and topsoil removal would be less-than-significant.

The project has the potential to result in accidental damage to or destruction of unique paleontological resources; however, implementation of Mitigation Measure 3.7-5 would reduce potential impacts such that they would not be cumulatively considerable. Mitigation would require a qualified archaeologist or paleontologist to provide construction worker personnel education regarding the potential to encounter fossils, and the preparation and implementation of a recovery plan if a unique paleontological resource was identified. The implementation of this mitigation measure would reduce the impact to less-than-significant. Therefore, the project **would not have a considerable contribution** to any significant cumulative impact related to geology, soils, or paleontological resources. In addition, the project **would not result in a new cumulatively significant impact** related to geology and soils.

#### 4.4.8 Greenhouse Gas Emissions

The discussion of greenhouse gas (GHG) emissions generated by project construction under Impact 3.8-1 in Section 3.8, "Greenhouse Gas Emissions," is inherently a cumulative impact discussion. GHG emissions from one project cannot, on their own, result in changes in climatic conditions; therefore, the emissions from one project must be considered in the context of their contribution to cumulative global emissions, which is a significant cumulative impact. Over the two-year construction period, a maximum of 11,664 MT CO<sub>2</sub>e would be generated by construction-related equipment and vehicle use, averaging 5,832 MT CO<sub>2</sub>e per year. Therefore, the proposed project would not exceed PCAPD's threshold of 10,000 MT CO<sub>2</sub>e per year.

The renewable portfolio standard (RPS) requirements established by Senate Bill (SB) X1- 2 and SB 350 is one of the many strategies in place designed to reduce statewide GHG emissions and achieve the long-term GHG reduction goals established for 2030



and 2050. Project implementation would contribute to SMUD achieving the RPS targets set forth in SB X1-2 and SB 350 for 2020 and 2030 and contribute to the overall efforts in California to meet long-term GHG reduction goals. The 344 MW capacity of the facility will produce approximately 748,944 megawatt hours per year and increase SMUD's overall renewable electricity supply. The proposed project's operations would provide a benefit of approximately 61,796 MT CO<sub>2</sub>e avoided in the first year of operations. Over the expected 30- to 35-year life of the project, these annual avoided emissions would vastly exceed the emissions associated with the project's short-term construction activities.

In consideration of this overall GHG reduction and because the project would not exceed PCAPD's threshold of 10,000 MTCO<sub>2</sub>e/year, the project **would not have a considerable** contribution to a significant cumulative GHG impact. In addition, the project **would not result in a new cumulatively significant impact** related to GHG emissions.

#### 4.4.9 Hazards and Hazardous Materials

Hazardous materials impacts associated with the past or current uses of a project site usually occur on a project-by-project basis, and are site-specific rather than regional in nature. Any hazardous materials uncovered during construction activities would be managed consistent with applicable federal, state, and local laws to limit exposure and clean up the contamination. In addition, the use, storage, transport, and disposal of hazardous materials would be managed in accordance with applicable federal and state requirements to limit risk of exposure. Other projects in the vicinity of the project would create similar hazardous material effects during standard construction activities. Current and reasonably foreseeable projects, including those identified in Table 4-2 and Table 4-3, would also be required to comply with measures that would minimize and/or avoid exposure of hazardous materials to people or the environment (similar to Mitigation Measure 3.9.1 recommended for the proposed project). Therefore, there would be **no cumulative impact** associated with hazardous materials use, storage, transport, or accidental spills.

Therefore, the project would **not have a considerable contribution to any significant cumulative impact** related to hazards and hazardous materials. In addition, the project would **not result in a new cumulatively significant impact** related to hazards and hazardous materials.

#### 4.4.10 Hydrology and Water Quality

The project site is located within the Sacramento River Basin watershed. Four projects are proposed in the immediate project area or directly adjacent to the Country Acres Solar Project area: Regional University Specific Plan, Placer Vineyards Specific Plan, Sierra Vista Specific Plan, and West Roseville Specific Plan.

As discussed for the proposed project, the cumulative projects would be required to implement a SWPPP (if they would disturb more than 1 acre of land) and associated BMPs to minimize potential for construction-related release of pollutants and sediment into surface waters. The cumulative projects and the proposed project are also required to design and implement appropriate permanent water quality treatment measures for project operation based on the Placer County Stormwater Quality Ordinance (Placer County Municipal Code Chapter 8, Article 8.28), using the *West Placer County Storm Water Quality Design Manual* and the California Stormwater Quality Association's BMP Handbooks. Therefore, cumulative impacts associated with water quality degradation would not be significant, and the proposed project would **not have a considerable contribution to a significant cumulative impact** related to water quality.

The cumulative development projects would increase the amount of impervious surfaces through the development of new buildings, roads, and parking lots. The proposed project would only decrease the permeable surface area at the project site by 10%. The proposed project would continue to source water from on-site groundwater wells. Since the existing on-site agricultural use would be discontinued, the proposed project would result in a net decrease in groundwater pumping of approximately 3,673 acre-feet per year over the project's operational life, and the proposed project would contribute to improved groundwater storage conditions in the North American Subbasin, and would not substantially decrease groundwater supplies. Therefore, the proposed project would **not have a considerable contribution to a significant cumulative impact** related to groundwater recharge or sustainable groundwater management of the basin.

The cumulative projects and the proposed project are required to reduce the post-development peak stormwater discharge and volume of stormwater runoff to pre-development levels. This is commonly achieved through the use of detention basins, which are sized to hold projected stormwater runoff and meter the resulting discharge so that it is released slowly over a longer period of time. Detention basins can also serve as water quality treatment features by allowing sediment and other pollutants to settle prior to stormwater discharge. Design and implementation of stormwater controls is required through project compliance with the County's Grading, Erosion, and Sediment Control Ordinance (Placer County Municipal Code Chapter 15, Article 15.48) and the County's Stormwater Quality Ordinance (Placer County Municipal Code Chapter 8, Article 8.28). Therefore, cumulative impacts associated with alteration of drainage patterns or the addition of impervious surfaces that would result in substantial erosion, exceed storm drainage system capacity, or provide substantial additional sources of polluted runoff would not be significant, and the proposed project would **not have a considerable contribution to a significant cumulative impact**.

Where development is proposed in a floodplain, the cumulative projects and the proposed project are required to comply with the County's Flood Damage Prevention Ordinance (Placer County Municipal Code Chapter 15, Article 15.52), which applies to all areas of FEMA special flood hazard zones in the county. The County's Flood Damage Prevention Ordinance:

- Requires that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- Controls the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;
- Controls fill, grading, dredging, and other development which may increase flood damage; and
- Prevents or regulates the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

All development that is proposed in a FEMA special flood hazard zone must provide hydrologic modeling to the County demonstrating that the proposed improvements would not impede flood flows; would not cause an increase in upstream or downstream flooding; and would not raise the on-site water surface elevation by more than 1 foot (in order to comply with the National Flood Insurance Program). The County may also require additional modeling related to its local Regulatory Floodplain, which consists of future, unmitigated flood flows from upstream development based on buildout of land uses contemplated in the County General Plan. Only a portion of the proposed project's solar arrays (which would be above the floodplain on poles that would be securely anchored underground to resist the later forces of flooding) would be located within a FEMA special flood hazard zone (i.e., 100-year floodplain) and the County's Regulatory Floodplain. Most of the proposed PV arrays and all of the other facilities (including substation, BESS area, switchyard, and control buildings) would not be located in a floodplain. No project-related improvements would be located within a FEMA Regulatory Floodway. As discussed in detail in EIR Section 3.10, "Hydrology and Water Quality," the proposed project has been designed to have minimal impacts on the floodplain and modeling demonstrates that the proposed improvements would not impede flood flows; would not cause an increase in upstream or downstream flooding; and would not raise the on-site water surface elevation by more than 1 foot. SMUD is proposing to obtain a General Plan Amendment to allow this project to develop within the floodplain, based off these minimal impacts. Therefore, the proposed project would **not have a considerable contribution to a significant cumulative impact** from substantial alteration of drainage patterns or the addition of impervious surfaces that would result in increased flooding, or impede or redirect flood flows.

With respect to impacts from release of pollutants in a flood hazard zone, construction of the proposed project and some of the related projects would occur within a FEMA 100-year flood zone. Mitigation Measure 3.10-1 would reduce the proposed project's impacts because construction materials and contractor staging and portable restrooms would not be located within the FEMA 100-year floodplain during the winter rainy season. Furthermore, the proposed project would not include the storage of chemicals or other hazardous materials in a floodplain during project operation. It is anticipated that the cumulative projects would be required to implement similar measures, either as mitigation implemented through CEQA documents or as Conditions of Approval

required by the County, to avoid and minimize downstream transport of pollutants. Therefore, the proposed project would **not have a considerable contribution to a significant cumulative impact** related to pollutant release from project inundation.

Overall, the project **would not have a considerable contribution** to any significant cumulative impact related to hydrology and water quality. In addition, the project **would not result in a new cumulatively significant impact** related to hydrology and water quality.

#### 4.4.11 Land Use and Planning

The geographic area to be evaluated for cumulative impacts is restricted to the project site itself. Any impacts that the proposed project may have on land use and planning is restricted to the area that the project occupies, and thus, would not contribute to cumulative impacts outside of that area.

The Regional University Specific Plan spans the westernmost portion of the Country Acres Solar Project Area. It is anticipated that this project will comply with all state, federal, and local land use plan, policy, or regulations. The Country Acres Solar Project plans to obtain a CUP, and if approved, the proposed project would not conflict with the zoning of the project site.

Overall, the project **would not have a considerable contribution** to any significant cumulative impact related to land use and planning. In addition, the project **would not result in a new cumulatively significant impact** related to land use and planning.

#### 4.4.12 Mineral Resources

As discussed in Section 3.12 “Mineral Resources,” the proposed project will have no impact on mineral resources, and thus **would not have a considerable contribution** to any significant cumulative impact related to mineral resources. In addition, the project would **not result in a new cumulatively significant impact** related to mineral resources.

#### 4.4.13 Noise

There are some homes in the vicinity of the project site, but for the most part, surrounding uses are not noise sensitive. The nearest noise-sensitive uses to the project are single-family residences located approximately 700 feet to the southeast and northwest (within unincorporated Placer County), from the project site boundary. Also, there are scattered single-family homes along Country Acres Lane, South Brewer Road, and Philips Road. The primary noise sources in the project area were vehicle traffic, agricultural activities, and miscellaneous sources within rural residential communities (e.g., people talking, dogs barking, and operation of landscaping equipment).

The project will produce temporary noise during construction. Residences located adjacent to areas of construction activity could be exposed to construction noise from on-site construction activity and off-site construction activities, such as movement of construction equipment along area roadways (see Table 3.13-11 in Section 3.13 “Noise”). As stated in the Placer County Noise Ordinance, Section 9.36.030 A.7 of the Ordinance provides an exception for construction noise so long as all construction equipment is “fitted with factory-installed muffling devices and that all construction equipment [is] maintained in good working order” and work is done during daytime allowable time periods. Noise generated by construction activity between 6 a.m. and 8 p.m., Monday through Friday, and between 8 a.m. and 6 p.m. on Saturday is exempt from the provisions of the County Noise Ordinance. Construction of the proposed project could also result in a significant impact from temporary, short-term construction noise in the direct vicinity of the probable future projects. Implementation of Mitigation Measure 3.13-1, would require a variety of measures to reduce exposure to construction-generated noise and avoid significant construction noise impacts associated with the project. Thus, the incremental contribution of the project to this significant cumulative impact would not be cumulatively considerable.

The nature of construction noise effects are such that project-related construction activities would have to occur simultaneously and near those of other projects for a cumulative effect to occur. As described in Chapter 2, “Project Description,” project construction would take approximately 18 to 24 months, is proposed to begin as early as fall of 2022 and would conclude in 2024 or 2025. The Regional University Specific Plan is the only probable project planned on land immediately adjacent to the project site. The Country Acres Solar Project would be built prior to the start of any construction related to the Regional University Specific Plan.

Additionally, operation of the project is not expected to result in any discernable noise as the daily operation of the project and the associated stationary equipment is not likely to generate a substantial amount of noise. Therefore, the possibility of cumulatively significant noise impacts would be limited to the construction and decommissioning phases of the project. Decommissioning of the proposed project would occur at the end of the project’s useful life (anticipated to be 30 to 35 years); any assessment of cumulative noise impacts would be speculative at this time.

Therefore, the project **would not have a considerable contribution** to any significant cumulative impact related to construction noise. In addition, the project **would not result in a new cumulatively significant impact** related to construction noise.

The project is expected to generate a minimal number of operational trips per day associated with operation and routine maintenance activities. Therefore, the possibility of cumulatively significant transportation and/or traffic impacts would be limited to the construction and decommissioning phases of the project.

The proposed project would result in temporary increases in roadway traffic noise associated with project construction. Construction-generated traffic volume from

movement of construction equipment and materials could expose sensitive receptors to noise levels along on- and off-site roadways that would not exceed the applicable noise standards and/or result in a substantial increase in ambient noise levels.

During the construction of the proposed project, there would be a temporary increase in construction-related traffic from delivery trucks and construction workers traveling to and from the project sites. The number of workers would vary over the life of the construction activity. The maximum number of workers who would be commuting to the project area at any given time is anticipated to be approximately 650 workers per day and up to 50 vendors and haul trucks per day during the peak construction period. As shown in Table 3.13-12, construction-related vehicular traffic is estimated to result in a noise level of 69 dB at 50 feet from the roadway centerline; noise from trucking activity would be intermittent and generally consistent with ambient noise levels. The existing traffic noise level is estimated to be 72.9 dB,  $L_{eq}$  at 50 feet. The existing plus construction traffic noise is estimated to be 74.4 dB,  $L_{eq}$  at 50 feet and the location of the 60 dB  $L_{dn}$  contour is 1,379 feet and the location of the 70 dB  $L_{dn}$  contour is 138 feet from the centerline of the modeled roadway. The analysis assumes all construction traffic trips would occur through Baseline Road. This level of construction traffic noise would cause an increase of 1.5 dB over existing traffic noise, which is not a perceptible increase above the existing traffic noise.

Therefore, the project **would not have a considerable contribution** to any significant cumulative impact related to construction-generated traffic noise. In addition, the project **would not result in a new cumulatively significant impact** related to construction-generated traffic noise.

#### 4.4.14 Population and Housing

As discussed in Section 3.14 “Population and Housing,” the proposed project would have no impacts on unplanned growth or displacement of existing people or housing.

The geographic context for the cumulative impacts associated with the potential inducement of population growth includes cities and unincorporated communities within 60 miles of the project site. Cumulative effects could result from the combination of the incremental impacts of the proposed project with ongoing impacts of past projects as well as the other present reasonably foreseeable future projects developed within the geographic scope.

There are many variables that can affect the maximum workforce required for any particular project, making it difficult to estimate employment levels, or their potential to overlap, with any certainty. In general, solar PV facilities do not induce substantial population growth, as they do not create substantial numbers of permanent jobs. Thus, the proposed project, in combination with other projects in the cumulative scenario, would not be likely to induce population growth, as construction of these facilities is temporary in nature, and the operation and maintenance of these activities require very few personnel. Additionally, the County’s general plan governs growth, development,

and land use decisions within the County's jurisdiction and all development proposed within the County must be consistent with such governance.

Thus, construction of this proposed project and other past, present, and future projects within the geographic area of cumulative concern **would not have a considerable contribution** to any significant cumulative impacts to indirect unplanned population growth. The proposed project **would not result in a new cumulatively significant impact** related to unplanned population growth or the displacement of people or housing.

#### 4.4.15 Public Services

The geographic area evaluated for cumulative impacts on public services varies depending on the public services being evaluated. For potential cumulative impacts on fire protection resources, the geographic area evaluated consists of the territory served by the Placer County Fire Department, CSA #28, Zone of Benefit 165, which is the fire protection service that serves the project area. Other projects that are within Zone of Benefit 165 include the Regional University Specific Plan and the Placer Vineyards Specific Plan. The Regional University Specific Plan includes information on a planned fire station that will be built to supplement the fire services provided by the already existing Dry Creek Fire Station #100. The development of this area is expected to comply with Placer County's goal of providing one (1) firefighter to 1,000 population, and thus impacts to fire protection services resulting from this plan will be mitigated. The Placer Vineyards Specific Plan includes construction of two new PCFD fire stations to serve Placer Vineyards, which will reduce this project's impact on fire protection services to a less-than-significant level.

For cumulative impacts on police protection, the geographic area evaluated is the territory served by the Placer County Sheriff's Department. Other projects served by the Placer County Sheriff's Department include the Regional University Specific Plan and the Placer Vineyards Specific Plan. The Regional University Specific Plan discusses that the University will provide its own public safety for the entire campus 24 hours, 7 days a week, which greatly reduces this project's impact on police protection services. The Placer Vineyards Specific Plan may have an impact on police protection services, but these impacts will be mitigated to a less-than-significant level through the inclusion of additional staff to maintain service response times. These projects may have impacts on police protection during construction, but are expected to be mitigated to a less-than-significant level.

Additionally, as discussed in Section 2.0 "Project Description," prior to project determination by the County, SMUD will retain the services of an economic consultant to determine the reasonable costs to the County of the development, including providing fire, police, and public protection services to the Project.

Therefore, the project **would not have a considerable contribution** to any significant cumulative impact related to public services. In addition, the project **would not result in a new cumulatively significant impact** related to public services.

#### 4.4.16 Recreation

Geographically speaking, cumulative impacts on recreation should be analyzed at a local and regional level. As discussed in Section 3.16 “Recreation” the Country Acres Solar Project will have no impact on recreation within Placer County, Sacramento County, or the City of Roseville. The project’s impacts on recreation are considered significant if the project would lead to an increase in the use of the recreation facility, thereby resulting in accelerated deterioration, or if the project includes or would require the construction of recreational facilities, potentially resulting in an adverse physical effect on the environment. This project does not include the construction of any parks or recreation facilities. Additionally, this project would not contribute to planned or unplanned population growth, resulting in the increased use and accelerated deterioration of any nearby parks.

Thus, construction of this proposed project **would not contribute** to any significant cumulative impacts to parks or recreation facilities. Additionally, the proposed project **would not result in a new cumulatively significant impact** related to parks or recreational facilities.

#### 4.4.17 Transportation

The project is expected to generate a minimal number of operational trips per day associated with operation and routine maintenance activities. Therefore, the possibility of cumulatively significant transportation and/or traffic impacts would be limited to the construction and decommissioning phases of the project.

As described in Chapter 2, “Project Description,” construction of the project would take approximately 18-24 months, is proposed to begin as early as spring of 2023, and would conclude in 2024 or 2025. Probable future projects in the project vicinity that have the possibility of interacting with the project and generating a cumulative impact include the projects listed in Table 4-2 and Table 4-3, which could potentially occur concurrently with construction activities of the proposed project. Additionally, decommissioning of the project would occur at the end of the project’s useful life (anticipated to be 30 to 35 years); however, any impact analysis at this time would be speculative. The identified cumulative projects are in close proximity to the proposed project, and could potentially utilize the same local roadway segments. The project has been designed to incorporate the planned future alignment of Placer Parkway and other planned regional transportation corridors and no impact to these corridors will occur. The project improvements have been designed to avoid these easements including 312-foot-wide corridor for Placer Parkway, in addition to the ultimate 60-foot-wide planned right-of-way for South Brewer Road and Phillip Road. Baseline Road has an existing highway easement/right-of-way that is 100 feet wide, therefore the setback line would be 100



feet from the edge of the right-of-way. SMUD is continuing to work closely with Placer County Department of Public Works and Placer County Transportation Planning Agency to accommodate any future planned road networks.

During the construction of the proposed project, there would be a temporary increase in construction-related traffic from delivery trucks and construction workers traveling to and from the project sites. The number of workers would vary over the life of the construction activity. The maximum number of workers who would be commuting to the project area at any given time is anticipated to be approximately 650 workers per day and up to 20 vendors and haul trucks per day during the peak construction period. Thus, if the cumulative projects identified were under construction, or in operation concurrent to construction of the proposed project, they could be cumulatively considerable as it pertains to roadway segment operations. However, the project would implement Mitigation Measures 3.17-1 and 3.17-2 (Prepare and Implement a Traffic Control Plan and a Construction Transportation Plan) to reduce and avoid impacts to roadways due to construction-generated traffic. Other cumulative projects identified would also be required to prepare and implement traffic control plans. The project's traffic control plan would identify other nearby construction activities and would coordinate with these projects to minimize local and regional disruptions.; therefore, the addition of construction trips relating to the proposed project **would not be cumulatively considerable** as it pertains to roadway segment operations. Additionally, the proposed project **would not result in a new cumulatively significant impact** related to roadway segment operations.

#### 4.4.18 Tribal Cultural Resources

United Auburn Indian Community (UAIC), a federally recognized Tribe comprised of both Miwok and Maidu (Nisenan) Tribal members are traditionally and culturally affiliated with the project area. The Tribe has deep spiritual, cultural, and physical ties to their ancestral land and are contemporary stewards of their culture and landscapes. The Tribal community represents a continuity and endurance of their ancestors by maintaining their connection to their history and culture. It is the Tribe's goal to ensure the preservation and continuance of their cultural heritage for current and future generations.

The project, in combination with other development in the region, could cause a substantial adverse change in the significance of a tribal cultural resource. Because all significant tribal cultural resources are unique and nonrenewable members of finite classes, meaning there are a limited number of significant cultural resources, all adverse effects erode a dwindling resource base. The loss of any one archaeological site could affect the scientific value of others in a region because these resources are best understood in the context of the entirety of the cultural system of which they are a part. The cultural system is represented archaeologically by the total inventory of all sites and other cultural remains in the region. As a result, a meaningful approach to preserving and managing cultural resources must focus on the likely distribution of cultural resources, rather than on a single project or parcel boundary.

No known unique archaeological resources are located within the boundaries of the project site; nonetheless, project-related earth-disturbing activities could potentially damage undiscovered TCRs and previously unidentified human remains. Implementation of Mitigation Measure 3.18.1 would ensure that the project's contribution would not be cumulatively considerable by requiring construction work to cease in the event of an accidental find and requiring completion of tribal consultation and development of mitigation measures (if required) to minimize impacts to TCRs. Cumulative development could result in potentially significant TCR impacts. However, with implementation of the mitigation measures proposed, the project's contribution to these impacts would be offset. Further, cumulative development would be required to implement similar mitigation to avoid/reduce impacts to TCRs. Therefore, the project **would not have a considerable contribution** to any significant cumulative impact related to TCRs. In addition, the project **would not result in a new cumulatively significant impact** related to TCRs.

#### 4.4.19 Utilities and Service Systems

Cumulative impacts to utilities and service systems will be analyzed at a regional and local level. During construction, portable restroom facilities would be provided to construction crews and other on-site staff. During operation, up to two restrooms with on-site septic systems would be installed for maintenance personnel. The buildout of the projects listed in Table 4-2 and Table 4-3 include multiple housing components, and thus, these projects alone will have a potentially significant cumulative impact on wastewater treatment services. Comparatively, the wastewater that will be generated from the Country Acres Solar Project will not contribute to the cumulative impact that current, past, and future projects will have on wastewater treatment facilities in the area because it will be handled by on-site septic systems. Thus, the project **would not have a considerable contribution** to any significant cumulative impact related to wastewater. In addition, the project **would not result in a new cumulatively significant impact** related to wastewater.

As discussed in Section 3.19 "Utilities and Service Systems," solid waste will likely be disposed of at Western Regional Sanitary Landfill, which has more than sufficient capacity to hold the solid waste that will be generated through project construction, operation, and decommissioning activities. The buildout of the specific plans listed in Table 4-2 and Table 4-3 will have potentially significant impacts on the waste capacity at Western Regional Sanitary Landfill. All of these specific plans include housing development components, that when occupied, residents will regularly generate waste contributing substantially to the diminishing capacity at this landfill. In comparison, the bulk of the solid waste generated from the Country Acres Solar Project will come from the construction and decommissioning phases of the project, and likely not exceed 2,500 cubic yards. Therefore, the project **would not have a considerable contribution** to any significant cumulative impact related to solid waste. In addition, the project **would not result in a new cumulatively significant impact** related to solid waste.

As discussed in Section 3.19 “Utilities and Service Systems” the construction of new electric utilities, translocation of existing distribution lines, and the expansion of existing electric utilities is instrumental to the scope of this project. This project’s impacts on the environment are discussed extensively throughout this EIR. The project would **contribute a new source of electricity** in an area where supporting infrastructure is available; therefore, it will have a **beneficial cumulative impact** on local utilities and service systems.

The Country Acres Solar Project will utilize water from groundwater sources; all other projects adjacent to the project site will likely utilize municipal water. The project **would not have a considerable contribution** to any significant cumulative impact related to water supply. In addition, the project **would not result in a new cumulatively significant impact** related to water supply.

This project will have no impact on natural gas utilities. Thus, construction of this proposed project **would not contribute** to any significant cumulative impacts to natural gas utilities. Additionally, the proposed project **would not result in a new cumulatively significant impact** related to natural gas utilities.

#### 4.4.20 Wildfire

Cumulative impacts to wildfire are assessed on a regional and local level. Alone, the Country Acres Solar Project will have a less-than-significant impact on wildfires in the region. The Regional University Specific Plan includes plans for development within the Country Acres Solar Project area. A portion of the Regional University Specific Plan overlaps with the Country Acres Solar Project. The Regional University Specific Plan will consist of buildings, and paved and landscaped areas, which will lessen the risk of wildfire in the area. Additionally, once built, this area will contain numerous fire hydrants and other fire suppression elements that will further reduce the risk of wildfire. The project **would not have a considerable contribution** to any significant cumulative impact related to wildfire. In addition, the project **would not result in a new cumulatively significant impact** related to wildfire.

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## 5.0 OTHER CEQA SECTIONS

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Section 15126 of the CEQA Guidelines requires that all aspects of a project be considered when evaluating its impact on the environment, including planning, acquisition, development, and operation. As part of this analysis, the EIR must also identify the following: (1) significant and unavoidable environmental effects that cannot be avoided if the project is implemented, (2) significant irreversible environmental changes that would result from implementation of the project, and (3) growth-inducing impacts of the project. Although growth inducement itself is not considered an environmental effect, it could potentially lead to foreseeable physical environmental effects, which are discussed under “Growth-Inducing Impacts” below.

### 5.1 Significant and Unavoidable Impacts

Section 21100(b)(2)(A) of the State CEQA Guidelines provides that an EIR shall include a detailed statement setting forth “in a separate section: any significant effect on the environment that cannot be avoided if the project is implemented.” Accordingly, this section provides a summary of significant environmental impacts of the project that cannot be mitigated to a less-than-significant level.

Sections 3.1 through 3.20 of this Draft EIR describe the potential environmental impacts of the project and recommend various mitigation measures to reduce impacts, to the extent feasible. Chapter 4, “Cumulative Impacts,” determines whether the incremental effects of this project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects. After implementation of the recommended mitigation measures, most of the impacts associated with development of the project would be reduced to less-than-significant levels. Exceptions are impacts on the following:

#### *Agriculture*

- Conversion of Important Farmland (significant and unavoidable, even with mitigation)

#### *Air Quality*

- Construction emissions of criteria air pollutants and ozone precursors (significant and unavoidable, even with mitigation)

### 5.2 Significant Irreversible Environmental Changes

The State CEQA Guidelines (Section 15126) require a discussion of the significant irreversible environmental changes that would be involved in a project should it be implemented. The irreversible and irretrievable commitment of resources is the permanent loss of resources for future or alternative purposes. Irreversible and

irretrievable resources are those that cannot be recovered or recycled or those that are consumed or reduced to unrecoverable forms.

The project would result in the irreversible and irretrievable commitment of energy and material resources during construction and operation, including the following:

- construction materials, including such resources as soil, rocks, wood, concrete, glass, and steel;
- land area committed to new project facilities (for the project's useful life, anticipated to be 30 to 35 years or more);
- water supply for project construction (for dust control and maintaining soil compaction) and operation (for periodic operation and maintenance activities including cleaning of panels); and
- energy expended in the form of electricity, gasoline, diesel fuel, and oil for equipment and transportation vehicles that would be needed for project construction and operation.

The use of these nonrenewable resources is expected to account for a minimal portion of the region's resources and would not affect the availability of these resources for other needs within the region. Construction activities would not result in inefficient use of energy or natural resources. Construction contractors selected would use best available engineering techniques, construction and design practices, and equipment operating procedures. Long-term project operation would not result in substantial long-term consumption of energy and natural resources because the project would be designed using energy efficient technologies.

## **5.3 Growth-Inducing Impacts**

### **5.3.1 CEQA Requirements**

CEQA specifies that growth-inducing impacts of a project must be addressed in an EIR (CCR Section 21100[b][5]). Specifically, Section 15126.2(d) of the State CEQA Guidelines states that the EIR shall:

Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also, discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that

growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Direct growth inducement would result if a project involved construction of new housing, which would facilitate new population to an area. Indirect growth inducement would result, for instance, if implementing a project resulted in any of the following:

- substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises);
- substantial short-term employment opportunities (e.g., construction employment) that indirectly stimulates the need for additional housing and services to support the new temporary employment demand; and/or
- removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with excess capacity through an undeveloped area).

The State CEQA Guidelines do not distinguish between planned and unplanned growth for purposes of considering whether a project would foster additional growth. Therefore, for purposes of this EIR, to reach the conclusion that a project is growth-inducing as defined by CEQA, the EIR must find that it would foster (i.e., promote, encourage, allow) additional growth in economic activity, population, or housing, regardless of whether the growth is already approved by and consistent with local plans. The conclusion does not determine that induced growth is beneficial or detrimental, consistent with Section 15126.2(d) of the State CEQA Guidelines.

If the analysis conducted for the EIR results in a determination that a project is growth-inducing, the next question is whether that growth may cause adverse effects on the environment. Environmental effects resulting from induced growth (i.e., growth-induced effects) fit the CEQA definition of “indirect” effects in Section 15358(a)(2) of the State CEQA Guidelines. These indirect or secondary effects of growth may result in significant environmental impacts. CEQA does not require that the EIR speculate unduly about the precise location and site-specific characteristics of significant, indirect effects caused by induced growth, but a good-faith effort is required to disclose what is feasible to assess. Potential secondary effects of growth could include consequences – such as conversion of open space to developed uses, increased demand on community and public services and infrastructure, increased traffic and noise, degradation of air and water quality, or degradation or loss of plant and wildlife habitat – that are the result of growth fostered by the project.

### 5.3.2 Growth-Inducing Impacts of the Project

Project construction would require an average of 177 workers on site at any given time during the 18- to 24-month construction period; a maximum of 650 workers could be required during times of peak activity. The construction labor pool in Placer County and

Sacramento County combined is over 62,000 people (California Employment Development Department 2022). Because of the relatively small number of construction workers needed, the relatively short duration required for construction, and the available labor pool, the project is not expected to result in construction workers relocating to the area. In the long-term, only one regular on site employee would be required and some personnel may visit the site to monitor, maintain, and if needed, repair, the system. Similar to construction, project operation would not create new employment opportunities that would increase the population of Placer County or the surrounding areas.

One of the project objectives identified in Chapter 2, “Project Description,” is to support California’s renewable energy and greenhouse gas emission reduction laws and goals and SMUD’s 2030 Zero Carbon Plan (SMUD 2021). Although the project would contribute to SMUD’s energy supply, which supports growth, the development of solar power infrastructure is a response to increased market demand for renewable energy. It would not induce new growth to the SMUD service area which includes most Sacramento County and small, adjoining portions of Placer and Yolo County. Sacramento County planning documents already permit and anticipate a certain level of growth in the county and in the State as a whole, along with attendant growth in energy demand. It is this anticipated growth that drives energy-production projects, not vice versa. The project would supply energy to accommodate and support existing demand and projected growth, but it would not foster new growth. Therefore, no significant impacts related to population growth would occur.

## **5.4 Environmental Justice Evaluation**

### **5.4.1 Introduction**

At present, there are no direct references to the evaluation of environmental justice (EJ) as an environmental topic in the Appendix G Environmental Checklist, CEQA statute, or State CEQA Guidelines; however, requirements to evaluate inconsistencies with general, regional, or specific plans (State CEQA Guidelines Section 15125[d]) and determine whether there is a “conflict” with a “policy” “adopted for the purpose of avoiding or mitigating an environmental effect” (Environmental Checklist Section XI[b]) can implicate EJ policies. As additional cities and counties comply with SB 1000 (2016), which requires local jurisdictions to adopt EJ policies when two or more general plan elements are amended, environmental protection policies connected to EJ will become more common.

“Environmental Justice” is defined in California law as the fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (California Government Code Section 30107.3[a]). “Fair treatment” can be defined as a condition under which “no group of people, including racial, ethnic, or socioeconomic group, shall bear a disproportionate share of negative environmental consequences resulting from industrial, municipal, and commercial



operations or the execution of federal, state, local, and tribal programs and policies” (EPA 2011).

SMUD created the Sustainable Communities Initiative, which encompasses the framework of EJ, to help bring environmental equity and economic vitality to all communities in SMUD's service area with special attention to historically underserved neighborhoods. The initiative focuses on the development of holistically sustainable neighborhoods through partnerships and collaboration. The goal of this effort is to ensure the advancement of prosperity in the Sacramento region regardless of zip code or socioeconomic status by focusing on equitable access to mobility, a prosperous economy, a healthy environment, and social well-being. To support the initiative, SMUD teams are working internally and with community partners to improve equitable access to healthy neighborhood environments, energy efficiency programs and services, environmentally friendly transit modes (including electric vehicles), and energy-related workforce development and economic development prospects. To the extent these goals seek to avoid environmental impacts affecting vulnerable communities, the State CEQA Guidelines already require consideration of whether a proposed project may conflict with goals that support sustainable communities. The following analysis has been provided by SMUD, as a proactive evaluation in excess of CEQA requirements, to identify any localized existing conditions to which the project, as proposed, may worsen adverse conditions and negatively impact the local community and identifies the need for implementation of additional site or local considerations, where necessary. Environmental justice issues are being considered in this CEQA document to help inform decision makers about whether the project supports SMUD's goal of helping to advance environmental justice and economic vitality to all communities in SMUD's service area and throughout the region with special attention to historically underserved neighborhoods.

#### 5.4.2 Regulatory Context

California legislation, state agency programs, and guidance have been issued in recent years that aim to more comprehensively address EJ issues, including SB 1000 (2016), SB 535 (2012) and AB 1550 (2016), AB 617 (2017), the California Department of Justice Bureau of Environmental Justice, the California Communities Environmental Health Screening Tool (CalEnviroScreen), and the Governor's Office of Planning and Research's (OPR's) 2020 General Plan Guidelines, Environmental Justice Element. In particular, SB 1000 has provided an impetus to more broadly address EJ; coupled with the existing requirements of CEQA, it is now time to elevate the coverage of significant environmental impacts in the context of EJ in environmental documents. These other bills have also provided the necessary policy direction to address EJ under CEQA.

##### *Senate Bill 1000*

SB 1000, which was enacted in 2016, amended California Government Code Section 65302 to require that general plans include an EJ element or EJ-related goals, policies, and objectives in other elements of general plans with respect to disadvantaged

communities (DACs) beginning in 2018. The EJ policies are required when a city or county adopts or revises two or more general plan elements, and the city or county contains a DAC. EJ-related policies must aim to reduce the disproportionate health risks in DACs, promote civic engagement in the public decision-making process, and prioritize improvements that address the needs of DACs (California Government Code Section 65302[h]). Policies should focus on improving the health and overall well-being of vulnerable and at-risk communities through reductions in pollution exposure, increased access to healthy foods and homes, improved air quality, and increased physical activity.

#### *Senate Bill 535 and Assembly Bill 1550*

Authorized by the California Global Warming Solutions Act of 2006 (AB 32), the cap-and-trade program is one of several strategies that California uses to reduce greenhouse gases (GHGs) that cause climate change. The state's portion of the cap-and-trade auction proceeds are deposited in the Greenhouse Gas Reduction Fund (GGRF) and used to further the objectives of AB 32. In 2012, the California Legislature passed SB 535 (de Leon), directing that 25 percent of the proceeds from the GGRF go to projects that provide a benefit to DACs. In 2016, the legislature passed AB 1550 (Gomez), which now requires that 25 percent of proceeds from the GGRF be spent on projects located in DACs. The law requires the investment plan to allocate (1) a minimum of 25 percent of the available moneys in the fund to projects located within and benefiting individuals living in DACs; (2) an additional minimum of 5 percent to projects that benefit low-income households or to projects located within, and benefiting individuals living in, low-income communities located anywhere in the state; and (3) an additional minimum of 5 percent either to projects that benefit low-income households that are outside of, but within 0.5 mile of, DACs, or to projects located within the boundaries of, and benefiting individuals living in, low-income communities that are outside of, but within 0.5 mile of, DACs.

#### *Assembly Bill 617*

AB 617 of 2017 aims to help protect air quality and public health in communities around industries subject to the state's cap-and-trade program for GHG emissions. AB 617 imposes a new state-mandated local program to address nonvehicular sources (e.g., refineries, manufacturing facilities) of criteria air pollutants and toxic air contaminants. The bill requires the California Air Resources Board (CARB) to identify high-pollution areas and directs air districts to focus air quality improvement efforts through the adoption of community emission reduction programs in these identified areas. Currently, air districts review individual stationary sources and impose emission limits on emitters based on best available control technology, pollutant type, and proximity to nearby existing land uses. This bill addresses the cumulative and additive nature of air pollutant health effects by requiring communitywide air quality assessment and emission reduction planning, called a community risk reduction plan in some jurisdictions. CARB has developed a statewide blueprint that outlines the process for identifying affected communities, statewide strategies to reduce emissions of criteria air pollutants and toxic

air contaminants, and criteria for developing community emissions reduction programs and community air monitoring plans.

### *Assembly Bill 1001*

California AB 1001 recently passed in the House (February 2022) and is now in the Senate awaiting a vote. This AB would amend CEQA and the Health and Safety and Public Resource Codes and will require the environmental review of projects consider environmental justice in disadvantaged communities and any negative environmental effects must be mitigated within that community.

### *California Department of Justice's Bureau of Environmental Justice*

In February 2018, California Attorney General Xavier Becerra announced the establishment of a Bureau of Environmental Justice within the Environmental Section at the California Department of Justice. The purpose of the bureau is to enforce environmental laws, including CEQA, to protect communities disproportionately burdened by pollution and contamination. The bureau accomplishes this through oversight and investigation and by using the law enforcement powers of the Attorney General's Office to identify and pursue matters affecting vulnerable communities.

In 2012, then Attorney General Kamala Harris published a fact sheet titled, "Environmental Justice at the Local and Regional Level," highlighting existing provisions in the California Government Code and CEQA principles that provide for the consideration of EJ in local planning efforts and CEQA. Attorney General Becerra cites the fact sheet on his web page, indicating its continued relevance.

### *California Communities Environmental Health Screening Tool*

CalEnviroScreen is a mapping tool developed by the Office of Environmental Health Hazards Assessment to help identify low-income census tracts in California that are disproportionately burdened by and vulnerable to multiple sources of pollution. It uses environmental, health, and socioeconomic information based on data sets available from state and federal government sources to produce scores for every census tract in the state. Scores are generated using 21 statewide indicators that fall into four categories: exposures, environmental effects, sensitive populations, and socioeconomic factors. The exposures and environmental effects categories characterize the pollution burden that a community faces, whereas the sensitive populations and socioeconomic factors categories define population characteristics.

CalEnviroScreen prioritizes census tracts based on their combined pollution burden and population characteristics score, from low to high. A percentile for the overall score is then calculated from the ordered values. The California Environmental Protection Agency has designated the top 25 percent of highest scoring tracts in CalEnviroScreen (i.e., those that fall in or above the 75th percentile) as DACs, which are targeted for investment proceeds under SB 535, the state's cap-and-trade program.

*Governor's Office of Planning and Research's 2020 Updated EJ Element Guidelines*

OPR published updated General Plan Guidelines in June 2020 that include revised EJ guidance in response to SB 1000. OPR has also published example policy language in an appendix document along with several case studies to highlight EJ-related policies and initiatives that can be considered by other jurisdictions. Section 4.8 of the General Plan Guidelines contains the EJ guidance. The guidelines offer recommendations for identifying vulnerable communities and reducing pollution exposure related to health conditions, air quality, project siting, water quality, and land use compatibility related to industrial and large-scale agricultural operations, childcare facilities, and schools, among other things. It provides many useful resources, including links to research, tools, reports, and sample general plans.

### 5.4.3 Sensitivity of Project Location

*Community Description*

As part of its Sustainable Communities Initiative, SMUD created and maintains the Sustainable Communities Resource Priorities Map<sup>1</sup> which reflects several data sets related to community attributes that SMUD uses to identify historically underserved communities. However, the Sustainable Communities Resource Priorities map does not include areas outside of SMUD's service area, such as Placer County. Therefore, for this project, CalEnviroScreen 4.0 was used to determine the sensitivity of the surrounding communities in proximity to the project location (CalEnviroScreen Version 4.0). The CalEnviroScreen identifies communities facing socioeconomic disadvantages or health disadvantages, such as multiple sources of pollution. The overall CalEnviroScreen score is calculated from the scores for two groups of indicators, pollution burden and population characteristics. Pollution burden represents the potential exposure to pollutants and the adverse environmental conditions caused by pollution, such as solid waste or groundwater threats. Population characteristics represents sensitive populations like asthma or cardiovascular disease, and socioeconomic factors. CalEnviroScreen prioritizes census tracts based on their combined pollution burden and population characteristics score, from low to high. A percentile for the overall score is then calculated from the ordered values.

The proposed project is located in a low sensitivity area per the CalEnviroScreen 4.0 map<sup>2</sup>. The proposed project is located within the census tract of 6061021322, which received an overall CalEnviroScreen score of 29; therefore, the area in which the proposed project is located in is not designated as a disadvantaged community under the requirements set forth by the California Environmental Protection Agency, which

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<sup>1</sup> The Sustainable Communities Resource Priorities Map is available at [https://usage.smud.org/SustainableCommunities/?\\_ga=2.223364443.1927542179.1598288052-1197903775.1589235097](https://usage.smud.org/SustainableCommunities/?_ga=2.223364443.1927542179.1598288052-1197903775.1589235097).

<sup>2</sup> The CalEnviroScreen 4.0 Map is available at <https://experience.arcgis.com/experience/11d2f52282a54ceebcac7428e6184203/page/Draft-CalEnviroScreen-4.0/>.

sets the top 25 percent of the highest scoring tracts as DACs. The pollution burden of the census tract received a score of 59, with the most significant indicators being solid waste, impaired waters, and pesticides. These exposures and consequent environmental conditions caused by pollution are expected in this area due to the current land uses which includes agricultural rice fields and almond orchards. The population characteristics of the census tract that contribute to the community's pollution burden and vulnerability include cardiovascular disease, poverty, education, and linguistic isolation. The population characteristics of the census tract received a score of 18, which indicates a low concentration of health and socioeconomic vulnerability to pollution.

#### 5.4.4 Environmental Conditions

This discussion references the analysis conducted in this Draft EIR, and provides a summary with respect to the current environmental conditions in the project area. The focus of this discussion is on environmental justice issues relevant to the project.

- **Aesthetics:** The visual characteristics of the project site are typical of rural agricultural uses and grassland with some residential development to the east of the project site in the City of Roseville. Viewer groups in this area predominantly consist of motorists traveling along Baseline Road, Country Acres Lane, and Phillip Road. Viewer groups also include residents at Westpark to the east (see Section 3.1 “Aesthetics” of this Draft EIR for additional information).
- **Air Quality:** The project site is located in a rural area adjacent to an existing master plan residential area, Westpark, to the east in the City of Roseville. Nearby uses are largely agricultural, residential, and industrial and are not considered substantial generators of toxic air contaminants to the area. Nearby receptors are located immediately to the east of the project site and include single-family housing associated with Westlake and a few scattered rural residences around the project area (see Section 3.3 “Air Quality” of this Draft EIR for additional information).
- **Cultural Resources and Tribal Cultural Resources:** There are no known cultural resources or Tribal cultural resources immediately adjacent to and potentially within the boundaries of the project site (see Section 3.5, “Cultural Resources” and Section 3.18 “Tribal Cultural Resources,” of this Draft EIR for additional information).
- **Energy:** The proposed project would be served by SMUD, using SMUD's Greenenergy program and electricity generated with 100 percent renewable and carbon-free resources (see Section 3.6 “Energy” for additional information).
- **Greenhouse Gas Emissions and Climate Change Vulnerabilities:** The project area would likely be subject to increased heat stress from climate change (see Section 3.8 “Greenhouse Gas Emissions” for additional information).

- **Hazards and Hazardous Materials:** The project site is not identified as a hazardous materials site (see Section 3.9 “Hazards and Hazardous Materials” for additional information).
- **Hydrology and Water Quality:** Most of the project site is located in the Curry Creek – Sacramento River subwatershed. The southern end of the project site is within the Upper Steelhead Creek subwatershed. Curry Creek originates approximately 3 miles southeast of the project site in grassland habitat and flows west towards the project site as a relatively natural ephemeral drainage. The mainstem of Curry Creek flows through the middle portion of the project site in an east-west direction, where it is mapped as an intermittent drainage (AECOM 2022). Some of the proposed PV arrays and fencing, along with on-site roadways, would be developed within a 100-floodplain. The solar arrays and fencing would not result in a risk of pollutants from inundation, because no pollutants would be present, and the panels would be pole mounted (above the ground surface) and anchored in stable rock with steel piers to ensure stability (see Section 3.10 “Hydrology and Water Quality” for additional information).
- **Noise:** The primary noise sources in the project area are vehicle traffic, agricultural activities, and miscellaneous sources within rural residential communities (e.g., people talking, dogs barking, and operation of landscaping equipment). A master plan residential development east of the project area, Westpark, and some rural residences scattered around the project area, are considered sensitive receptors (see Section 3.13 “Noise” for additional information).
- **Population and Housing:** Some rural residences are scattered around the project area as well as a master plan residential community east of the project area, Westpark, in the City of Roseville (see Section 3.14 “Population and Housing” for additional information).
- **Public Services:** Public services such as police and fire protection are available in the area (see Section 3.15 “Public Services” for additional information).
- **Recreation:** The nearest park is approximately 2.5 miles from the project site (see Section 3.16 “Recreation” for additional information).
- **Transportation:** The project site is bounded by Base Line Road to the south, Phillip Road to the north, and South Brewer Road to the west. The project area is accessible via existing paved roads (see Section 3.17 “Transportation” for additional information).
- **Utilities:** Existing utility service in the project area is provided by PG&E to nearby uses. However, SMUD owns and operates an existing 230 kV transmission line that runs adjacent to the south end of the project that they will tap into for power transmission (see Section 3.19 “Utilities and Service Systems” for additional information).

#### 5.4.5 Evaluation of the Project's Contribution to a Community's Sensitivity

As noted previously, SMUD proposes to build and operate a PV solar power and battery storage renewable energy generation facility interconnected to SMUD's transmission grid in southwestern Placer County. SMUD is proposing to construct PV solar panels, battery storage facilities, and interconnection facilities, including a high voltage substation, switch station, and interconnection to the existing SMUD transmission system. The project's contributions to the community's sensitivity are as follows:

- **Aesthetics:** Implementation of the project would result in the construction and operation of a PV solar power and battery storage renewable energy generation facility. Visual simulations of the project were prepared and analyzed. Impacts to public viewers is considered less than significant.
- **Air Quality:** Some excavation, grading, and general construction activities would be required for the proposed project. The project site is within the Sacramento Valley Air Basin, which is a relatively flat area bordered by the north Coast Ranges to the west and the northern Sierra Nevada to the east. The primary air pollutants of concern for the region are ozone and particulate matter of diameter 10 micrometers or less (PM<sub>10</sub>) due to the region's nonattainment designation status for these pollutants. The project site is in a generally rural area, with the nearest sensitive receptors being a single rural residence adjacent to proposed solar panels at the far west side of the project site off of South Brewer Road, and few rural residences approximately 0.25 mile west of the project site near the southern portion of the site; there are also residential neighborhoods within the city of Roseville to the east of the project site, but these neighborhoods are more than 0.6 mile (or more than 3,000 feet) from the western perimeter of the project site. As detailed in Section 3.3, "Air Quality," of this EIR, the primary emissions-generating activities associated with the proposed project would occur during the construction phase. During construction, emissions of diesel particulate matter, a toxic air contaminant, as well as criteria air pollutants including ozone precursors and PM<sub>10</sub> would result from construction equipment and vehicle use. However, construction would be temporary in nature and equipment and vehicle use would be dispersed throughout the 1,170-acre project site and, therefore, not proximate to any nearby receptor for an extended period of time. In addition, mitigation measures identified in Section 3.3., "Air Quality," of this EIR would reduce potential emissions during construction, consistent with recommendations of the Placer County Air Pollution Control District's (PCAPCD's) CEQA Guidelines.

Operations of the proposed project would provide a renewable energy source that does not directly generate criteria air pollutant emissions and would only require minimal vehicle and equipment use to support daily and intermittent operations and maintenance requirements.

Finally, construction and operations would be required to comply with all PCAPCD Rules and Regulations, including but not limited to Rule 202, Rule 205,

Rule 217, Rule 2018, and Rule 228, developed in part to improve air quality and bring the region into attainment for ozone and PM<sub>10</sub>.

- **Cultural Resources and Tribal Cultural Resources:** As noted in Section 3.5, “Cultural Resources,” and Section 3.18, “Tribal Cultural Resources,” of this Draft EIR, no known cultural or Tribal cultural resources are known in the project area. However, mitigation measures identified in Sections 3.5 and 3.18 would be implemented to reduce (to the extent feasible) significant impacts to any unanticipated discoveries.
- **Energy:** The project would not affect access to electricity because it would not preclude access to electrical service in the vicinity, which would be maintained throughout construction.
- **Greenhouse Gas Emissions and Climate Change Vulnerabilities:** The project would not worsen the area’s flooding vulnerabilities because it would not affect the area’s topography or levee system.
- **Hazards and Hazardous Materials:** The use and handling of hazardous materials during construction would be conducted in a manner consistent with existing regulations, including CCR Title 27. Upon completion of construction, on-site operations that would involve the use, transport, or disposal of potential hazardous materials, would follow federal and state laws regarding those hazardous materials.
- **Noise:** Noise would be generated during construction, but it would be temporary and conducted in compliance with the Placer County Noise Ordinance. No substantial increases in ambient noise levels at sensitive receptors in the area would occur. There are some homes in the vicinity of the project site, but for the most part, surrounding uses are not noise sensitive. The nearest noise-sensitive uses to the project are single-family residences located approximately 700 feet to the southeast and northwest (within the unincorporated Placer County), from the project site boundary. Also, there are scattered single-family homes along Country Acres Lane, Brewer Road, and Philips Road.
- **Public Services:** Project implementation would not interrupt or otherwise affect the provision of public services to the area.
- **Recreation:** The project would not affect any parks or recreational opportunities.
- **Transportation:** The project site would not affect public transit access points or bike lanes.
- **Utilities:** The project would not adversely affect the provision of utilities to existing and future uses in the project area. The project is intended to provide new sources of renewable energy.



As described for each environmental resource area above, the project would not contribute to the community's current sensitivity.

#### 5.4.6 Summary of Environmental Justice Assessment

Per the California Communities Environmental Health Screen Tool, CalEnviroScreen 4.0, which reflects several data sets related to pollution burden and population characteristics that helps identify communities disproportionately burdened by pollution, the project site is located in a low sensitivity area. However, the project involves the construction of PV solar panels, battery storage facilities, and interconnection facilities, including a high voltage substation, switch station, and interconnection to the existing SMUD transmission system at the project site and could affect cultural and tribal cultural resources in the area; however, mitigation measures are included to reduce the potential contribution of the project and in cooperation with tribal community members to ensure that any impacts to resources are treated appropriately and with respect to the community(ies) in question. Further, objectives of the project include providing renewable electrical service to existing customers in SMUD's service territory, which is intended to maintain or improve living conditions for residents and communities in the area. As a result, the project does not have the potential to further affect the community and/or worsen existing adverse environmental conditions. Therefore, ***no existing environmental justice conditions would be worsened*** as a result of the project. Although the project would not worsen existing environmental justice conditions, as a leader in building healthy communities, one of SMUD's Sustainable Communities goals is to help bring environmental equity and economic vitality to all communities. By investing in underserved neighborhoods and working with community partners, SMUD is part of a larger regional mission to deliver energy, health, housing, transportation, education and economic development solutions to support sustainable communities.

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## 6.0 ALTERNATIVES

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### 6.1 Introduction to Alternatives

The California Code of Regulations (CCR) Section 15126.6(a) (State CEQA Guidelines) requires EIRs to describe "... a range of reasonable alternatives to the proposed project, or to the location of the proposed project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a range of potentially feasible alternatives that will avoid or substantially lessen the significant adverse impacts of a project, and foster informed decision making and public participation. An EIR is not required to consider alternatives that are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the "rule of reason." This section of the State CEQA Guidelines also provides guidance regarding what the alternatives analysis should consider. Subsection (b) further states the purpose of the alternatives analysis is as follows:

Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code [PRC] Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

The State CEQA Guidelines require that the EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be discussed, but in less detail than the significant effects of the project as proposed (CCR Section 15126.6[d]).

The State CEQA Guidelines further require that the "no project" alternative be considered (CCR Section 15126.6[e]). The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving a project with the impacts of not approving the project. If the no project alternative is the environmentally superior alternative, CEQA requires that the EIR "...shall also identify an environmentally superior alternative among the other alternatives." (CCR Section 15126[e][2]).

In defining "feasibility" (e.g., "... feasibly attain most of the basic objectives of the project..."), CCR Section 15126.6(f) (1) states, in part:

Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.

In determining what alternatives should be considered in the EIR, it is important to consider the objectives of the project, the project's significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although, as noted above, EIRs must contain a discussion of "potentially feasible" alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by the lead agency's decision making body, here the SMUD Board of Directors (Board). (See PRC Sections 21081.5, 21081[a] [3].)

## **6.2 Considerations for Selection of Alternatives**

### **6.2.1 Attainment of Project Objectives**

As described above, one factor that must be considered in selection of alternatives is the ability of a specific alternative to attain most of the basic objectives of the project (CCR Section 15126.6[a]). Chapter 2, "Project Description," articulated SMUD's project objectives for the proposed Country Acres Solar Project, which are repeated below:

- Contribute to a diversified energy portfolio that will aid in the continued improvement of air quality in the Sacramento Valley Air Basin by decreasing reliance on fossil fuel combustion for the generation of electricity and reduce SMUD's exposure to price volatility associated with electricity and natural gas.
- Provide a renewable power resource to support the SMUD Board of Directors' 2030 Zero Carbon Plan, a plan approved in 2021, which establishes a flexible pathway for SMUD to eliminate carbon emissions from its power supply by 2030 by developing and procuring dependable renewable resources.
- Develop a project that will deliver a reliable, long-term supply of economically feasible solar and battery storage for up to 344 megawatts (MW) of electrical capacity at a point of interconnection with the grid managed by SMUD.
- Site the project to avoid wetlands and other sensitive habitats as feasible within the available property.
- Integrate compatible agricultural activities such as grazing and/or pollinator habitat into solar operations.

- Optimize the delivery of solar-produced and stored energy and minimize the geographic extent of impacts by locating the facility near existing electrical infrastructure with available capacity.
- Design a flexible PV solar energy and battery storage facility that is capable of utilizing the best available, efficient, cost-effective, and proven PV solar and storage technology.
- Construct the facility in a location that is readily accessible from existing roads and that would not require the construction of major new roadway improvements.

### 6.2.2 Summary of Project Impacts

Sections 3.1 through 3.20 of this Draft EIR address the project-specific environmental impacts of the project. Potentially feasible alternatives were developed with consideration of avoiding or lessening the significant adverse impacts of the project. In summary, the significant impacts of the project are:

#### *Agriculture*

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) (significant and unavoidable after mitigation)
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use (potentially significant and unavoidable)

#### *Air Quality*

- Conflict with or obstruct implementation of the applicable air quality plan (significant and unavoidable after mitigation)
- 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 (significant and unavoidable after mitigation)

#### *Biological Resources*

- Loss and degradation of habitat for special-status plant species (less than significant after mitigation)
- Loss of habitat and potential take of western spadefoot (less than significant after mitigation)
- Loss and degradation of habit of western pond turtle (less than significant after mitigation)

- Potential take of giant garter snake (less than significant after mitigation)
- Loss and degradation of habitat of black rail (less than significant after mitigation)
- Loss and degradation of habitat of nesting and wintering western burrowing owl (less than significant after mitigation)
- Disturbance of nesting Swainson's hawk and potential take (less than significant after mitigation)
- Disturbance of nesting tricolored blackbird and potential take (less than significant after mitigation)
- Loss and degradation of habitat of federally listed vernal pool branchiopods (less than significant after mitigation)
- Disturbance of nesting raptors and migratory birds including white-tailed kite, northern harrier, loggerhead shrike, "Modesto" song sparrow, and other protected birds (less than significant after mitigation)
- Loss of American badger (less than significant after mitigation)
- Adverse effect on any riparian habitat or other sensitive natural community (less than significant after mitigation)
- Adverse effect on state or federally protected wetlands (less than significant after mitigation)

#### *Archaeological, Historical, and Tribal Cultural Resources*

- Impacts to unique archaeological resources (less than significant after mitigation)
- Impacts to tribal cultural resources (less than significant after mitigation)
- Impacts to previously unidentified human remains (less than significant after mitigation)

#### *Geology and Soils*

- Directly or indirectly destroy a unique paleontological resource or site (less than significant after mitigation)

#### *Hazards and Hazardous Materials*

- Create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials (less than significant after mitigation)

- Create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials (less than significant after mitigation)

*Hydrology and Water Quality*

- In flood hazard, risk release of pollutants due to project inundation (less than significant after mitigation)

*Noise*

- Temporary, short-term construction noise impacts (less than significant after mitigation)

*Transportation and Traffic*

- Conflict with a program, plan, ordinance or policy addressing the circulation system in the roadway facilities (less than significant after mitigation)
- Substantially increase hazards due to a geometric design feature or incompatible uses (less than significant after mitigation)
- Result in inadequate emergency access (less than significant after mitigation)

### 6.2.3 Alternatives Considered but Not Evaluated Further

State CEQA Guidelines Section 15126.6(c) provides the following guidance in selecting a range of reasonable alternatives for the project. The range of potential alternatives for the project shall include those that could feasibly accomplish most of the basic objectives of the project, and could avoid or substantially lessen one or more of the significant effects. The EIR should also identify any alternatives that were considered by the lead agency, but were rejected during the planning or scoping process and briefly explain the reasons underlying the lead agency's determination.

To provide some background for understanding the purpose and need for the project, SMUD has designed its resource procurement plans to meet the directive by its Board of Directors to use dependable renewable resources to eliminate carbon emissions from its power supply by 2030, as described in SMUD's 2030 Zero Carbon Plan (SMUD 2021). This goal is consistent with Senate Bill 350, which was signed into law in 2015. Senate Bill 100 accelerated the deadline for reaching the 50 percent milestone to 2026, and 60 percent by 2030. The law also establishes as state policy that renewable energy resources and zero-carbon resources are to supply 100 percent of retail sales of electricity to California end use customers by 2045. SMUD has the ambitious goal of becoming 100 percent carbon free by 2030, ahead of the state target. The proposed project is an important element in helping SMUD achieve this goal.

The following describes alternatives considered by SMUD but not evaluated further in this Draft EIR, and a brief description of the reasons for SMUD's determination.

### *Offsite Alternatives*

Offsite alternatives are generally considered in EIRs when one of the means to avoid or eliminate the significant impacts of a project is to develop it in a different available location. Such alternatives are especially appropriate where a proposed project would put a site to uses different than those contemplated in the governing general plan, which presumably reflects land use policies reached after much deliberation and public involvement, and also in instances where there is an ample supply of similarly situated land that could be developed for a project. The Placer County General Plan identifies the majority of land use of the project site as Farm, combining minimum building site of 80 acres, and four parcels zoned as Specific Plan - Regional University Specific Plan (see Section 3.11 Land Use and Planning). The proposed project is located in areas identified as Potential Future Growth Area (PFG) under the recently adopted Placer County Conservation Program (PCCP) (Placer County 2021). Thus, the adopted plan pertinent to the project site envisions it as an area that will likely be developed. Further, the project is geographically tied to existing electrical infrastructure.

SMUD considered a variety of locations for the project to meet its 2030 Zero Carbon Plan goals and objectives. A specific key goal of the project is to interconnect to SMUD's existing transmission system so the energy generated by the project can be delivered directly to SMUD customers. Alternative sites were assessed throughout SMUD's service territory. Challenges arose with sites assessed that would interconnect with the transmission system on the east side of the service territory because multiple projects are currently applying for interconnection or planned to interconnect in the near future in this area. Engineering assessment of the east side of the service territory also indicated that additional upgrades of the transmission system would be needed to interconnect the project. Thus, a project in this area would not support the overall balancing of SMUD's generation on the existing transmission system.

Similarly, a large portion of SMUD's generation facilities are already situated in the southern part of SMUD's transmission system. Engineering assessment of the potential to add additional projects on the south side of SMUD's transmission system identified the likely need for additional upgrades of the transmission system to interconnect the project. Additionally, a preliminary biological resource assessment of land potentially suitable for siting of a project on the south side of the system showed the likely presence of habitat for California tiger salamander, and suitable habitat for numerous vernal pool species, including Orcutt grass.

Projects on the west and central sides of SMUD's service territory are constrained by existing residential, commercial, industrial and other developed uses and by the Sacramento River on the west. Finding contiguous land adjacent to the transmission system of a size able to develop a utility scale solar project was found to be unattainable.



Finding suitable land available for solar projects presents a known challenge throughout the region. Significant development and land use planning associated with expansion of residential, commercial, and industrial uses has resulted in a limited supply of land available for utility scale solar projects near SMUD's transmission system. SMUD previously released requests for offers of solar projects in 2013 and land in 2017 for the purpose of identifying potential projects with limited environmental impacts close to existing transmission or distribution lines. Both requests for offers were unsuccessful, yielding projects found to be unviable or little to no response, respectively. Ultimately, these prior efforts led SMUD to target the specific location of the proposed project for development of the Country Acres solar project.

### *Evolution of the Proposed Project*

The project location and design have evolved since its initial conception as SMUD strived to identify the least environmentally damaging option for development of the needed solar energy capacity.

Initially, a SMUD engineering assessment identified that the northern portion of SMUD's transmission system could interconnect a project of a size necessary to meet SMUD's goals and objectives. In 2019, SMUD began screening potential properties adjacent to the northern part of the existing transmission system. A variety of constraints were documented within the area adjacent to the existing lines, including existing residential, commercial and industrial uses in Sacramento and Placer County and the City of Roseville, and extensive plans for additional residential and commercial expansion including a number of Specific Plans near the transmission lines that had already been approved. An additional constraint was presented by the recent adoption of the PCCP which identified large portions of the area as a Reserve Acquisition Area not intended for development. These constraints limited the opportunities for land available for development of a project. Within this limited area SMUD approached landowners to determine if there were any partners willing to partner with SMUD on a project. The proposed project area was identified through the discussions with landowners.

### *Onsite Alternatives*

Once lands with willing partners had been identified, SMUD conducted environmental assessments, including biological and cultural resources field surveys and a wetland delineation in 2021. Based on the results of these surveys, SMUD adjusted the conceptual layouts of the project footprint to further reduce potential impacts to biological resources, including minimizing impacts to wetlands within the project site based on the results of the wetland delineation. In addition to avoiding direct impacts on wetlands to the greatest extent feasible, a 250-foot setback was established around wetlands. Additionally, SMUD worked with the landowners and Placer County to ensure adjacent development plans associated with the Placer Parkway and adjacent residential and commercial development would continue to be able to move forward with design plans as desired during the operational life of the proposed project.

### Alternative Technologies

#### **Rooftop and Carport Solar**

Roof top, carport and other infill solar projects are necessary to support SMUD's 2030 Zero Carbon Plan goals, and SMUD continues to pursue all of these options. However, meeting the goals and objectives of SMUD's 2030 Zero Carbon Plan solely through locating distributed solar resources within the desired timeframe was determined to be infeasible. Challenges included identification of enough potential development locations to meet the goals and the extended time associated with assessing each separate site for feasibility of installation, real estate management, permitting, engineering, and contracting. These challenges present a barrier to SMUD's ability to meet the timing for adding enough solar generation through distributed solar technologies alone to meet the goals of the 2030 Zero Carbon Plan.

#### **Wind**

Wind energy provides various benefits, including the following: it is a renewable and infinite resource; generation of wind energy is free of any air emissions, including GHGs; besides construction and maintenance costs, it is a free resource; and it does not require substantial water usage. Compared with traditional energy sources, the environmental effects of wind power are relatively minor. However, wind farms would not decrease short-term construction-related air emissions and they typically result in greater adverse aesthetics impacts (due the much taller height of wind turbines compared with solar panels, making them more visible from many viewpoints). The project area is not suitable for wind development, due to a lack of wind resources. Also, unlike the proposed project, wind turbines could result in take of avian species on the project site from rotating turbine blades. Further, wind turbines would generate long-term noise impacts and aesthetics impacts that would not occur under the proposed project.

#### **Nuclear Energy**

Nuclear energy is a non-fossil fuel (non GHG-producing) energy resource, and unlike solar or wind energy, production of nuclear energy does not depend on the availability of sun or wind. Nuclear energy was produced at SMUD's decommissioned Rancho Seco Nuclear Generating Station from 1975 until 1989, when it was closed by public vote from SMUD customers. While the project site is located outside of SMUD's service territory in Placer County, developing a nuclear energy facility at the project site would likely be infeasible because use of nuclear power has already been rejected in the region once; it is a controversial technology due to public perception around safety and uncertainties over the disposition of spent fuel; it is relatively expensive to build and operate (compared to most if not all technologies); and there is overall doubt that it would ever be approved even if considered due to these factors. Diablo Canyon, the last nuclear power plant built in California, was completed in 1986, over 30 years ago, and is the last operating commercial nuclear power plant in the state; PG&E, its owner and operator, plans to close it. In short, nuclear power plants do not appear to have an

immediate future in California, neither in SMUD's service territory, nor elsewhere, like Placer County. Finally, due to their footprint, number of employees, and operating characteristics including safety risks, they would likely result in greater impacts compared to the proposed project.

### 6.3 Alternatives Selected for Detailed Analysis

CEQA requires consideration of a reasonable range of alternatives. In light of the extensive work SMUD has already done to screen suitable sites and modify site development to reduce impacts, the fact that most impacts can be mitigated to less-than-significant levels, and the considerations discussed above, the two alternatives considered herein in addition to the no project alternatives present a "reasonable" range because they focus on the remaining most important environmental issue: wetlands impact reduction and important farmland impact reduction. Alternatives evaluated in this Draft EIR are:

- **No Project Alternative**, which assumes no new solar development occurs on the project site; and
- **Wetlands Impact Reduction Alternative**, which assumes that a reduced size solar facility is developed on the project site to reduce impacts to wetlands and other waters of the United States and associated species.
- **Important Farmland Reduction Alternative**, which assumes that a reduced size solar facility is developed on the project site to reduce impacts to Important Farmland.

Each of these alternatives is described in more detail and analyzed below.

#### 6.3.1 No Project Alternative

State CEQA Guidelines Section 15126.6(e)(1) requires that the no project alternative be described and analyzed "to allow decision makers to compare the impacts of approving the project with the impacts of not approving the project." The no project analysis is required to discuss "the existing conditions at the time the notice of preparation is published...as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services" (Section 15126.6[e][2]).

##### *Environmental Analysis*

Under this alternative, the project would not be constructed on the project site, and as a result, none of the associated impacts would occur and none of the permits or approvals that would be required by SMUD and various permitting agencies for the project would be needed. It is unknown for how long the project site would remain in its existing condition, as most of the area is planned for future growth, and it is uncertain exactly

what impacts would occur. Therefore, no analysis by impact topic is provided, as this would be speculative.

This alternative would not meet any of the objectives identified in Section 6.2.1, “Attainment of Project Objectives.”

### 6.3.2 Wetland Impact Reduction Alternative

As described above in Section 6.2.3.2, “Onsite Alternatives,” the project has been substantially modified from its originally proposed design to reduce environmental impacts to the extent feasible while still meeting the project objectives. As shown in Section 6.2.2, “Summary of Project Impacts,” the project’s impacts would be less than significant with mitigation for most resource topics. Significant and unavoidable impacts would occur only related to the conversion of important farmland and with regards to short-term emissions and dust during construction. Notwithstanding, the project would result in the conversion of habitat and loss of federally protected waters of the United States, including wetlands. Although mitigation has been recommended to reduce these significant impacts, habitat conversion and loss of wetlands would nonetheless occur. A conceptual alternative was developed to further reduce the project’s wetland impacts and impacts on natural habitat (grassland).

The Wetland Impact Reduction Alternative, would include construction and operation of a reduced size solar facility on the project site that would reduce fill of wetlands and non-wetland waters in the northeast corner of the project site and would not convert the surrounding grassland matrix. This alternative would not use the parcel in the northwest portion of the project area that is characterized by annual grassland and wetlands. This would eliminate up to approximately 16 MW of generation capacity (based on solar panels located on this land in the 10% design), but would also result in further reduction of impacts on cattail marsh and annual grassland (up to 0.04 acres of cattail marsh and up to 57.2 acres of annual grassland). Thus, this project would eliminate the majority of wetland impacts, and would also eliminate the potential impacts on special-status species that use these grasslands as foraging habitat (such as burrowing owl, Swainson’s hawk and tricolored blackbird).

This alternative would attain most of the objectives identified in Section 6.2.1, “Attainment of Project Objectives,” because it would involve construction and operation of a PV solar facility; avoid wetlands and other sensitive habitat areas; integrate compatible agriculture activities; locate the facility as near as possible to existing electrical infrastructure with anticipated capacity to minimize the geographical extent of impacts; utilize the best available, efficient, cost-effective, and proven PV solar technology and battery storage; and be readily accessible from existing roads. However, the project objectives related to supporting California’s renewable energy and greenhouse gas emission reduction laws and goals and SMUD Board of Directors’ 2030 Zero Carbon Plan, would be achieved at a lesser degree under this alternative due the reduced amount of solar energy that would be generated compared to the project.

## *Environmental Analysis*

### *Aesthetics*

Under this alternative, the visible elements of the PV solar facility would be similar to those of the proposed project, but there would be no solar panels immediately adjacent to South Brewer Road. As with implementation of the project, impacts to the visual character of the site and nighttime views would be less than significant. Therefore, overall impacts under this alternative would be similar to those of the project. (*Similar*)

### *Agriculture*

Under this alternative, a reduced size PV solar facility would be constructed on the project site. However, the reduced impact acreage is mainly on grasslands, thus the impacts to Important Farmland would be the same or similar to the proposed project; these impacts would still be significant and unavoidable. (*Similar*)

### *Air Quality*

Under this alternative, a reduced size PV solar facility would be constructed on the project site. As such, all construction activities and resulting criteria air pollutants would be similar to, but slightly less than, the project. However, uncontrolled daily emissions during construction activities would exceed Placer County Air Pollution Control District's thresholds for nitrogen dioxides (NO<sub>x</sub>) and respirable and fine particulate matter (PM<sub>10</sub>, and PM<sub>2.5</sub>, respectively). Similar to the project, implementation of Mitigation Measures 3.3-1, 3.3-2a, 3.3-2b, and 3.3-2c would reduce construction-related exhaust and dust emissions; however, because of the scale of the project this impact would be significant and unavoidable. (*Similar, but slightly less*)

### *Biological Resources*

Under this alternative, a reduced size PV solar facility would be constructed on the project site by avoiding the parcel characterized by wetland and annual grassland. This would result in a reduction of impacts on cattail marsh and annual grassland (including 0.04 acre cattail marsh and up to 57.2 acre of annual grassland). Thus, this project would eliminate the majority of wetland impacts associate with the proposed project, and would also eliminate the potential impacts on special-status species that use grasslands for foraging habitat. The grassland habitat is considered Swainson's hawk and tricolored blackbird foraging habitat and could also support borrowing owl. Thus, elimination of the grassland habitat impacts would eliminate impacts on a range of biological resources, along with the need to mitigation for these impacts. (*Lesser*)

### *Cultural Resources and Tribal Cultural Resources*

Under this alternative, a reduced size PV solar facility would be constructed on the project site. In reducing fill of wetlands and non-wetland waters, this alternative may also avoid disturbance to some archaeological sites if they overlap with the locations of

the wetlands and non-wetland waters. However, because earthwork and ground-disturbing activities would still occur under this alternative, there would still be a potential for disturbance to unknown archaeological sites, as well as previously unidentified human remains. Implementation of Mitigation Measures 3.5-1 and 3.18-1 would apply to this alternative, and would reduce these impacts to less-than-significant levels. Therefore, overall impacts under this alternative would be similar to those of the project. (*Similar*)

#### Geology and Soils

Implementation of this alternative would involve grading and other ground-disturbing activities similar to the project, but over a slightly smaller footprint. Therefore, this alternative would have similar impacts associated with geological hazards and soil erosion compared to the project. Implementation of Mitigation Measure 3.7-4 would apply to this alternative, and would reduce these impacts to less-than-significant levels. Overall, this alternative would result in less geology and soils impacts compared to the project. (*Less, but no significant difference*)

#### Greenhouse Gas Emissions and Energy

Under this alternative, a reduced size PV solar facility would be constructed on the project site. As such, all construction activities and resulting GHG emissions would be similar to, but slightly less than, the project. A reduction in the annual generation capacity of the facility would also result in a reduction in avoided GHG emissions. The decreased size of the solar facility would reduce the amount of total annual avoided emissions. Thus, while this alternative would result in a slight reduction of construction-related GHG emissions, the reduction would be smaller than the amount of GHG avoided emissions lost through the reduction of solar capacity compared to the proposed project. Potential impacts of climate change on this alternative would be the same as the project because the site would be unchanged in location and the same County policies are in place to respond to the effects of climate change. Thus, GHG impacts under this alternative would be less than significant. (*Greater*)

#### Hazards and Hazardous Materials

Implementation of this alternative would involve the storage, transport, and handling of hazardous materials; and exposure of or disturbance to contaminated soils or asbestos containing materials, similar to the project. Implementation of Mitigation Measure 3.9-1 would apply to this alternative, and would reduce these impacts to less-than-significant levels. Therefore, overall impacts under this alternative would be similar to those of the project. (*Similar*)

#### Hydrology and Water Quality

Implementation of this alternative would involve limited grading and movement of soil, which could result in erosion and sedimentation, and discharge of other nonpoint source pollutants in on-site stormwater that could then drain to off-site areas and degrade local

water quality. Installation of new facilities would not alter existing onsite drainage patterns and flowpaths sufficiently to alter the way that stormwater flows onto and off the site during major events. Implementation of Mitigation Measure 3.10-1 would apply to this alternative, and would reduce these impacts to less-than-significant levels. Overall, this alternative would result in less hydrology and water quality impacts compared to the project. (*Less, but no significant difference*)

#### Noise

Implementation of this alternative would result in the construction of a reduced size PV solar facility on the project site. As such, all construction activities would be similar to the proposed project and, therefore, construction noise impacts would be similar. Implementation of Mitigation Measure 3.13-1 would apply to this alternative, and would reduce construction noise impacts to less-than-significant levels. Therefore, overall impacts under this alternative would be similar to those of the project. (*Similar*)

#### Transportation and Traffic

Under this alternative, a reduced size PV solar facility would be constructed on the project site. As such, all construction activities would be similar to the proposed project and, therefore, construction-related increases to vehicle traffic on the surrounding roadway network and resulting degradation of pavement conditions would be similar. Implementation of Mitigation Measures 3.17-1 and 3.17-2 would apply to this alternative, and would reduce these impacts to less-than-significant levels. Overall, this alternative would result in similar transportation and traffic impacts compared to the project. (*Similar*)

### 6.3.3 Important Farmland Impact Reduction Alternative

As described above in Section 6.2.3.2, "Onsite Alternatives," the project has been substantially modified from its originally proposed design to reduce environmental impacts to the extent feasible while still meeting the project objectives. However, most of the available land in the project area is characterized by agriculture (almonds and rice) and is classified as Important Farmland. Under this alternative, the project would be scaled back in size to reduce conversion of land currently in rice or almond production but would have to remain of a minimum size to allow the production of a minimum of 250 MW of solar energy to remain feasible. Based on preliminary engineering, a 45-acre reduction of use in agricultural land appears possible.

#### Environmental Analysis

#### Aesthetics

Under this alternative, the visible elements of the PV solar facility would be the same as with the project because the project site would be developed with solar arrays and supporting infrastructure. As with implementation of the project, impacts to the visual

character of the site and nighttime views would be less than significant. Therefore, overall impacts under this alternative would be similar to those of the project. (*Similar*)

### Agriculture

Under this alternative, a reduced size PV solar facility would be constructed on the project site. Impacts to Important Farmland would be approximately 45 acres less than the proposed project; however, because most of the land in the project area is classified as important farmland, these impacts would still be significant and unavoidable. (*Similar*)

### Air Quality

Under this alternative, a reduced size PV solar facility would be constructed on the project site. As such, all construction activities and resulting criteria air pollutants would be similar to, but slightly less than, the project. However, uncontrolled daily emissions during construction activities would exceed Placer County Air Pollution Control District's thresholds for nitrogen dioxides (NO<sub>x</sub>) and respirable and fine particulate matter (PM<sub>10</sub>, and PM<sub>2.5</sub>, respectively). Similar to the project, implementation of Mitigation Measures 3.3-1, 3.3-2a, 3.3-2b, and 3.3-2c would reduce construction-related exhaust and dust emissions; however, because of the scale of the project this impact would be significant and unavoidable. (*Similar, but slightly less*)

### Biological Resources

Under this alternative, a reduced size PV solar facility would be constructed on the project site. However, the only habitat impacts that would be reduced would be to rice fields or almond orchards, which provide the least habitat value of the habitats available on the project site. Thus, the impacts to biological resources would remain comparable to those of the proposed project. (*Similar*)

### Cultural Resources and Tribal Cultural Resources

Under this alternative, a reduced size PV solar facility would be constructed on the project site. However, because earthwork and ground-disturbing activities would still occur under this alternative, there would still be a potential for disturbance to unknown archaeological sites, as well as previously unidentified human remains. Implementation of Mitigation Measures 3.5-1 and 3.18-1 would apply to this alternative, and would reduce these impacts to less-than-significant levels. Therefore, overall impacts under this alternative would be similar to those of the project. (*Similar*)

### Geology and Soils

Implementation of this alternative would involve grading and other ground-disturbing activities similar to the project, but over a slightly smaller footprint. Therefore, this alternative would have similar impacts associated with geological hazards and soil erosion compared to the project. Implementation of Mitigation Measure 3.7-4 would



apply to this alternative, and would reduce these impacts to less-than-significant levels. Overall, this alternative would result in less geology and soils impacts compared to the project. (*Less, but no significant difference*)

#### Greenhouse Gas Emissions and Energy

Under this alternative, a reduced size PV solar facility would be constructed on the project site. As such, all construction activities and resulting GHG emissions would be similar to, but slightly less than, the project. A reduction in the annual generation capacity of the facility would also result in a reduction in avoided GHG emissions. The decreased size of the solar facility would reduce the amount of total annual avoided emissions. Thus, while this alternative would result in a slight reduction of construction-related GHG emissions, the reduction would be smaller than the amount of GHG avoided emissions lost through the reduction of solar capacity compared to the proposed project. Potential impacts of climate change on this alternative would be the same as the project because the site would be unchanged in location and the same County policies are in place to respond to the effects of climate change. Thus, GHG impacts under this alternative would be less than significant. (*Greater*)

#### Hazards and Hazardous Materials

Implementation of this alternative would involve the storage, transport, and handling of hazardous materials; and exposure of or disturbance to contaminated soils or asbestos containing materials, similar to the project. Implementation of Mitigation Measures 3.9-1 would apply to this alternative, and would reduce these impacts to less-than-significant levels. Therefore, overall impacts under this alternative would be similar to those of the project. (*Similar*)

#### Hydrology and Water Quality

Implementation of this alternative would involve limited grading and movement of soil, which could result in erosion and sedimentation, and discharge of other nonpoint source pollutants in on-site stormwater that could then drain to off-site areas and degrade local water quality. Installation of new facilities would not alter existing onsite drainage patterns and flowpaths sufficiently to alter the way that stormwater flows onto and off the site during major events. Implementation of Mitigation Measures 3.10-1 would apply to this alternative, and would reduce these impacts to less-than-significant levels. Overall, this alternative would result in less hydrology and water quality impacts compared to the project. (*Less, but no significant difference*)

#### Noise

Implementation of this alternative would result in the construction of a reduced size PV solar facility on the project site. As such, all construction activities would be similar to the proposed project and, therefore, construction noise impacts would be similar. Implementation of Mitigation Measure 3.13-1 would apply to this alternative, and would

reduce construction noise impacts to less-than-significant levels. Therefore, overall impacts under this alternative would be similar to those of the project. (*Similar*)

#### Transportation and Traffic

Under this alternative, a reduced size PV solar facility would be constructed on the project site. As such, all construction activities would be similar to the proposed project and, therefore, construction-related increases to vehicle traffic on the surrounding roadway network and resulting degradation of pavement conditions would be similar. Implementation of Mitigation Measures 3.17-1 and 3.17-2 would apply to this alternative, and would reduce these impacts to less-than-significant levels. Overall, this alternative would result in similar transportation and traffic impacts compared to the project. (*Similar*)

## **6.4 Comparison of Alternatives**

Table 6-1 summarizes the environmental analysis provided above for the project alternatives.

**Table 6-1. Comparison of the Environmental Impacts of the Alternatives in Relation to the Project**

<b>Resource Area</b>	<b>Project</b>	<b>No Project Alternative</b>	<b>Wetland Impact Reduction Alternative</b>	<b>Important Farmland Impact Reduction Alternative</b>
Aesthetics	Less than significant (LTS)	Less	Similar	Similar
Agriculture	Significant and Unavoidable (SU)	Less	SU, but slightly less	SU, but slightly less
Air Quality	SU during construction	Less	Similar, but slightly less	Similar, but slightly less
Biological Resources	LTS with mitigation	Less	Less wetland and grassland impacts	Similar
Cultural Resources and	LTS with mitigation	Less	Similar	Similar
Tribal Cultural Resources	LTS with mitigation	Less	Similar	Similar
Geology and Soils	LTS with mitigation	Less	Similar	Similar
Greenhouse Gas Emissions and Energy	LTS with mitigation	Less	Greater	Greater
Hazards and Hazardous Materials	LTS with mitigation	Less	Similar	Similar
Hydrology and Water Quality	LTS with mitigation	Less	Less, but no significant difference	Less, but no significant difference
Noise	LTS with mitigation	Less	Similar	Similar
Transportation	LTS with mitigation	Less	Similar	Similar

Source: Compiled by AECOM 2022

## 6.5 Environmentally Superior Alternative

CCR Section 15126.6 suggests that an EIR should identify the “environmentally superior” alternative. “If the environmentally superior alternative is the ‘no project’ alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.”

The No Project Alternative is the environmentally superior alternative, as all of the significant impacts of the project would be avoided. However, the No Project Alternative would not meet any of the project objectives because a PV solar facility would not be constructed on the project site.

The Wetland Impact Reduction Alternative would reduce the amount of wetlands anticipated to be filled on the project site, and would also preserve the grassland on the project site, but would nonetheless result in the conversion of land to solar fields. However, the habitat to be converted under this alternative is mainly agricultural and provides fewer habitat benefits compared to the natural/wetland habitat. Because this alternative would involve construction of a reduced size PV solar facility, all construction activities and resulting impacts associated with air quality, GHG emissions, and transportation and traffic would be similar to, or slightly less than, the project. The GHG emissions that would be reduced from lesser construction would not be sufficient to offset the avoided GHG emissions associated with less solar capacity (assuming this capacity is otherwise provided by a non-renewable resource). Further, because this alternative would be constructed on the project site, impacts associated with aesthetics; cultural resources and Tribal cultural resources; geology and soils; hazards and hazardous materials; and hydrology and water quality would be similar to, or slightly less than, the project. This alternative would meet most of the project objectives. However, a reduced size PV solar facility would produce a smaller amount of energy (approximately 5 percent less solar power than the project) at a higher price, because construction and operations cost would remain approximately the same, while power generation would be lower, thus resulting in a less “efficient” project. This would result in reduced ability to comply with California’s renewable energy and greenhouse gas emission reduction laws and goals and SMUD Board of Directors’ 2030 Zero Carbon Plan.

The Important Farmland Impact Reduction Alternative would reduce the amount of Important Farmland that would be impacted by approximately 45 acres; however, a significant and unavoidable conversion of Important Farmland would still occur. Because this alternative would involve construction of a reduced size PV solar facility, all construction activities and resulting impacts associated with air quality, GHG emissions, and transportation and traffic would be similar to, or slightly less than, the project. The GHG emissions that would be reduced from lesser construction would not be sufficient to offset the avoided GHG emissions associated with less solar capacity (assuming this capacity is otherwise provided by a non-renewable resource). Further, because this alternative would be constructed on the project site, impacts associated with aesthetics; cultural resources and Tribal cultural resources; geology and soils;

hazards and hazardous materials; and hydrology and water quality would be similar to, or slightly less than, the project. This alternative would meet most of the project objectives. However, a reduced size PV solar facility would produce a smaller amount of energy at a higher price. This would result in reduced ability to comply with California's renewable energy and greenhouse gas emission reduction laws and goals and SMUD Board of Directors' 2030 Zero Carbon Plan.

For these reasons, the proposed project is the environmentally superior alternative because all significant impacts would be mitigated to less-than-significant levels (with the exception of air quality impacts during construction and significant and unavoidable impacts to Important Farmland), and all project objectives would be met while also significantly reducing overall regional GHG emissions. As described in Section 6.2.3.2, "Onsite Alternatives," the project design has evolved since its initial conception as SMUD has sought to identify the least environmentally damaging option for development of the needed solar energy capacity. To that end, SMUD has established setbacks from vernal pools and seasonal wetlands and other waters within the project site to avoid or minimize impacts on wetlands and other sensitive natural communities, as well as revised the original grading plan to reduce air quality and GHG emissions. Therefore, while the Wetland Impact Reduction Alternative is the environmentally superior alternative, because of a very slightly lower impact footprint on natural communities, the proposed project is not significantly more impactful while generating a higher amount of power. Furthermore, any impacts on wetlands and other sensitive communities would be fully mitigated.

Based on these considerations, the proposed project is SMUD's preferred alternative.

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None.

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None.

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### 3.0 Environmental Setting, Impacts, and Mitigation Measures

None.

### 3.1 Aesthetics

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## **APPENDIX A**

### **CRITERIA AIR POLLUTANT AND GREENHOUSE GAS EMISSIONS, AND ENERGY USE**

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Operational Emissions

CalEEMod Operational Emissions Estimates:				
Operational Source	ROG	Maximum Daily (pounds per year)		
		NOX	PM10	
Aves	0.024			0
Energy	0		0	0
Mobile	0.0359	0.4462		12.1948
Offroad	0.602	6.3349		0.2714
Stationary	0.0443	0.2311		0.0195
Total Annual Emissions	0.7062	7.0122		12.4857
PCAPCD Thresholds	55	55		82
Exceed Thresholds?	No	No		No

Annual Operational GHG Emissions:	424,8015329
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Generation Substation			
Equipment	Quantity	SF6 Quantity (lb)	Total (lb)
230kV CB (SF6)	2	161	322
230/34.5kV TX	2	0	0
34.5kV CB (Vacuum)	14	0	0
Cap Bank Circuit Switcher	4	2	8
Contingency (30%)			99
Total (Substation)			429
Switch Station			
Equipment	Quantity	SF6 Quantity (lb)	Total (lb)
230kV CB (SF6)	9	161	1449
Contingency (30%)			434.7
Total (Switch Station)			1883.7
Switch Station and Substation Total			2312.7

Potential SF6 Emissions:

Total SF6 Use (Metric Tons)	% Leak, Per CARB Regulation	Total Annual SF6 Emissions	Total Annual CO2e Emissions from SF6 Use (MT CO2e)
1.05	0.01		250.72

Constants	
lb	grams
1	453.592
ton	lb
1	2000
metric ton	lb
1	2204.62
GWP CO2	SF6
1	23900

Max Theoretical Generating Capacity	Energy Generation Rate (MWh)	Energy Generation Rate (MMBtu)
344 MW	748,944	2,555,396.93
Energy Generation Rate = Generating Capacity * Capacity Factor * Operational Duration		

Applicant-provided data for Annual Energy Generation Rate

1 MWh = 3.412000 MMBtu

GHG emissions avoided by use of solar power vs. fossil fuels:	
Energy Generation Rate (MW hours per year)	748,944
CO2 emissions factor for SMUD General Power Mix (MT CO2e/MW hour) <sup>a</sup> in the year 2025	0.08
Theoretical CO2 emissions if proposed project's electricity were produced via non-renewable source (MT CO2e per year)	61,453
CO2 emissions factor from non-renewable electricity sources within SMUD Power Mix (MT CO2e/MW hour) <sup>a</sup>	0.45
Theoretical CO2 emissions if proposed project's electricity were produced via non-renewable source (MT CO2e per year)	340,667

<sup>a</sup> See Tab: SMUD 2020-2030

Operational Energy Consumption

Operational Activity	MT CO2 per year (CalEEMod Output)	Diesel Use (gallons per year)	Gasoline Use (gallons per year)	Notes
Area	0.00002	0	-	Assumes all diesel-powered
				Any energy requirements would be fed from onsite GHG-free production, with the exception of the backup generator stationary source provided separately below
Energy	0	-	-	
Mobile	33,334	1,763	1,896	See Fleet Mix and below calculation as % Diesel, % Gasoline
Offroad	138,1271	13,558	-	Modeled based on all diesel-powered equipment
Stationary	0.51	50	-	Modeled as diesel-powered generator
Total Annual Fuel Consumption	-	15,372	1,896	

\*Note that this assumes that the maximum daily off-roach equipment use and visitor travel would occur throughout the year, which is a overestimate of total activity.

Mobile Fleet Mix				
Vehicle Category (adjusted in CalEEMod files)	% Fleet Mix (adjusted in CalEEMod)	% Diesel (estimate based on EMFAC data)		% Gasoline (estimate based on EMFAC data)
MDV	25%	2%		98%
LHD1	25%	43%		57%
LHD2	25%	70%		30%
MHD	25%	100%		0%
Weighted Average % Fuel Use for Operations:		54%		46%

Conversion of CO2e Emissions to Fuel Use:		
Fuel Type	MT CO2e/gallon	
Diesel	1.02E-02	
Gasoline	8.11E-03	

**SMUD Emission Factors - 2020**

<b>Electricity Portfolio</b>	<b>SMUD</b>
Eligible Renewables	34%
Coal	0%
Large Hydro	29%
Natural Gas	35%
Nuclear	1%
Other	0%
Unspecified	1%
<b>Total</b>	<b>100%</b>
Total Renewable	64%
Total Coal	0%
Total "Gas"	36%
<b>Emissions Factors</b>	<b>SMUD</b>
lb CO <sub>2</sub> e/MWh	358.00
MT CO <sub>2</sub> e/MWh	0.162

**Conversion Factor**

MT/lbs
0.000453592

*Assumes 'unspecified' is combined cycle natural gas generation*

**Electricity Portfolio Sources:**

CEC Power Content Labels <https://www.energy.ca.gov/filebrowser/download/3900>

**Emissions Factor Sources:**

CO<sub>2</sub>e/MWh based on "general mix" (<https://www.smud.org/SMUDPCL>)



**SMUD Emission Factor Forecasted**

2020      2030  
33%      100%

**RPS reduces share in other energy sources on weighted basis from their 2017 contribution to power content label**

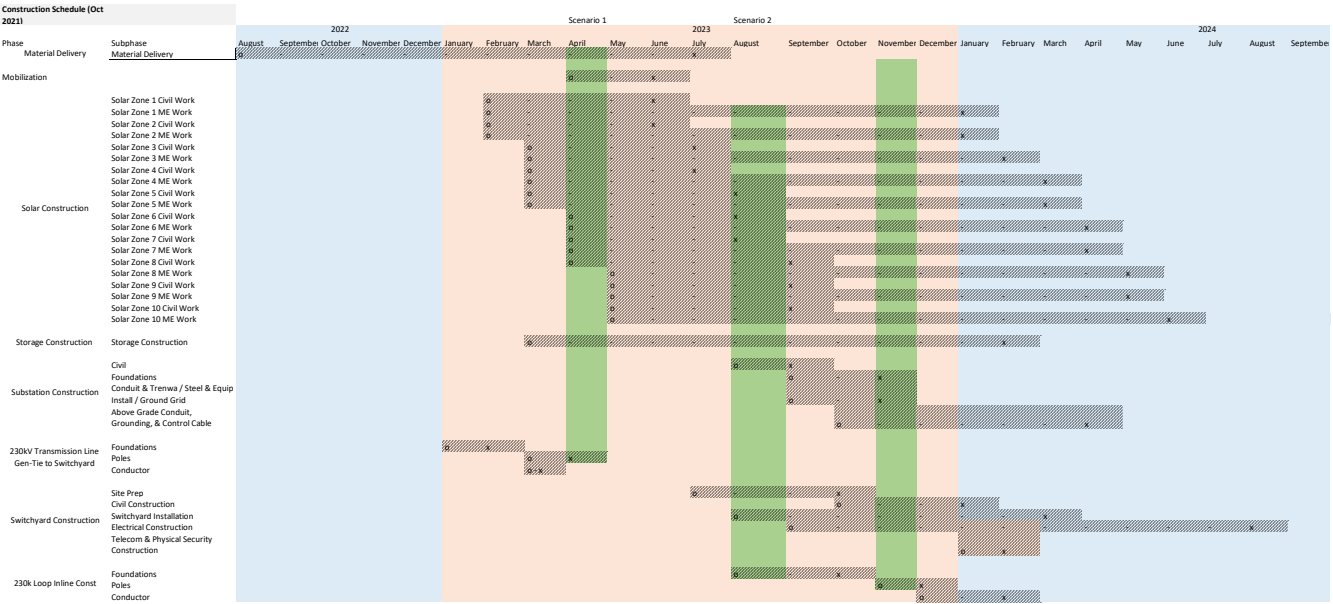
SMUD - 2020 Power Content Label	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
RPS	33.8%	39.7%	46.4%	53.1%	59.8%	66.5%	73.2%	79.9%	86.6%	93.3%	100.0%
Large Hydroelectric	29.1%	26.5%	23.6%	20.6%	17.7%	14.7%	11.8%	8.8%	5.9%	2.9%	0.0%
Natural Gas	35.2%	32.1%	28.5%	24.9%	21.4%	17.8%	14.2%	10.7%	7.1%	3.5%	-0.1%
Nuclear	1.3%	1.2%	1.1%	0.9%	0.8%	0.7%	0.5%	0.4%	0.3%	0.1%	0.0%
Unspecified	0.5%	0.5%	0.4%	0.4%	0.3%	0.3%	0.2%	0.2%	0.1%	0.0%	0.0%
Total	100%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
Renewable Energy	64%	67.39%	71.01%	74.62%	78.24%	81.86%	85.48%	89.10%	92.72%	96.34%	99.95%
Non-Renewable	36%	32.5%	28.9%	25.3%	21.7%	18.0%	14.4%	10.8%	7.2%	3.6%	0.05%
Non-Renewable											
MT CO2e/MWh	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
MT CO2e/MWh	0.16	0.15	0.13	0.11	0.10	0.08	0.07	0.05	0.03	0.02	0.00
lbs CO2e/MWh	358.00	326.04	289.76	253.47	217.18	180.90	144.61	108.32	72.03	35.75	0.46

**Conversion Factor**

MT/lbs
0.000453592
2204.62

# Construction Fuel Consumption

Phase	Subphase	Activity	Gallons Diesel	Gallons Gasoline
Material Procurement & Delivery	Material Procurement & Delivery	Equipment Use	0	#N/A
Material Procurement & Delivery	Material Procurement & Delivery	On-Site Vehicle Use	3817	0
Material Procurement & Delivery	Material Procurement & Delivery	Off-site On-road Vehicles	35480	1238
Mobilization	Mobilization	Equipment Use	2478	#N/A
Mobilization	Mobilization	On-Site Vehicle Use	81	1434
Mobilization	Mobilization	Off-site On-road Vehicles	51	1256
Solar Construction	Solar Construction (Civil)	Equipment Use	541342	#N/A
Solar Construction	Solar Construction (Civil)	On-Site Vehicle Use	43800	45618
Solar Construction	Solar Construction (Civil)	Off-site On-road Vehicles	510	17729
Solar Construction	Solar Construction (ME)	Equipment Use		
Solar Construction	Solar Construction (ME)	On-Site Vehicle Use		
Solar Construction	Solar Construction (ME)	Off-site On-road Vehicles	4451	173899
Storage Construction	Storage Construction	Equipment Use	72917	#N/A
Storage Construction	Storage Construction	On-Site Vehicle Use	0	0
Storage Construction	Storage Construction	Off-site On-road Vehicles	1795	10897
Substation Construction	Substation Construction (Civil)	Equipment Use	7725	#N/A
Substation Construction	Substation Construction (Civil)	On-Site Vehicle Use	674	889
Substation Construction	Substation Construction (Civil)	Off-site On-road Vehicles	51	1664
Substation Construction	Substation Construction (Foundations)	Equipment Use		
Substation Construction	Substation Construction (Foundations)	On-Site Vehicle Use		
Substation Construction	Substation Construction (Foundations)	Off-site On-road Vehicles	449	1091
Substation Construction	Substation Construction (Trench)	Equipment Use		
Substation Construction	Substation Construction (Trench)	On-Site Vehicle Use		
Substation Construction	Substation Construction (Trench)	Off-site On-road Vehicles	112	885
Substation Construction	Substation Construction (Above Grade)	Equipment Use		
Substation Construction	Substation Construction (Above Grade)	On-Site Vehicle Use		
Substation Construction	Substation Construction (Above Grade)	Off-site On-road Vehicles	262	2065
Transmission Line	Transmission Line (Foundations)	Equipment Use		
Transmission Line	Transmission Line (Foundations)	On-Site Vehicle Use		
Transmission Line	Transmission Line (Foundations)	Off-site On-road Vehicles	299	728
Transmission Line	Transmission Line (Poles)	Equipment Use		
Transmission Line	Transmission Line (Poles)	On-Site Vehicle Use		
Transmission Line	Transmission Line (Poles)	Off-site On-road Vehicles	5	439
Transmission Line	Transmission Line (Conductors)	Equipment Use		
Transmission Line	Transmission Line (Conductors)	On-Site Vehicle Use		
Transmission Line	Transmission Line (Conductors)	Off-site On-road Vehicles	37	295
Switchyard Construction	Switchyard Construction (Site Prep)	Equipment Use	13428	#N/A
Switchyard Construction	Switchyard Construction (Site Prep)	On-Site Vehicle Use	1092	1440
Switchyard Construction	Switchyard Construction (Site Prep)	Off-site On-road Vehicles	150	1180
Switchyard Construction	Switchyard Construction (Civil)	Equipment Use		
Switchyard Construction	Switchyard Construction (Civil)	On-Site Vehicle Use		
Switchyard Construction	Switchyard Construction (Civil)	Off-site On-road Vehicles	598	1455
Switchyard Construction	Switchyard Construction (Building)	Equipment Use		
Switchyard Construction	Switchyard Construction (Building)	On-Site Vehicle Use		
Switchyard Construction	Switchyard Construction (Building)	Off-site On-road Vehicles	299	4538
Switchyard Construction	Switchyard Construction (Electrical)	Equipment Use		
Switchyard Construction	Switchyard Construction (Electrical)	On-Site Vehicle Use		
Switchyard Construction	Switchyard Construction (Electrical)	Off-site On-road Vehicles	449	3541
Switchyard Construction	Switchyard Construction (Telecom & Security)	Equipment Use		
Switchyard Construction	Switchyard Construction (Telecom & Security)	On-Site Vehicle Use		
Switchyard Construction	Switchyard Construction (Telecom & Security)	Off-site On-road Vehicles	75	590
Loop Inline Construction	Loop Inline Construction (Foundations)	Equipment Use		
Loop Inline Construction	Loop Inline Construction (Foundations)	On-Site Vehicle Use		
Loop Inline Construction	Loop Inline Construction (Foundations)	Off-site On-road Vehicles	347	816
Loop Inline Construction	Loop Inline Construction (Poles)	Equipment Use		
Loop Inline Construction	Loop Inline Construction (Poles)	On-Site Vehicle Use		
Loop Inline Construction	Loop Inline Construction (Poles)	Off-site On-road Vehicles	20	448
Loop Inline Construction	Loop Inline Construction (Conductor)	Equipment Use		
Loop Inline Construction	Loop Inline Construction (Conductor)	On-Site Vehicle Use		
Loop Inline Construction	Loop Inline Construction (Conductor)	Off-site On-road Vehicles	10	823
Totals		Equipment Use	637889	0
		On-Site Vehicle Use	49464	49382
		Off-site On-road Vehicles	45452	225577
		Total	732805	274959



**Construction Emissions Summary**

		Criteria Pollutant Daily Emissions (lb/dy)				
	Emissions Source	ROG	NOX	PM10 (Exhaus)	PM10 (Fugitive Dust)	PM10 (Total)
"Early" Phases of Work (Material Procurement & Delivery, Mobilization, Early Solar Const., Early Storage Const., Max of Substation phase)	Off-Road Equipment & Fugitive Dust (earthwork and aggregate import)	28	219	12	157	169
	On-site Vehicles	10	11	1	1195	1195
	On-Road Vehicles	2	7	0.1	5	5
	<b>Total</b>	<b>40</b>	<b>237</b>	<b>12</b>	<b>1357</b>	<b>1369</b>

"Mid" Phases of Work (Mid Solar Const., Mid Storage Const., Max of Substation phase, Early Switchyard Const. )	Off-Road Equipment & Fugitive Dust (earthwork and aggregate import)	17	115	8	181	189
	On-site Vehicles	16	17	1	2004	2005
	On-Road Vehicles	2	5	0.1	5	5
	<b>Total</b>	<b>34</b>	<b>137</b>	<b>9</b>	<b>2190</b>	<b>2199</b>

"Late" Phases of Work (Late Solar Const., Late Storage Const., Mid Substation phase, Mid Switchyard Const.)	Off-Road Equipment	18	115	8	187	195
	On-site Vehicles	2	4	0	816	816
	On-Road Vehicles	1	4	0.1	4	4
	<b>Total</b>	<b>22</b>	<b>123</b>	<b>9</b>	<b>1007</b>	<b>1015</b>

USED FOR EIR:

Maximum Daily Emissions	Off-Road Equipment	28	219	12	187	195
	On-site Vehicles	16	17	1	2004	2005
	On-Road Vehicles	2	7	0.1	5	5
	<b>Total Of All Activity</b>	<b>46</b>	<b>243</b>	<b>13</b>	<b>2,196</b>	<b>2,205</b>
	<b>PCAPCD Thresholds</b>	<b>82</b>	<b>82</b>	<b>NA</b>	<b>NA</b>	<b>82</b>

\*Maximum emissions for each pollutant would not necessarily occur on the same day, but are representative of the maximum potential daily emissions for each pollutant over the construction period.

Maximum emissions of would occur during the Early Scenario phases of work.

Note that on-site vehicle PM Exhaust Emissions also include brake wear. This was not included with fugitive dust because the control measures for on-site fugitive dust would not apply to this emissions source.

	GHG Emissions (MT CO2e)
Material Procurement & Delivery	405.69
Mobilization	59.27
Solar Construction	9620.51
Storage Construction	1069.85
Substation Construction (Includes Transmission Line)	182.68
Switchyard Construction (Includes Loop Inline)	325.94
Total	11663.94
Average Annual	5831.968165

Theoretical 80% of Emissions of 1st Year

8531.143053

INTERNAL LOOK: Year 1 Emissions Estimate

202.8474099  
59.27

6413.671358  
891.5385087  
146.1471112  
162.9691999  
7876.44

		Mitigated Criteria Pollutant Daily Emissions (lb/dy)				
	Emissions Source	ROG	NOX	PM10 (Exhaust)	PM10 (Fugitive Dust)	PM10 (Total)
"Early" Phases of Work (Material Procurement & Delivery, Mobilization, Early Solar Const., Early Storage Const., Max of Substation phase)	Off-Road Equipment	28	175	12	58	70
	On-site Vehicles	10	11	1	109	110
	On-Road Vehicles	2	7	0.1	5	5
	Total	40	193	12	172	184

"Mid" Phases of Work (Mid Solar Const., Mid Storage Const., Max of Substation phase, Early Switchyard Const.)	Off-Road Equipment	17	92	8	67	75
	On-site Vehicles	16	17	1	183	184
	On-Road Vehicles	2	5	0.1	5	5
	Total	34	114	9	255	264

"Late" Phases of Work (Late Solar Const., Late Storage Const., Mid Substation phase, Mid Switchyard Const.)	Off-Road Equipment	18	92	8	69	77
	On-site Vehicles	2	4	0	74	75
	On-Road Vehicles	1	4	0.1	4	4
	Total	22	100	9	148	156

Maximum Daily Emissions Scenario	Off-Road Equipment	28	175	12	67	75
	On-site Vehicles	10	11	1	183	184
	On-Road Vehicles	2	7	0.1	5	5
	Total Of All Activity	40	193	12	255	264
	PCAPCD Thresholds	82	82	NA	NA	82

\*Maximum emissions for each pollutant would not necessarily occur on the same day, but are representative of the maximum potential daily emissions for each pollutant over the construction period.  
Maximum emissions of would occur during the Early Scenario phases of work.

Mitigated Scenario assumes:

\*NOx reductions of a minimum of 20% achieved in accordance with PCAPCD requirements to submit an emissions reduction plan and equipment inventory when actual equipment is confirmed;

\*Reduction in fugitive dust from off-road equipment of at least 63% due to regular watering;

\* Reduction in fugitive dust from on-site vehicles of at least 84% through application of gravel; daily watering would also be conducted as needed and vehicle speeds would be restricted to no more than 15 mph, but additive reductions were not assumed.

NOx Reduction Factor:	20%
Earthwork Fugitive Dust Control Factor:	63%
Unpaved Roadway Fugitive Dust Control Factor for Gravel Application:	84%
Unpaved Roadway Fugitive Dust Control Factor for Reduced Speed:	57%



	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51	2051/52	2052/53	2053/54	2054/55	2055/56	2056/57	2057/58	2058/59	2059/60	2060/61	2061/62	2062/63	2063/64	2064/65	2065/66	2066/67	2067/68	2068/69	2069/70	2070/71	2071/72	2072/73	2073/74	2074/75	2075/76	2076/77	2077/78	2078/79	2079/80	2080/81	2081/82	2082/83	2083/84	2084/85	2085/86	2086/87	2087/88	2088/89	2089/90	2090/91	2091/92	2092/93	2093/94	2094/95	2095/96	2096/97	2097/98	2098/99	2099/00	2100/01	2101/02	2102/03	2103/04	2104/05	2105/06	2106/07	2107/08	2108/09	2109/10	2110/11	2111/12	2112/13	2113/14	2114/15	2115/16	2116/17	2117/18	2118/19	2119/20	2120/21	2121/22	2122/23	2123/24	2124/25	2125/26	2126/27	2127/28	2128/29	2129/30	2130/31	2131/32	2132/33	2133/34	2134/35	2135/36	2136/37	2137/38	2138/39	2139/40	2140/41	2141/42	2142/43	2143/44	2144/45	2145/46	2146/47	2147/48	2148/49	2149/50	2150/51	2151/52	2152/53	2153/54	2154/55	2155/56	2156/57	2157/58	2158/59	2159/60	2160/61	2161/62	2162/63	2163/64	2164/65	2165/66	2166/67	2167/68	2168/69	2169/70	2170/71	2171/72	2172/73	2173/74	2174/75	2175/76	2176/77	2177/78	2178/79	2179/80	2180/81	2181/82	2182/83	2183/84	2184/85	2185/86	2186/87	2187/88	2188/89	2189/90	2190/91	2191/92	2192/93	2193/94	2194/95	2195/96	2196/97	2197/98	2198/99	2199/00	2200/01	2201/02	2202/03	2203/04	2204/05	2205/06	2206/07	2207/08	2208/09	2209/10	2210/11	2211/12	2212/13	2213/14	2214/15	2215/16	2216/17	2217/18	2218/19	2219/20	2220/21	2221/22	2222/23	2223/24	2224/25	2225/26	2226/27	2227/28	2228/29	2229/30	2230/31	2231/32	2232/33	2233/34	2234/35	2235/36	2236/37	2237/38	2238/39	2239/40	2240/41	2241/42	2242/43	2243/44	2244/45	2245/46	2246/47	2247/48	2248/49	2249/50	2250/51	2251/52	2252/53	2253/54	2254/55	2255/56	2256/57	2257/58	2258/59	2259/60	2260/61	2261/62	2262/63	2263/64	2264/65	2265/66	2266/67	2267/68	2268/69	2269/70	2270/71	2271/72	2272/73	2273/74	2274/75	2275/76	2276/77	2277/78	2278/79	2279/80	2280/81	2281/82	2282/83	2283/84	2284/85	2285/86	2286/87	2287/88	2288/89	2289/90	2290/91	2291/92	2292/93</
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### On-road Construction Vehicles

						Daily Criteria Pollutant Emissions (pounds per day)					Total GHG Emissions (metric tons)					Total Fuel Consumption		
	Number of Vehicles/day	Daily One-way Trips / Vehicle	Total Trips/Day (Number * Daily Trip Factor)	Notes	Total Days <sup>1</sup>	Trip Distance	ROG	NOx	PM10 (Exhaust)	PM10 (Fugitive Dust)	PM10 (Total)	CO	CO2	CH4	N2O	CO2e	Gallons Diesel	Gallons Gasoline
Material Procurement & Delivery																		
Worker Trips	2	2	4		352	16.8	0.0056	0.0128	0.0002	0.0174	0.0177	0.1742	8.1523	0.0002	0.0002	8.2104	0.0000	870.8242
Vendor Trips	1	2	2		352	6.6	0.0039	0.0414	0.0008	0.0054	0.0062	0.0102	3.9008	0.0000	0.0004	4.0060	598.4692	366.7665
Haul Trips (based on 76,800 cy material import for substation and switchyard)	19	2	38		264	20	0.0375	3.0336	0.0301	0.3654	0.3955	0.3413	339.0260	0.0022	0.0535	353.2738	34881.0380	0.0000
Other	0	0	0		0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-site On-road Vehicles	Phase Total:						0.0471	3.0878	0.0311	0.3883	0.4194	0.5258	351.0791	0.0024	0.0541	365.4902	35479.5072	1237.5907
Mobilization																		
Worker Trips	15	2	30		66	16.8	0.0422	0.0957	0.0019	0.1306	0.1325	1.3069	11.4641	0.0003	0.0003	11.5458	0.0000	1224.5965
Vendor Trips	1	2	2	30 deliveries total	30	6.6	0.0039	0.0414	0.0008	0.0054	0.0062	0.0102	0.3325	0.0000	0.0000	0.3414	51.0059	31.2585
Haul Trips	0	2	0		1	20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other	0	0	0		0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-site On-road Vehicles	Phase Total:						0.0461	0.1371	0.0026	0.1361	0.1387	1.3171	11.7966	0.0003	0.0003	11.8872	51.0059	1255.8550
Solar Construction (Civil Work)																		
Worker Trips	80	2	160		176	16.8	0.2250	0.5102	0.0099	0.6968	0.7067	6.9700	163.0455	0.0040	0.0040	164.2072	0.0000	17416.4834
Vendor Trips	10	2	20	30 deliveries total per "phase" (assume this is per "zone") is 1 per day for each of 10 zones.	30	6.6	0.0039	0.4141	0.0075	0.0544	0.0619	0.1023	3.3246	0.0000	0.0003	3.4142	510.0590	312.5851
Haul Trips	0	2	0		1	20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other	0	0	0		0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-site On-road Vehicles	Phase Total:						0.2640	0.9244	0.0174	0.7512	0.7686	7.0722	166.3701	0.0040	0.0043	167.6214	510.0590	17729.0685
Solar Construction (ME Work)																		
Worker Trips	370	2	740		374	16.8	1.0405	2.3599	0.0457	3.2227	3.2683	32.2360	1602.4313	0.0389	0.0390	1613.8488	0.0000	171171.3761
Vendor Trips	7	2	14	101 inverters over 15 month period (7 per month), plus 3 daily for modules, 1 daily for tables, and 2 daily for piles)	374	6.6	0.0274	0.2899	0.0053	0.0381	0.0433	0.0716	29.0125	0.0004	0.0029	29.7944	4451.1150	2727.8259
Haul Trips	0	2	0		1	20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other	0	0	0		0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-site On-road Vehicles	Phase Total:						1.0678	2.6498	0.0510	3.2607	3.3117	32.3076	1631.4439	0.0393	0.0419	1643.6432	4451.1150	173899.2020
Storage Construction																		
Worker Trips	30	2	60		264	16.8	0.0844	0.1913	0.0037									

Switchyard Construction (Site Prep)																				
Worker Trips	10	2	20			88	16.8	0.0281	0.0638	0.0012	0.0871	0.0883	0.8712	10.1903	0.0002	0.0002	10.2629	0.0000	1088.5302	
Vendor Trips	1	2	2			88	6.6	0.0039	0.0414	0.0008	0.0054	0.0062	0.0102	0.9752	0.0000	0.0001	1.0015	149.6173	91.6916	
Haul Trips	0	2	0				20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Other	0	0	0			0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Off-site On-road Vehicles							Phase Total:		0.0320	0.1052	0.0020	0.0925	0.0945	0.8815	11.1656	0.0003	0.0003	11.2644	149.6173	1180.2218
Switchyard Construction (Civil Const)																				
Worker Trips	10	2	20			88	16.8	0.0281	0.0638	0.0012	0.0871	0.0883	0.8712	10.1903	0.0002	0.0002	10.2629	0.0000	1088.5302	
Vendor Trips	4	2	8			88	6.6	0.0156	0.1656	0.0030	0.0217	0.0248	0.0409	3.9008	0.0000	0.0004	4.0060	598.4692	366.7665	
Haul Trips	0	2	0			1	20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Other	0	0	0			0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Off-site On-road Vehicles							Phase Total:		0.0438	0.2294	0.0043	0.1088	0.1131	0.9122	14.0912	0.0003	0.0006	14.2689	598.4692	1455.2967
Switchyard Construction (Switchyard Const - Building)																				
Worker Trips	20	2	40			176	16.8	0.0562	0.1276	0.0025	0.1742	0.1767	1.7425	40.7614	0.0010	0.0010	41.0518	0.0000	4354.1209	
Vendor Trips	1	2	2			176	6.6	0.0039	0.0414	0.0008	0.0054	0.0062	0.0102	1.9504	0.0000	0.0002	2.0030	299.2346	183.3833	
Haul Trips	0	2	0			1	20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Other	0	0	0			0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Off-site On-road Vehicles							Phase Total:		0.0601	0.1690	0.0032	0.1796	0.1829	1.7527	42.7118	0.0010	0.0012	43.0548	299.2346	4537.5041
Switchyard Construction (Elect Const)																				
Worker Trips	10	2	20			264	16.8	0.0281	0.0638	0.0012	0.0871	0.0883	0.8712	30.5710	0.0007	0.0007	30.7888	0.0000	3265.5906	
Vendor Trips	1	2	2			264	6.6	0.0039	0.0414	0.0008	0.0054	0.0062	0.0102	2.9256	0.0000	0.0003	3.0045	448.8519	275.0749	
Haul Trips	0	2	0			1	20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Other	0	0	0			0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Off-site On-road Vehicles							Phase Total:		0.0320	0.1052	0.0020	0.0925	0.0945	0.8815	33.4967	0.0008	0.0010	33.7933	448.8519	3540.6655
Switchyard Construction (Telecom & Security Const)																				
Worker Trips	10	2	20			44	16.8	0.0281	0.0638	0.0012	0.0871	0.0883	0.8712	5.0952	0.0001	0.0001	5.1315	0.0000	544.2651	
Vendor Trips	1	2	2			44	6.6	0.0039	0.0414	0.0008	0.0054	0.0062	0.0102	0.4876	0.0000	0.0000	0.5007	74.8087	45.8458	
Haul Trips	0	2	0			1	20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Other	0	0	0			0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Off-site On-road Vehicles							Phase Total:		0.0320	0.1052	0.0020	0.0925	0.0945	0.8815	5.5828	0.0001	0.0002	5.6322	74.8087	590.1109
Loop Inline Construction (Foundations)																				
Worker Trips	10	2	20			66	16.8	0.0281	0.0638	0.0012	0.0871	0.0883	0.8712	7.6428	0.0002	0.0002	7.6972	0.0000	816.3977	
Vendor Trips	5	2	10	20 concrete deliveries per pole = 120 concrete delive		30	6.6	0.0195	0.2071	0.0038	0.0272	0.0310	0.0511	1.6623	0.0000	0.0002	1.7071	347.1844	0.0000	
Haul Trips	0	2	0			1	20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Other	0	0	0			0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Off-site On-road Vehicles							Phase Total:		0.0477	0.2708	0.0050	0.1143	0.1193	0.9224	9.3050	0.0002	0.0004	9.4043	347.1844	816.3977
Loop Inline Construction (Poles)																				
Worker Trips	8	2	16			44	16.8	0.0225	0.0510	0.0010	0.0697	0.0707	0.6970	4.0761	0.0001	0.0001	4.1052	0.0000	435.4121	
Vendor Trips	1	2	2	6 poles		12	6.6	0.0039	0.0414	0.0008	0.0054	0.0062	0.0102	0.1330	0.0000	0.0000	0.1366	20.4024	12.5034	
Haul Trips	0	2	0			1	20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Other	0	0	0			0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Off-site On-road Vehicles							Phase Total:		0.0264	0.0924	0.0017	0.0751	0.0769	0.7072	4.2091	0.0001	0.0001	4.2417	20.4024	447.9155
Loop Inline Construction (Conductor)																				
Worker Trips	10	2	20			66	16.8	0.0281	0.0638	0.0012	0.0871	0.0883	0.8712	7.6428	0.0002	0.0002	7.6972	0.0000	816.3977	
Vendor Trips	1	2	2	6 deliveries		6	6.6	0.0039	0.0414	0.0008	0.0054	0.0062	0.0102	0.0665	0.0000	0.0000	0.0683	10.2012	6.2517	
Haul Trips	0	2	0			1	20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Other	0	0	0			0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Off-site On-road Vehicles							Phase Total:		0.0320	0.1052	0.0020	0.0925	0.0945	0.8815	7.7092	0.0002	0.0002	7.7655	10.2012	822.6494
						Total		2.13	9.40	0.19	6.61	6.65	59.49	2460.78	0.05	0.11	2491.52	45451.51	225576.87	

On-Road Construction Vehicle Emissions Factors

On-Road Vehicle Emissions Factors	PM10_Paved																
	ROG_RUNEX	ROG_STREX	NOx_RUNEX	NOx_STREX	PM10_RUNEX	PM10_STREX	PM10_PMTV	PM10_PMBV	Roadway Dust	CO_RUNEX	CO_STREX	CO2_RUNEX	CO2_STREX	CH4_RUNEX	CH4_STREX	N2O_RUNI	N2O_STREX
Worker Vehicles	0.013002355	0.419328169	0.066133727	0.3354837	0.001533068	0.00224703	0.008	0.0086558	0.100925461	0.947299695	3.844829	339.61343	84.4499904	0.003195779	0.086958902	0.006209	0.03651
Vendor Trucks	0.124285756	0.065926479	1.348110667	0.4941479	0.025904259	0.00012138	0.0104801	0.07540679	0.100925461	0.348793618	0.017656	837.80951	11.4177783	0.008155247	0.013310067	0.081253	0.020166
Haul Trucks	0.022393439	0	1.664839724	2.9142271	0.017968375	0	0.03600001	0.08116908	0.100925461	0.203724077	0	1689.7195	0	0.010821418	0	0.266826	0
Concrete Trucks	0.008501461	0	0.917996838	3.6855249	0.01288367	0	0.03600001	0.08035575	0.100925461	0.049398327	0	1746.204	0	0.000879246	0	0.275145	0

Constants	
lb	grams
1	453.592
ton	lb
1	2000
metric ton	lb
1	2204.62
GWP CO2e CH4	
28	
GWP CO2e N2O	
265	

Trip Length Assumptions - CalEEMod	
Workers	16.8
Vendor	6.6
Haul Trucks	20
Other	0

On-Road Vehicle Fuel Consumption	gallons/mile	%Diesel	% Gasoline	Total Check
Worker Vehicles	0.036814469	0%	100%	100%
Vendor Trucks	0.20773841	62%	38%	100%
Haul Trucks	0.173848873	100%	0%	100%
Concrete Trucks	0.175345664	100%	0%	100%

[illegible]





Source: EMFAC2021 (v1.0.1) Emissions Inventory  
Region Type: Sub-Area  
Region: Placer (SV)  
Calendar Year: 2025  
Season: Annual  
Vehicle Classification: EMFAC202x Categories  
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Yr	Vehicle Category	Model Yea	Speed	Fuel	Population	Total VMT	%VMT	CVMT	EVMT	Trips	NH3_RUNEX	Fuel Consumption	Fuel Consumption Rate (gallons/mile)
Placer (SV)	2025	LDA	Aggregate	Aggregate	Gasoline	72395.6	2651241.838	51%	2651241.838	0	336960.9	0.104880063	89.73466	0.033846
Placer (SV)	2025	LDA	Aggregate	Aggregate	Diesel	265.547	7267.393163	0%	7267.393163	0	1116.581	2.48339E-05	0.169954	0.023386
Placer (SV)	2025	LDA	Aggregate	Aggregate	Plug-in Hyl	2232.385	97685.26901	2%	46814.63768	50870.63	9230.914	0.002044171	1.669305	0.017089
Placer (SV)	2025	LDT1	Aggregate	Aggregate	Gasoline	9188.123	315727.7117	6%	315727.7117	0	40619.77	0.012546485	12.6237	0.039983
Placer (SV)	2025	LDT1	Aggregate	Aggregate	Diesel	4.216368	27.72923028	0%	27.72923028	0	11.55953	9.47553E-08	0.00117	0.042207
Placer (SV)	2025	LDT1	Aggregate	Aggregate	Plug-in Hyl	15.36103	876.6091945	0%	381.1709448	495.4382	63.51784	1.76471E-05	0.013547	0.015454
Placer (SV)	2025	LDT2	Aggregate	Aggregate	Gasoline	49476.75	2051810.539	40%	2051810.539	0	231710.6	0.084227349	84.96462	0.04141
Placer (SV)	2025	LDT2	Aggregate	Aggregate	Diesel	201.4639	8460.561026	0%	8460.561026	0	950.7171	2.89111E-05	0.262003	0.030968
Placer (SV)	2025	LDT2	Aggregate	Aggregate	Plug-in Hyl	425.6062	22810.44274	0%	10453.1479	12357.29	1759.881	0.000483291	0.373066	0.016355
Weighted Average:														0.036814
Placer (SV)	2025	T6T5	Aggregate	Aggregate	Gasoline	224.9616	10297.24983	99.8%	10297.24983	0	4501.032	0.00051069	2.137843	0.207613
Placer (SV)	2025	T7T5	Aggregate	Aggregate	Gasoline	0.65291	19.36954684	0.2%	19.36954684	0	13.06342	8.02053E-07	0.005315	0.274404
Weighted Average:														0.207738
Placer (SV)	2025	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Diesel	20.24477	1435.582216	12.5%	1435.582216	0	190.7057	0.000348136	0.251723	0.175346
Placer (SV)	2025	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	170.3296	10086.57307	87.5%	10086.57307	0	1604.505	0.0024449	1.753539	0.173849

Vehicle Classification: OFFROAD2021 Equipment Types  
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Y	Equipment Category	Model Year	Horsepower Fuel
1	2022	Construction and Mining - Bore/Drill Rigs	Aggregate	100 Diesel
2	2022	Construction and Mining - Bore/Drill Rigs	Aggregate	175 Diesel
3	2022	Construction and Mining - Bore/Drill Rigs	Aggregate	25 Diesel
4	2022	Construction and Mining - Bore/Drill Rigs	Aggregate	300 Diesel
5	2022	Construction and Mining - Bore/Drill Rigs	Aggregate	50 Diesel
6	2022	Construction and Mining - Bore/Drill Rigs	Aggregate	600 Diesel
7	2022	Construction and Mining - Bore/Drill Rigs	Aggregate	75 Diesel
8	2022	Construction and Mining - Bore/Drill Rigs	Aggregate	750 Diesel
9	2022	Construction and Mining - Bore/Drill Rigs	Aggregate	9999 Diesel
10	2022	Construction and Mining - Cranes	Aggregate	100 Diesel
11	2022	Construction and Mining - Cranes	Aggregate	175 Diesel
12	2022	Construction and Mining - Cranes	Aggregate	25 Diesel
13	2022	Construction and Mining - Cranes	Aggregate	300 Diesel
14	2022	Construction and Mining - Cranes	Aggregate	50 Diesel
15	2022	Construction and Mining - Cranes	Aggregate	600 Diesel
16	2022	Construction and Mining - Cranes	Aggregate	75 Diesel
17	2022	Construction and Mining - Cranes	Aggregate	750 Diesel
18	2022	Construction and Mining - Cranes	Aggregate	9999 Diesel
19	2022	Construction and Mining - Crawler Tractors	Aggregate	100 Diesel
20	2022	Construction and Mining - Crawler Tractors	Aggregate	175 Diesel
21	2022	Construction and Mining - Crawler Tractors	Aggregate	25 Diesel
22	2022	Construction and Mining - Crawler Tractors	Aggregate	300 Diesel
23	2022	Construction and Mining - Crawler Tractors	Aggregate	50 Diesel
24	2022	Construction and Mining - Crawler Tractors	Aggregate	600 Diesel
25	2022	Construction and Mining - Crawler Tractors	Aggregate	75 Diesel
26	2022	Construction and Mining - Crawler Tractors	Aggregate	750 Diesel
27	2022	Construction and Mining - Crawler Tractors	Aggregate	9999 Diesel
28	2022	Construction and Mining - Excavators	Aggregate	100 Diesel
29	2022	Construction and Mining - Excavators	Aggregate	175 Diesel
30	2022	Construction and Mining - Excavators	Aggregate	25 Diesel
31	2022	Construction and Mining - Excavators	Aggregate	300 Diesel
32	2022	Construction and Mining - Excavators	Aggregate	50 Diesel
33	2022	Construction and Mining - Excavators	Aggregate	600 Diesel
34	2022	Construction and Mining - Excavators	Aggregate	75 Diesel
35	2022	Construction and Mining - Excavators	Aggregate	750 Diesel
36	2022	Construction and Mining - Excavators	Aggregate	9999 Diesel
37	2022	Construction and Mining - Graders	Aggregate	100 Diesel
38	2022	Construction and Mining - Graders	Aggregate	175 Diesel
39	2022	Construction and Mining - Graders	Aggregate	25 Diesel
40	2022	Construction and Mining - Graders	Aggregate	300 Diesel
41	2022	Construction and Mining - Graders	Aggregate	50 Diesel
42	2022	Construction and Mining - Graders	Aggregate	600 Diesel
43	2022	Construction and Mining - Graders	Aggregate	75 Diesel
44	2022	Construction and Mining - Graders	Aggregate	9999 Diesel
45	2022	Construction and Mining - Misc - Asphalt Pavers	Aggregate	100 Gasoline
46	2022	Construction and Mining - Misc - Asphalt Pavers	Aggregate	15 Gasoline
47	2022	Construction and Mining - Misc - Asphalt Pavers	Aggregate	25 Gasoline
48	2022	Construction and Mining - Misc - Asphalt Pavers	Aggregate	50 Gasoline
49	2022	Construction and Mining - Misc - Bore/Drill Rigs	Aggregate	100 Gasoline
50	2022	Construction and Mining - Misc - Bore/Drill Rigs	Aggregate	15 Gasoline
51	2022	Construction and Mining - Misc - Bore/Drill Rigs	Aggregate	25 Diesel
52	2022	Construction and Mining - Misc - Bore/Drill Rigs	Aggregate	175 Gasoline
53	2022	Construction and Mining - Misc - Bore/Drill Rigs	Aggregate	25 Gasoline
54	2022	Construction and Mining - Misc - Bore/Drill Rigs	Aggregate	25 Diesel
55	2022	Construction and Mining - Misc - Bore/Drill Rigs	Aggregate	50 Gasoline
56	2022	Construction and Mining - Misc - Cement And Mortar Mixers	Aggregate	15 Diesel
57	2022	Construction and Mining - Misc - Cement And Mortar Mixers	Aggregate	15 Diesel
58	2022	Construction and Mining - Misc - Cement And Mortar Mixers	Aggregate	25 Gasoline
59	2022	Construction and Mining - Misc - Cement And Mortar Mixers	Aggregate	25 Diesel
60	2022	Construction and Mining - Misc - Cement And Mortar Mixers	Aggregate	5 Gasoline
61	2022	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	100 Gasoline
62	2022	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	15 Gasoline
63	2022	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	25 Gasoline
64	2022	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	25 Diesel
65	2022	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	5 Gasoline
66	2022	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	50 Gasoline
67	2022	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	50 Diesel
68	2022	Construction and Mining - Misc - Cranes	Aggregate	100 Gasoline
69	2022	Construction and Mining - Misc - Cranes	Aggregate	15 Gasoline
70	2022	Construction and Mining - Misc - Cranes	Aggregate	50 Gasoline
71	2022	Construction and Mining - Misc - Cranes	Aggregate	50 Gasoline
72	2022	Construction and Mining - Misc - Crushing/Proc. Equipment	Aggregate	15 Gasoline
73	2022	Construction and Mining - Misc - Crushing/Proc. Equipment	Aggregate	25 Gasoline
74	2022	Construction and Mining - Misc - Crusher/Tenders	Aggregate	100 Gasoline
75	2022	Construction and Mining - Misc - Crusher/Tenders	Aggregate	15 Gasoline
76	2022	Construction and Mining - Misc - Crusher/Tenders	Aggregate	25 Diesel
77	2022	Construction and Mining - Misc - Crusher/Tenders	Aggregate	5 Gasoline
78	2022	Construction and Mining - Misc - Excavators	Aggregate	25 Diesel
79	2022	Construction and Mining - Misc - Other	Aggregate	15 Gasoline
80	2022	Construction and Mining - Misc - Other	Aggregate	15 Diesel
81	2022	Construction and Mining - Misc - Other	Aggregate	175 Gasoline
82	2022	Construction and Mining - Misc - Other	Aggregate	2 Gasoline
83	2022	Construction and Mining - Misc - Other	Aggregate	25 Diesel
84	2022	Construction and Mining - Misc - Other	Aggregate	25 Diesel
85	2022	Construction and Mining - Misc - Other	Aggregate	5 Gasoline
86	2022	Construction and Mining - Misc - Pavers	Aggregate	25 Diesel
87	2022	Construction and Mining - Misc - Paving Equipment	Aggregate	100 Gasoline
88	2022	Construction and Mining - Misc - Paving Equipment	Aggregate	15 Gasoline
89	2022	Construction and Mining - Misc - Paving Equipment	Aggregate	25 Gasoline
90	2022	Construction and Mining - Misc - Paving Equipment	Aggregate	25 Diesel
91	2022	Construction and Mining - Misc - Paving Equipment	Aggregate	5 Gasoline
92	2022	Construction and Mining - Misc - Paving Equipment	Aggregate	50 Gasoline
93	2022	Construction and Mining - Misc - Plate Compactors	Aggregate	15 Gasoline
94	2022	Construction and Mining - Misc - Plate Compactors	Aggregate	15 Diesel
95	2022	Construction and Mining - Misc - Plate Compactors	Aggregate	25 Gasoline
96	2022	Construction and Mining - Misc - Plate Compactors	Aggregate	25 Diesel
97	2022	Construction and Mining - Misc - Plate Compactors	Aggregate	5 Gasoline
98	2022	Construction and Mining - Misc - Rollers	Aggregate	100 Gasoline
99	2022	Construction and Mining - Misc - Rollers	Aggregate	15 Gasoline
100	2022	Construction and Mining - Misc - Rollers	Aggregate	15 Diesel
101	2022	Construction and Mining - Misc - Rollers	Aggregate	2 Gasoline
102	2022	Construction and Mining - Misc - Rollers	Aggregate	25 Gasoline
103	2022	Construction and Mining - Misc - Rollers	Aggregate	25 Diesel
104	2022	Construction and Mining - Misc - Rollers	Aggregate	5 Gasoline
105	2022	Construction and Mining - Misc - Rollers	Aggregate	50 Gasoline
106	2022	Construction and Mining - Misc - Rough Terrain Forklifts	Aggregate	100 Gasoline
107	2022	Construction and Mining - Misc - Rough Terrain Forklifts	Aggregate	175 Gasoline
108	2022	Construction and Mining - Misc - Rough Terrain Forklifts	Aggregate	50 Gasoline
116	2022	Construction and Mining - Misc - Signal Boards	Aggregate	15 Diesel
117	2022	Construction and Mining - Misc - Signal Boards	Aggregate	15 Diesel
118	2022	Construction and Mining - Misc - Signal Boards	Aggregate	25 Gasoline
119	2022	Construction and Mining - Misc - Signal Boards	Aggregate	25 Diesel
120	2022	Construction and Mining - Misc - Signal Boards	Aggregate	5 Gasoline
121	2022	Construction and Mining - Misc - Signal Boards	Aggregate	50 Diesel
129	2022	Construction and Mining - Misc - Surfacing Equipment	Aggregate	15 Gasoline
130	2022	Construction and Mining - Misc - Surfacing Equipment	Aggregate	25 Gasoline
131	2022	Construction and Mining - Misc - Surfacing Equipment	Aggregate	5 Gasoline
132	2022	Construction and Mining - Misc - Tamperers/Rammers	Aggregate	15 Gasoline
133	2022	Construction and Mining - Misc - Tamperers/Rammers	Aggregate	25 Gasoline
134	2022	Construction and Mining - Misc - Tractors/Loaders/Backhoes	Aggregate	100 Gasoline
135	2022	Construction and Mining - Misc - Tractors/Loaders/Backhoes	Aggregate	15 Gasoline
136	2022	Construction and Mining - Misc - Tractors/Loaders/Backhoes	Aggregate	25 Gasoline
137	2022	Construction and Mining - Misc - Tractors/Loaders/Backhoes	Aggregate	25 Diesel
138	2022	Construction and Mining - Misc - Tractors/Loaders/Backhoes	Aggregate	25 Diesel
139	2022	Construction and Mining - Misc - Tractors/Loaders/Backhoes	Aggregate	5 Gasoline
140	2022	Construction and Mining - Misc - Tractors/Loaders/Backhoes	Aggregate	100 Gasoline
141	2022	Construction and Mining - Misc - Trenchers	Aggregate	15 Gasoline
142	2022	Construction and Mining - Misc - Trenchers	Aggregate	15 Diesel
143	2022	Construction and Mining - Misc - Trenchers	Aggregate	2 Gasoline
144	2022	Construction and Mining - Misc - Trenchers	Aggregate	25 Gasoline
145	2022	Construction and Mining - Misc - Trenchers	Aggregate	25 Diesel
146	2022	Construction and Mining - Misc - Trenchers	Aggregate	5 Gasoline
147	2022	Construction and Mining - Misc - Trenchers	Aggregate	50 Gasoline
148	2022	Construction and Mining - Off-Highway Tractors	Aggregate	100 Diesel
149	2022	Construction and Mining - Off-Highway Tractors	Aggregate	175 Diesel
150	2022	Construction and Mining - Off-Highway Tractors	Aggregate	25 Diesel



[illegible]

[illegible]

On-road Vehicle (separate calculations)  
Construction and Mining - Bore/Drill Rigs  
Construction and Mining - Cranes  
Construction and Mining - Crawler Tractors  
Construction and Mining - Excavators  
Construction and Mining - Graders  
Construction and Mining - Misc - Asphalt Pavers  
Construction and Mining - Misc - Bore/Drill Rigs  
Construction and Mining - Misc - Cement And Mortar Mixers  
Construction and Mining - Misc - Concrete/Industrial Saws  
Construction and Mining - Misc - Cranes  
Construction and Mining - Misc - Crushing/Proc. Equipment  
Construction and Mining - Misc - Dumpers/Tenders  
Construction and Mining - Misc - Excavators  
Construction and Mining - Misc - Other  
Construction and Mining - Misc - Pavers  
Construction and Mining - Misc - Paving Equipment  
Construction and Mining - Misc - Plate Compactors  
Construction and Mining - Misc - Rollers  
Construction and Mining - Misc - Rough Terrain Forklifts  
Construction and Mining - Misc - Signal Boards  
Construction and Mining - Misc - Skid Steer Loaders  
Construction and Mining - Misc - Surfacing Equipment  
Construction and Mining - Misc - Tampers/Rammers  
Construction and Mining - Misc - Tractors/Loaders/Backhoes  
Construction and Mining - Misc - Trenchers  
Construction and Mining - Off-Highway Tractors  
Construction and Mining - Off-Highway Trucks  
Construction and Mining - Other  
Construction and Mining - Pavers  
Construction and Mining - Paving Equipment  
Construction and Mining - Rollers  
Construction and Mining - Rough Terrain Forklifts  
Construction and Mining - Rubber Tired Dozers  
Construction and Mining - Rubber Tired Loaders  
Construction and Mining - Scrapers  
Construction and Mining - Skid Steer Loaders  
Construction and Mining - Surfacing Equipment  
Construction and Mining - Tractors/Loaders/Backhoes  
Construction and Mining - Trenchers  
Industrial - Aerial Lifts  
Industrial - Forklifts  
Industrial - Misc - Aerial Lifts  
Industrial - Misc - Forklifts  
Industrial - Misc - Other General Industrial Equipment  
Industrial - Misc - Other Material Handling Equipment  
Industrial - Misc - Sweepers/Scrubbers  
Industrial - Other General Industrial Equipment  
Industrial - Other Material Handling Equipment  
Light Commercial - Misc - Air Compressors  
Light Commercial - Misc - Gas Compressors  
Light Commercial - Misc - Generator Sets  
Light Commercial - Misc - Pressure Washers  
Light Commercial - Misc - Pumps  
Light Commercial - Misc - Welders  
Portable Equipment - Non-Rental Compressor  
Portable Equipment - Non-Rental Generator  
Portable Equipment - Non-Rental Other  
Portable Equipment - Non-Rental Pump  
Portable Equipment - Rental Compressor  
Portable Equipment - Rental Generator  
Portable Equipment - Rental Other  
Portable Equipment - Rental Pump

Constants	
lb	grams
1	453.592
ton	lb
1	2000
metric ton	lb
1	2204.62





On-road Vehicle (separate calculations)  
Construction and Mining - Bore/Drill Rigs  
Construction and Mining - Cranes  
Construction and Mining - Crawler Tractors  
Construction and Mining - Excavators  
Construction and Mining - Graders  
Construction and Mining - Misc - Asphalt Pavers  
Construction and Mining - Misc - Bore/Drill Rigs  
Construction and Mining - Misc - Cement And Mortar Mixers  
Construction and Mining - Misc - Concrete/Industrial Saws  
Construction and Mining - Misc - Cranes  
Construction and Mining - Misc - Crushing/Proc. Equipment  
Construction and Mining - Misc - Dumpers/Tenders  
Construction and Mining - Misc - Excavators  
Construction and Mining - Misc - Other  
Construction and Mining - Misc - Pavers  
Construction and Mining - Misc - Paving Equipment  
Construction and Mining - Misc - Plate Compactors  
Construction and Mining - Misc - Rollers  
Construction and Mining - Misc - Rough Terrain Forklifts  
Construction and Mining - Misc - Signal Boards  
Construction and Mining - Misc - Skid Steer Loaders  
Construction and Mining - Misc - Surfacing Equipment  
Construction and Mining - Misc - Tampers/Rammers  
Construction and Mining - Misc - Tractors/Loaders/Backhoes  
Construction and Mining - Misc - Trenchers  
Construction and Mining - Off-Highway Tractors  
Construction and Mining - Off-Highway Trucks  
Construction and Mining - Other  
Construction and Mining - Pavers  
Construction and Mining - Paving Equipment  
Construction and Mining - Rollers  
Construction and Mining - Rough Terrain Forklifts  
Construction and Mining - Rubber Tired Dozers  
Construction and Mining - Rubber Tired Loaders  
Construction and Mining - Scrapers  
Construction and Mining - Skid Steer Loaders  
Construction and Mining - Surfacing Equipment  
Construction and Mining - Tractors/Loaders/Backhoes  
Construction and Mining - Trenchers  
Industrial - Aerial Lifts  
Industrial - Forklifts  
Industrial - Misc - Aerial Lifts  
Industrial - Misc - Forklifts  
Industrial - Misc - Other General Industrial Equipment  
Industrial - Misc - Other Material Handling Equipment  
Industrial - Misc - Sweepers/Scrubbers  
Industrial - Other General Industrial Equipment  
Industrial - Other Material Handling Equipment  
Light Commercial - Misc - Air Compressors  
Light Commercial - Misc - Gas Compressors  
Light Commercial - Misc - Generator Sets  
Light Commercial - Misc - Pressure Washers  
Light Commercial - Misc - Pumps  
Light Commercial - Misc - Welders  
Portable Equipment - Non-Rental Compressor  
Portable Equipment - Non-Rental Generator  
Portable Equipment - Non-Rental Other  
Portable Equipment - Non-Rental Pump  
Portable Equipment - Rental Compressor  
Portable Equipment - Rental Generator  
Portable Equipment - Rental Other  
Portable Equipment - Rental Pump

Model Output: OFFROAD2021 (v1.0.1) Emissions Inventory

Region Type: Sub-Area

Region: Placer (SV)

Calendar Year: 2022

Scenario: All Adopted Rules - Exhaust

Vehicle Classification: OFFROAD2021 Equipment Types

Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-h

Emission Classification: EPAHQRM2021 Equipment types														g/bp-hr calculations:														tons/day for Emissions, gal/year for Fuel, hours/year Activity, Horsepower-hr													
Region	Calendar Y	Equipment Category	ROG	TOG	Co	NOX	CO2	PM10	PM2.5	SOX	NH3	Fuel	Activity	Horsepower-hr	Region	Calendar Y	Equipment Category	ROG	TOG	Co	NOX	CO2	PM10	PM2.5	SOX	NH3	Fuel	Activity	Horsepower-hr												
Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	0.090348816	0.107523	1.649031	1.062955	263.0399	0.043412	0.039939	0.00243	0.002147	0.025773			0.92	Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	0.090348816	0.107523	1.649031	1.062955	263.0399	0.043412	0.039939	0.00243	0.002147	0.025773			0.92										
Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	0.069336174	0.082516	1.474557	0.651717	266.2844	0.029052	0.026728	0.00246	0.002173	0.026091			0.92	Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	0.069336174	0.082516	1.474557	0.651717	266.2844	0.029052	0.026728	0.00246	0.002173	0.026091			0.92										
Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			#DIV/0!	Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!									
Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	0.06113347	0.072754	0.534448	0.612161	262.4876	0.006126	0.004868	0.002435	0.002147	0.025773			0.92	Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	0.06113347	0.072754	0.534448	0.612161	262.4876	0.006126	0.004868	0.002435	0.002147	0.025773			0.92										
Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	0.321301452	0.382375	2.205148	2.180304	301.5943	0.122412	0.112619	0.00278	0.002462	0.029551			0.92	Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	0.321301452	0.382375	2.205148	2.180304	301.5943	0.122412	0.112619	0.00278	0.002462	0.029551			0.92										
Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	0.051004327	0.060699	0.488986	0.473768	261.752	0.015839	0.014572	0.002419	0.002137	0.025651			0.92	Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	0.051004327	0.060699	0.488986	0.473768	261.752	0.015839	0.014572	0.002419	0.002137	0.025651			0.92										
Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	0.112091462	0.133398	1.667241	1.696273	260.6762	0.083878	0.077168	0.002407	0.002128	0.025541			0.92	Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	0.112091462	0.133398	1.667241	1.696273	260.6762	0.083878	0.077168	0.002407	0.002128	0.025541			0.92										
Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	0.040829801	0.048591	0.485736	0.32474	268.0943	0.012772	0.011702	0.002478	0.002138	0.026368			0.92	Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	0.040829801	0.048591	0.485736	0.32474	268.0943	0.012772	0.011702	0.002478	0.002138	0.026368			0.92										
Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	0.083512743	0.099387	0.496402	1.932181	264.7868	0.044371	0.040821	0.002446	0.002161	0.025944			0.92	Placer (SV)	2022	Construction and Mining - Bore/Drill Rigs	0.083512743	0.099387	0.496402	1.932181	264.7868	0.044371	0.040821	0.002446	0.002161	0.025944			0.92										
Placer (SV)	2022	Construction and Mining - Cranes	0.165109992	0.196495	1.147586	1.47985	151.6107	0.098287	0.090424	0.001398	0.001237	0.014855			0.92	Placer (SV)	2022	Construction and Mining - Cranes	0.165109992	0.196495	1.147586	1.47985	151.6107	0.098287	0.090424	0.001398	0.001237	0.014855			0.92										
Placer (SV)	2022	Construction and Mining - Cranes	0.131511472	0.15651	1.000477	1.32373	152.2719	0.071145	0.065453	0.001405	0.001243	0.014892			0.92	Placer (SV)	2022	Construction and Mining - Cranes	0.131511472	0.15651	1.000477	1.32373	152.2719	0.071145	0.065453	0.001405	0.001243	0.014892			0.92										
Placer (SV)	2022	Construction and Mining - Cranes	0.336765446	0.400779	1.568784	1.381011	169.0014	0.106082	0.097596	0.001554	0.001379	0.016559			0.92	Placer (SV)	2022	Construction and Mining - Cranes	0.336765446	0.400779	1.568784	1.381011	169.0014	0.106082	0.097596	0.001554	0.001379	0.016559			0.92										
Placer (SV)	2022	Construction and Mining - Cranes	0.090757348	0.112769	0.519767	1.070101	151.9147	0.040479	0.040112	0.001402	0.00124	0.014885			0.92	Placer (SV)	2022	Construction and Mining - Cranes	0.090757348	0.112769	0.519767	1.070101	151.9147	0.040479	0.040112	0.001402	0.00124	0.014885			0.92										
Placer (SV)	2022	Construction and Mining - Cranes	0.613419463	0.73002	2.207104	1.75923	170.6697	0.182054	0.167489	0.001563	0.001393	0.016723			0.92	Placer (SV)	2022	Construction and Mining - Cranes	0.613419463	0.73002	2.207104	1.75923	170.6697	0.182054	0.167489	0.001563	0.001393	0.016723			0.92										
Placer (SV)	2022	Construction and Mining - Cranes	0.06802784	0.080959	0.54604	0.74987	151.9707	0.030069	0.027663	0.001403	0.00124	0.01489			0.92	Placer (SV)	2022	Construction and Mining - Cranes	0.06802784	0.080959	0.54604	0.74987	151.9707	0.030069	0.027663	0.001403	0.00124	0.01489			0.92										
Placer (SV)	2022	Construction and Mining - Cranes	0.379610268	0.451768	1.311104	2.86118	152.3384	0.26654	0.245217	0.001405	0.001248	0.014885			0.92	Placer (SV)	2022	Construction and Mining - Cranes	0.379610268	0.451768	1.311104	2.86118	152.3384	0.26654	0.245217	0.001405	0.001248	0.014885			0.92										
Placer (SV)	2022	Construction and Mining - Cranes	0.096549622	0.114602	0.753488	0.807046	151.6517	0.048093	0.044522	0.0014	0.001238	0.014859			0.92	Placer (SV)	2022	Construction and Mining - Cranes	0.096549622	0.114602	0.753488	0.807046	151.6517	0.048093	0.044522	0.0014	0.001238	0.014859			0.92										
Placer (SV)	2022	Construction and Mining - Cranes	0.15495569	0.232013	1.638931	2.380541	151.9204	0.10488	0.096489	0.0014	0.00124	0.014885			0.92	Placer (SV)	2022	Construction and Mining - Cranes	0.15495569	0.232013	1.638931	2.380541	151.9204	0.10488	0.096489	0.0014	0.00124	0.014885			0.92										
Placer (SV)	2022	Construction and Mining - Crawler Tractors	0.25386153	0.302116	1.669272	2.159263	226.917	0.172807	0.158982	0.002092	0.001852	0.022234			0.92	Placer (SV)	2022	Construction and Mining - Crawler Tractors	0.25386153	0.302116	1.669272	2.159263	226.917	0.172807	0.158982	0.002092	0.001852	0.022234			0.92										
Placer (SV)	2022	Construction and Mining - Crawler Tractors	0.167604492	0.199463	1.402514	1.646964	226.5041	0.092045	0.084681	0.00209	0.001849	0.022193			0.92	Placer (SV)	2022	Construction and Mining - Crawler Tractors	0.167604492	0.199463	1.402514	1.646964	226.5041	0.092045	0.084681	0.00209	0.001849	0.022193			0.92										
Placer (SV)	2022	Construction and Mining - Crawler Tractors	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			#DIV/0!	Placer (SV)	2022	Construction and Mining - Crawler Tractors	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!									
Placer (SV)	2022	Construction and Mining - Crawler Tractors	0.151776591	0.180627	0.84033	1.802896	226.1652	0.072538	0.066735	0.002087	0.001846	0.022126			0.92	Placer (SV)	2022	Construction and Mining - Crawler Tractors	0.151776591	0.180627	0.84033	1.802896	226.1652	0.072538	0.066735	0.002087	0.001846	0.022126			0.92										
Placer (SV)	2022	Construction and Mining - Crawler Tractors	0.8223088	0.97921	3.051551	2.331455	250.213	0.233519	0.214837	0.002293	0.002042	0.024516			0.92	Placer (SV)	2022	Construction and Mining - Crawler Tractors	0.8223088	0.97921	3.051551	2.331455	250.213	0.233519	0.214837	0.002293	0.002042	0.024516			0.92										
Placer (SV)	2022	Construction and Mining - Crawler Tractors	0.094520539	0.112487	0.662681	1.019486	226.0645	0.039482	0.036323	0.002088	0.001845	0.022149			0.92	Placer (SV)	2022	Construction and Mining - Crawler Tractors	0.094520539	0.112487	0.662681	1.019486	226.0645	0.039482	0.036323	0.002088	0.001845	0.022149			0.92										
Placer (SV)	2022	Construction and Mining - Crawler Tractors	0.837939714	0.997218	2.716401	6.630608	226.8062	0.48854	0.447617	0.002076	0.001851	0.022223			0.92	Placer (SV)	2022	Construction and Mining - Crawler Tractors	0.837939714	0.997218	2.716401	6.630608	226.8062	0.48854	0.447617	0.002076	0.001851	0.022223			0.92										
Placer (SV)	2022	Construction and Mining - Crawler Tractors	0.181796285	0.197721	0.808088	1.373752	224.9234	0.082851	0.076226	0.002075	0.001836	0.022038			0.92	Placer (SV)	2022	Construction and Mining - Crawler Tractors	0.181796285	0.197721	0.808088	1.373752	224.9234	0.082851	0.076226	0.002075	0.001836	0.022038			0.92										
Placer (SV)	2022	Construction and Mining - Crawler Tractors	0.152570011	0.181571	0.68184	2.580495	226.5929	0.068983	0.064301	0.002091	0.001849	0.022202			0.92	Placer (SV)	2022	Construction and Mining - Crawler Tractors	0.152570011	0.181571	0.68184	2.580495	226.5929	0.068983	0.064301	0.002091	0.001849	0.022202			0.92										
Placer (SV)	2022	Construction and Mining - Excavators	0.09507421	0.131146	1.329905	0.988781	200.6462	0.051897	0.047745	0.001853	0.001638	0.01966			0.92	Placer (SV)	2022	Construction and Mining - Excavators	0.09507421	0.131146	1.329905	0.988781	200.6462	0.051897	0.047745	0.001853	0.001638	0.01966			0.92										
Placer (SV)	2022	Construction and Mining - Excavators	0.073642085	0.08764	1.147494	0.64585	201.6426	0.031372	0.028862	0.001862	0.001646	0.019575			0.92	Placer (SV)	2022	Construction and Mining - Excavators	0.073642085	0.08764	1.147494	0.64585	201.6426	0.031372	0.028862	0.001862	0.001646	0.019575			0.92										
Placer (SV)	2022	Construction and Mining - Excavators	1.515193099	1.803205	4.254943	2.890142	223.8888	0.402799	0.370575	0.002032	0.001827	0.021937			0.92	Placer (SV)	2022	Construction and Mining - Excavators	1.515193099	1.803205	4.254943	2.890142	223.8888	0.402799	0.370575	0.002032															



Placer (SV)	2022	Construction and Mining - Off-Highway Tractors	0.080430948	0.095719	0.514619	0.777936	229.5425	0.027479	0.025281	0.00212	0.001873	0.024991	0.92
Placer (SV)	2022	Construction and Mining - Off-Highway Tractors	0.336859387	0.400891	2.228084	1.8571	255.0056	0.112341	0.103353	0.002349	0.002081	0.024986	0.92
Placer (SV)	2022	Construction and Mining - Off-Highway Tractors	0.056432571	0.069514	0.2294551	0.454951	0.101487	0.002118	0.000871	0.002464		0.92	
Placer (SV)	2022	Construction and Mining - Off-Highway Trucks	0.141704802	0.16864	1.607617	1.397804	220.2812	0.076345	0.070237	0.002126	0.001088	0.022563	0.92
Placer (SV)	2022	Construction and Mining - Off-Highway Trucks	0.100680428	0.119818	0.460739	0.747264	226.1784	0.037698	0.034682	0.002089	0.001846	0.022161	0.92
Placer (SV)	2022	Construction and Mining - Off-Highway Tractors	0.111442496	0.132626	0.558316	1.570014	229.7848	0.04196	0.038603	0.002122	0.001875	0.022515	0.92
Placer (SV)	2022	Construction and Mining - Off-Highway Trucks	0.125754277	0.149658	1.4721	1.132209	202.0321	0.072169	0.066395	0.001865	0.001649	0.019795	0.92
Placer (SV)	2022	Construction and Mining - Off-Highway Trucks	0.094061256	0.111891	0.460739	0.747264	226.1784	0.037698	0.034682	0.002089	0.001846	0.022161	0.92
Placer (SV)	2022	Construction and Mining - Off-Highway Trucks	0.887313633	1.055977	3.223825	2.118353	223.9804	0.227481	0.209283	0.002049	0.001828	0.021946	0.92
Placer (SV)	2022	Construction and Mining - Off-Highway Trucks	0.082792091	0.098529	0.499258	0.628205	200.717	0.024826	0.02284	0.001854	0.001638	0.019667	0.92
Placer (SV)	2022	Construction and Mining - Off-Highway Trucks	0.278888111	0.3319	2.055375	1.647313	222.9181	0.098988	0.091069	0.002054	0.001819	0.021842	0.92
Placer (SV)	2022	Construction and Mining - Off-Highway Trucks	0.074448531	0.0886	0.471082	0.568693	201.6179	0.020583	0.018937	0.001862	0.001646	0.019795	0.92
Placer (SV)	2022	Construction and Mining - Off-Highway Trucks	0.115971676	0.149923	1.550114	0.880831	201.4235	0.035763	0.032902	0.001859	0.001644	0.019736	0.92
Placer (SV)	2022	Construction and Mining - Off-Highway Trucks	0.10041891	0.119507	0.666901	0.856265	201.2559	0.033376	0.030706	0.001858	0.001643	0.019719	0.92
Placer (SV)	2022	Construction and Mining - Off-Highway Trucks	0.079809787	0.095077	0.473359	1.346741	202.2123	0.027995	0.025755	0.001868	0.001665	0.019813	0.92
Placer (SV)	2022	Construction and Mining - Other	0.170364946	0.202748	1.501636	1.607079	219.0751	0.111795	0.102851	0.002021	0.001788	0.021465	0.92
Placer (SV)	2022	Construction and Mining - Other	0.11340206	0.146857	1.133335	1.250177	218.1443	0.063376	0.060146	0.002016	0.001783	0.021401	0.92
Placer (SV)	2022	Construction and Mining - Other	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.92
Placer (SV)	2022	Construction and Mining - Other	0.098014035	0.116645	0.580253	1.125007	219.8567	0.043391	0.03992	0.00203	0.001794	0.021542	0.92
Placer (SV)	2022	Construction and Mining - Other	0.380538043	0.452872	1.218149	1.961815	244.9284	0.14391	0.132397	0.002255	0.001999	0.023998	0.92
Placer (SV)	2022	Construction and Mining - Other	0.074291354	0.088413	0.574692	0.748447	219.1136	0.028934	0.026619	0.002024	0.001789	0.021471	0.92
Placer (SV)	2022	Construction and Mining - Other	0.1447167305	0.172166	1.191274	1.370427	216.4846	0.290663	0.267594	0.00199	0.001767	0.021212	0.92
Placer (SV)	2022	Construction and Mining - Other	0.077779447	0.092564	0.453708	0.897267	218.4609	0.029501	0.027141	0.002018	0.001783	0.021405	0.92
Placer (SV)	2022	Construction and Mining - Other	0.053199033	0.063311	0.41057	1.195762	219.1231	0.021749	0.020009	0.002025	0.001788	0.02147	0.92
Placer (SV)	2022	Construction and Mining - Pavers	0.099886941	0.118874	1.411019	1.17684	218.383	0.061944	0.056989	0.002017	0.001782	0.021398	0.92
Placer (SV)	2022	Construction and Mining - Pavers	0.099914283	0.108186	1.244914	1.140912	215.7005	0.044116	0.040582	0.002029	0.001793	0.021527	0.92
Placer (SV)	2022	Construction and Mining - Pavers	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.92
Placer (SV)	2022	Construction and Mining - Pavers	0.062110306	0.073916	0.42084	0.827406	219.2928	0.025293	0.023269	0.002026	0.001719	0.021487	0.92
Placer (SV)	2022	Construction and Mining - Pavers	0.451618229	0.537463	2.115975	1.829088	243.8418	0.136397	0.125486	0.002243	0.001999	0.023892	0.92
Placer (SV)	2022	Construction and Mining - Pavers	0.045381176	0.054543	0.404048	0.528674	219.2646	0.015311	0.014086	0.002026	0.001719	0.021484	0.92
Placer (SV)	2022	Construction and Mining - Pavers	0.432702429	0.514558	2.18321	1.712628	217.2638	0.214362	0.206702	0.001999	0.001793	0.021385	0.92
Placer (SV)	2022	Construction and Mining - Pavers	0.021730826	0.025861	0.388336	1.075528	219.2627	0.003652	0.00336	0.002027	0.001719	0.021484	0.92
Placer (SV)	2022	Construction and Mining - Paving Equipment	0.092366706	0.109924	1.222305	0.965447	187.6854	0.051008	0.047102	0.001733	0.001532	0.018339	0.92
Placer (SV)	2022	Construction and Mining - Paving Equipment	0.085669403	0.101954	1.099779	0.812509	187.1021	0.043007	0.039566	0.001728	0.001527	0.018333	0.92
Placer (SV)	2022	Construction and Mining - Paving Equipment	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.92
Placer (SV)	2022	Construction and Mining - Paving Equipment	0.070081479	0.083403	0.411446	0.797526	187.5011	0.030484	0.028645	0.001732	0.00153	0.018372	0.92
Placer (SV)	2022	Construction and Mining - Paving Equipment	0.203737537	0.242031	1.510443	1.365121	207.2498	0.066995	0.061636	0.001911	0.001692	0.020307	0.92
Placer (SV)	2022	Construction and Mining - Paving Equipment	0.059664712	0.071006	0.339177	0.661882	187.1627	0.021305	0.0196	0.001729	0.001528	0.018339	0.92
Placer (SV)	2022	Construction and Mining - Paving Equipment	0.186266209	0.221672	1.386914	1.967366	188.9161	0.144472	0.132915	0.001742	0.001542	0.018315	0.92
Placer (SV)	2022	Construction and Mining - Paving Equipment	0.047746887	0.052062	0.347377	0.414054	187.4395	0.01042	0.009547	0.001734	0.001531	0.018385	0.92
Placer (SV)	2022	Construction and Mining - Paving Equipment	0.035825795	0.042636	0.350286	0.831365	187.5262	0.013693	0.012598	0.001733	0.001531	0.018374	0.92
Placer (SV)	2022	Construction and Mining - Rollers	0.111973285	0.133257	1.289532	1.172852	198.0392	0.067106	0.061737	0.001828	0.001616	0.019404	0.92
Placer (SV)	2022	Construction and Mining - Rollers	0.061593577	0.073301	1.092065	0.642528	197.8864	0.029488	0.027138	0.001828	0.001615	0.019389	0.92
Placer (SV)	2022	Construction and Mining - Rollers	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.92
Placer (SV)	2022	Construction and Mining - Rollers	0.082875493	0.098629	0.579646	0.966264	198.068	0.036332	0.034326	0.001829	0.001617	0.019407	0.92
Placer (SV)	2022	Construction and Mining - Rollers	0.27566227	0.328061	1.646944	1.544839	220.1906	0.093461	0.085985	0.002029	0.001797	0.021575	0.92
Placer (SV)	2022	Construction and Mining - Rollers	0.056960744	0.067788	0.523084	0.650706	199.1134	0.0202019	0.020257	0.001839	0.001625	0.019509	0.92
Placer (SV)	2022	Construction and Mining - Rollers	0.734929639	0.744627	2.383092	2.466268	199.1526	0.395228	0.36361	0.001821	0.001625	0.019513	0.92
Placer (SV)	2022	Construction and Mining - Rough Terrain Forklifts	0.052167185	0.062084	1.290368	1.290368	197.5099	0.02982	0.02982	0.001914	0.00162	0.020805	0.92
Placer (SV)	2022	Construction and Mining - Rough Terrain Forklifts	0.101274111	0.120525	1.207191	0.899037	212.3827	0.060051	0.055213	0.001959	0.001732	0.020709	0.92
Placer (SV)	2022	Construction and Mining - Rough Terrain Forklifts	0.156415924	0.186148	1.607308	2.04532	236.0685	0.112164	0.103191	0.002179	0.001927	0.02313	0.92
Placer (SV)	2022	Construction and Mining - Rough Terrain Forklifts	0.04682894	0.05573	0.396826	0.629534	212.2292	0.014503	0.013342	0.001961	0.001732	0.020795	0.92
Placer (SV)	2022	Construction and Mining - Rough Terrain Forklifts	0.318412267	0.378937	1.729403	1.61879	235.8069	0.0952	0.087584	0.002172	0.001925	0.023105	0.92
Placer (SV)	2022	Construction and Mining - Rough Terrain Forklifts	0.027624642	0.032885	0.178014	0.32711	10.4498	0.003949	0.003802	0.001944	0.001731	0.020566	0.92
Placer (SV)	2022	Construction and Mining - Rough Terrain Forklifts	0.71012606	0.845909	2.379981	5.852831	212.2416	0.399186	0.376751	0.001945	0.001732	0.020796	0.92
Placer (SV)	2022	Construction and Mining - Rough Terrain Forklifts	0.043847342	0.052182	0.391507	0.537828	210.2158	0.043899	0.040304	0.001959	0.00173	0.020774	0.92
Placer (SV)	2022	Construction and Mining - Rubber Tired Dozers	0.273487508	0.325473	1.646888	2.298905	210.1425	0.174976	0.160978	0.001936	0.001715	0.02059	0.92
Placer (SV)	2022	Construction and Mining - Rubber Tired Dozers	0.254437972	0.302802	1.584272	2.151448	210.7104	0.147817	0.135991	0.001934	0.001714	0.020542	0.92
Placer (SV)	2022	Construction and Mining - Rubber Tired Dozers	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.92
Placer (SV)	2022	Construction and Mining - Rubber Tired Dozers	0.211138099	0.251272	1.196331	2.332133	209.3583	0.106743	0.098204	0.00193	0.001709	0.020513	0.92
Placer (SV)	2022	Construction and Mining - Rubber Tired Dozers	0.499195361	0.594084	2.475993	1.803084	231.9718	0.146767	0.135026	0.002132	0.001893	0.022729	0.92
Placer (SV)	2022	Construction and Mining - Rubber Tired Dozers	0.186040263	0.221408	1.477429	1.926223	210.1305	0.088625	0.07935	0.001938	0.001715	0.020591	0.92
Placer (SV)	2022	Construction and Mining - Rubber Tired Dozers	0.33524229	0.419531	1.740201	2.845477	209.896	0.239066	0.226794	0.001937	0.001713	0.020566	0.92
Placer (SV)	2022	Construction and Mining - Rubber Tired Dozers	0.098975211	0.117789	0.430236	1.425937	208.6619	0.040086	0.036879	0.001927	0.001703	0.020445	0.92
Placer (SV)	2022	Construction and Mining - Rubber Tired Dozers	0.159493585	0.189811	1.39197	1.365707	189.2031	0.096589	0.088862	0.001745	0.001544	0.018538	0.92
Placer (SV)	2022	Construction and Mining - Rubber Tired Loaders	0.106706151	0.126989	1.194359	0.911064	190.5172	0.049142	0.046211	0.001759	0.001555	0.018667	0.92
Placer (SV)	2022	Construction and Mining - Rubber Tired Loaders	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.92
Placer (SV)	2022	Construction and Mining - Rubber Tired Loaders	0.081423798	0.096901	0.446427	0.83851	190.4263	0.028275	0.026013	0.001759	0.001554	0.018658	0.92
Placer (SV)	2022	Construction and Mining - Rubber Tired Loaders	0.427737974	0.509044	2.251701	1.723194	213.0371	0.128591	0.118304	0.001959	0.001739	0.020874	0.92
Placer (SV)	2022	Construction and Mining - Rubber Tired Loaders	0.088459499	0.105274	0.506064	0.823984	190.0368	0.030936	0.028461	0.001755	0.001551	0.018162	0.92
Placer (SV)	2022	Construction and Mining - Rubber Tired Loaders	0.063717277	0.079383	0.252183	0.460739	189.4514	0.016451	0.015135	0.00175	0.001546	0.018563	0.92
Placer (SV)	2022	Construction and Mining - Rubber Tired Loaders	0.0732162	0.087725	0.347124	1.365377	191.216	0.028665	0.02612	0.001767			



On-road Vehicle (separate calculations)  
Construction and Mining - Bore/Drill Rigs  
Construction and Mining - Cranes  
Construction and Mining - Crawler Tractors  
Construction and Mining - Excavators  
Construction and Mining - Graders  
Construction and Mining - Misc - Asphalt Pavers  
Construction and Mining - Misc - Bore/Drill Rigs  
Construction and Mining - Misc - Cement And Mortar Mixers  
Construction and Mining - Misc - Concrete/Industrial Saws  
Construction and Mining - Misc - Cranes  
Construction and Mining - Misc - Crushing/Proc. Equipment  
Construction and Mining - Misc - Dumpers/Tenders  
Construction and Mining - Misc - Excavators  
Construction and Mining - Misc - Other  
Construction and Mining - Misc - Pavers  
Construction and Mining - Misc - Paving Equipment  
Construction and Mining - Misc - Plate Compactors  
Construction and Mining - Misc - Rollers  
Construction and Mining - Misc - Rough Terrain Forklifts  
Construction and Mining - Misc - Signal Boards  
Construction and Mining - Misc - Skid Steer Loaders  
Construction and Mining - Misc - Surfacing Equipment  
Construction and Mining - Misc - Tampers/Rammers  
Construction and Mining - Misc - Tractors/Loaders/Backhoes  
Construction and Mining - Misc - Trenchers  
Construction and Mining - Off-Highway Tractors  
Construction and Mining - Off-Highway Trucks  
Construction and Mining - Other  
Construction and Mining - Pavers  
Construction and Mining - Paving Equipment  
Construction and Mining - Rollers  
Construction and Mining - Rough Terrain Forklifts  
Construction and Mining - Rubber Tired Dozers  
Construction and Mining - Rubber Tired Loaders  
Construction and Mining - Scrapers  
Construction and Mining - Skid Steer Loaders  
Construction and Mining - Surfacing Equipment  
Construction and Mining - Tractors/Loaders/Backhoes  
Construction and Mining - Trenchers  
Industrial - Aerial Lifts  
Industrial - Forklifts  
Industrial - Misc - Aerial Lifts  
Industrial - Misc - Forklifts  
Industrial - Misc - Other General Industrial Equipment  
Industrial - Misc - Other Material Handling Equipment  
Industrial - Misc - Sweepers/Scrubbers  
Industrial - Other General Industrial Equipment  
Industrial - Other Material Handling Equipment  
Light Commercial - Misc - Air Compressors  
Light Commercial - Misc - Gas Compressors  
Light Commercial - Misc - Generator Sets  
Light Commercial - Misc - Pressure Washers  
Light Commercial - Misc - Pumps  
Light Commercial - Misc - Welders  
Portable Equipment - Non-Rental Compressor  
Portable Equipment - Non-Rental Generator  
Portable Equipment - Non-Rental Other  
Portable Equipment - Non-Rental Pump  
Portable Equipment - Rental Compressor  
Portable Equipment - Rental Generator  
Portable Equipment - Rental Other  
Portable Equipment - Rental Pump

Source: EMFAC2021 (v1.0.1) Emission Rates  
Region Type: Sub-Area  
Region: Placer (SV)  
Calendar Year: 2022  
Season: Annual  
Vehicle Classification: EMFAC202x Categories  
Units: miles/day for CVMT and EVMT, z/mile for RUNEX, PMBW and PMTW, mph for Speed, kWh/mile for Energy Consumption, gallon/mile for Fuel Consumption. PHEV calculated based on total VMT.

Placer	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	Total VMT	%VMT	CVMT	EVMT	NOx	RUNE	PM2.5	RUP	PM10	RUP	CO2	RUNE	CH4	RUNE	N2O	RUNE	ROG	RUNE	TOG	RUNE	CO	RUNE	SOx	RUNE	NH3	RUNE	PM10	PMBW	PM2.5	PMTW	Fuel Consu	Energy Consumption
Placer (SV)	2022	MDV	Aggregate	15	Gasoline	8036.686	89%	8036.686	0	0.15249	0.004029	0.004382	705.1438	0.012366	0.011329	0.052359	0.076313	1.816503	0.006971	0.033836	0.01245	0.004357	0.081964	0													
Placer (SV)	2022	MDV	Aggregate	15	Diesel	190.3211	2%	190.3211	0	0.109981	0.011549	0.012072	721.7627	0.003871	0.113714	0.083336	0.094872	1.510689	0.006839	0.0031	0.012259	0.004291	0.071071	0													
Placer (SV)	2022	MDV	Aggregate	15	Electricity	301.255	3%	0	301.255	0	0	0	0	0	0	0	0	0	0	0	0	0.003353	0.001174	0	0.39428												
Placer (SV)	2022	MDV	Aggregate	15	Plug-in Hyt	484.0506	5%	26.38249	457.6681	0.000702	0.000248	0.00027	26.19791	0.000143	0.000128	0.000453	0.00066	0.053084	0.000259	0.002289	0.003369	0.001179	0.003045	0.302429													
Weighted Average Emissions Factors:										0.138343	0.00385	0.004177	645.4578	0.011117	0.012511	0.048475	0.070091	1.654612	0.006375	0.030362	0.011654	0.004079	0.074755														
Placer (SV)	2022	LHD1	Aggregate	15	Gasoline	26719.32	57%	26719.32	0	0.220608	0.002103	0.002287	1163.522	0.012256	0.012585	0.058835	0.085852	1.418582	0.011503	0.044936	0.078	0.0273	0.135245	0													
Placer (SV)	2022	LHD1	Aggregate	15	Diesel	20256.03	43%	20256.03	0	2.784305	0.078899	0.082467	867.2241	0.016901	0.136632	0.363865	0.414236	1.124701	0.008217	0.139308	0.078	0.0273	0.085395	0													
Weighted Average Emissions Factors:										1.326088	0.035218	0.036861	1035.757	0.014259	0.066075	0.190366	0.227453	1.291859	0.010086	0.08563	0.078	0.0273	0.113749														
Placer (SV)	2022	LHD2	Aggregate	15	Gasoline	3334.173	30%	3334.173	0	0.157439	0.001669	0.001815	1285.972	0.008102	0.009915	0.036569	0.053361	1.097113	0.012713	0.044979	0.091	0.03185	0.149478	0													
Placer (SV)	2022	LHD2	Aggregate	15	Diesel	7875.004	70%	7875.004	0	1.864902	0.056998	0.059575	1078.155	0.012494	0.169864	0.268988	0.306226	0.786019	0.010216	0.173499	0.091	0.03185	0.106165	0													
Weighted Average Emissions Factors:										1.357017	0.04054	0.042394	1139.971	0.011188	0.122287	0.199855	0.231011	0.878554	0.010959	0.135271	0.091	0.03185	0.119048														
Placer (SV)	2022	T6 Utility Class 5	Aggregate	15	Diesel	21.97262	1	21.97262	0	1.512352	0.003374	0.003527	1564.293	0.001727	0.246455	0.037189	0.042337	0.169078	0.014813	0.210333	0.061496	0.021524	0.154034	0													
Weighted Average Emissions Factors:										1.512352	0.003374	0.003527	1564.293	0.001727	0.246455	0.037189	0.042337	0.169078	0.014813	0.210333	0.061496	0.021524	0.154034														
Placer (SV)	2022	T7 Single Other Class 8	Aggregate	15	Diesel	331.9407	98%	331.9407	0	4.405634	0.008943	0.009347	2418.704	0.005139	0.381068	0.110638	0.125953	0.568761	0.022904	0.204665	0.138068	0.048324	0.238167	0													
Placer (SV)	2022	T7 Single Other Class 8	Aggregate	15	Natural Gas	5.546367	2%	5.546367	0	1.784174	0.004302	0.004678	2663.122	3.607721	0.542895	0.051547	3.681944	19.6027	0	1.06	0.148438	0.051953	0.339309	0													
Weighted Average Emissions Factors:										4.362552	0.008867	0.00927	2422.721	0.064345	0.383727	0.109667	0.184393	0.88157	0.022527	0.218722	0.138239	0.048384	0.23983														

0.297619  
0.166667  
5.681818 2  
1.893939 4  
0.25 2  
2.429924

Model Output: OFFROAD2021 (v1.0.1) Emissions Inventory  
Region Type: Sub-Area  
Region: Placer (SV)  
Calendar Year: 2022  
Scenario: All Adopted Rules - Exhaust  
Vehicle Classification: OFFROAD2021 Equipment Types  
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Yr	Vehicle Cat	Model Year	Horsepower	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd	NH3_tpd	Fuel Consu	Total_Activ	% Activity	Total_Pop	Horsepower_Hours_hl	gal/hp-hr		
Placer (SV)	2022	Agricultura	Aggregate	25	Gasoline	0.009218	0.011154	0.013274	0.106159	0.003752	0.3871471	0.000331	0.000305	3.25E-06	3.16E-06	12547.04	1740.344	16.42%	70	401816.4	0.031226		
Placer (SV)	2022	Agricultura	Aggregate	25	Diesel	0.000216	0.000262	0.000311	0.001559	0.00148	0.2206629	6.71E-05	6.18E-05	2.00E-06	1.80E-06	7151.459	2912.218	27.47%	16	306741.5	0.023314		
Placer (SV)	2022	Agricultura	Aggregate	25	Electric	0	0	0	0	0	0	0	0	0	0	0	448.1151	4.23%	0	76347.63	0		
Placer (SV)	2022	Agricultura	Aggregate	50	Gasoline	0.000363	0.000439	0.000522	0.016326	0.000964	0.4446817	3.35E-05	3.08E-05	4.04E-06	3.63E-06	14411.68	1362.792	12.86%	46	461531.1	0.031226		
Placer (SV)	2022	Agricultura	Aggregate	50	Diesel	0.000572	0.000693	0.000824	0.004682	0.004268	0.6974879	0.000178	0.000164	6.34E-06	5.69E-06	22604.87	4137.416	39.03%	36	969571.6	0.023314		
																			100.00%				
																					gal/hp-hr		
g/hp-hr calculations:						7.596463	9.191721	10.93891	87.48214	3.091928	319.03371	0.273114	0.251265	0.00268	0.002601							0.031226	
						0.233302	0.282296	0.335954	1.682903	1.597495	238.20179	0.072479	0.066681	0.002164	0.001942							0.023314	
						0	0	0	0	0	0	0	0	0	0	0							0
						0.260264	0.314919	0.37478	11.71267	0.691727	319.03371	0.024	0.02208	0.0029	0.002601							0.031226	
						0.195459	0.236505	0.28146	1.599122	1.457505	238.20179	0.060728	0.05587	0.002165	0.001942							0.023314	
Weighted Average Emissions Factors:						1.42094	1.71934	2.04616	16.95407	1.60423	251.79411	0.09153	0.08421	0.00225	0.00205							0.02464	

Days per year:

365	
Constants	
lb	grams
1	453.592
ton	lb
1	2000
metric ton	lb
1	2204.62
GWP CO2e	CH4
28	
GWP CO2e	N2O
265	

**CalEEMod****Equipment HP and Load Factors**

<b>OFFROAD Equipment Type</b>	<b>Horsepower</b>	<b>Load Factor</b>
Aerial Lifts	63	0.31
Air Compressors	78	0.48
Bore/Drill Rigs	221	0.50
Cement and Mortar Mixers	9	0.56
Concrete/Industrial Saws	81	0.73
Cranes	231	0.29
Crawler Tractors	212	0.43
Crushing/Proc. Equipment	85	0.78
Dumpers/Tenders	16	0.38
Excavators	158	0.38
Forklifts	89	0.201
Generator Sets	84	0.74
Graders	187	0.41
Off-Highway Tractors	124	0.44
Off-Highway Trucks	402	0.38
On-road Vehicle (separate calculation)	0	0.00
Other Construction Equipment	171	0.42
Other General Industrial Equipment	88	0.34
Other Material Handling Equipment	168	0.40
Pavers	130	0.42
Paving Equipment	132	0.36
Plate Compactors	8	0.43
Pressure Washers	13	0.3
Pumps	84	0.74
Rollers	80	0.38
Rough Terrain Forklifts	100	0.40
Rubber Tired Dozers	247	0.4
Rubber Tired Loaders	203	0.36
Scrapers	367	0.48
Signal Boards	6	0.82
Skid Steer Loaders	65	0.37
Surfacing Equipment	263	0.30
Sweepers/Scrubbers	64	0.46
Tractors/Loaders/Backhoes	97	0.37
Trenchers	78	0.50
UTV (separate calculations)	0	0.00
Welders	46	0.45



Fugitive Dust Emissions

Unpaved Road Dust

Equations: EF (unpaved, Industrial Sites) = ((k \* (s/12)<sup>a</sup> \* (W/3)<sup>b</sup>

Ref: AP-42, Section 13.2.2, "Unpaved Roads," November 2006

Constants:

k <sub>p</sub> =	1.5	(Particle size multiplier for PM10)	
	0.15	(Particle size multiplier for PM2.5)	
s	3.9	Unpaved surface material silt content (%)	Source: spreadsheet link at 4th bullet: <a href="https://www3.epa.gov/ttnchie1/ap">https://www3.epa.gov/ttnchie1/ap</a>
a =	0.9	for PM10 and PM2.5	
b =	0.45	for PM10 and PM2.5	
W	see below	CalEEMod default for range of vehicle fleet mix on unpaved roadways	
Control Factor for Gravel Roads:	84%	Per WRAP Handbook	
P	74	days of precipitation / yr > 0.01 in	Per CalEEMod User Guide App D, Table 1.1

W (F-150)	W (Tons)	Curb Weight	
W (F-250)	2.5	5000	
W (15-Passenger Van)	3.25	6500	
W (F-550)	5	10000	
W (18-Wheeler)	3.75	7500	
W (ATV)	15	30000	
	1.5	3000	

EF (PM10) (lb/VMT)	Vehicle Category
0.5025	F-150
0.5655	F-250
0.6865	15-Passenger Van
0.6031	F-550
1.1254	18-Wheeler
0.3993	ATV

Conversion:

pounds	tons
2000	1

<sup>1</sup> Uncontrolled emissions [lb/day] = Emission factor [lb/mi] x Number x Daily miles traveled [mi/vehicle-day]

Fugitive Dust from Construction & Demolition, <http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/fm/fugitive.html>

Truck Loading and Stockpiling

Earthwork Quantities (no import/export, only grading/earthwork)

Assumptions	Earthwork (CY)	Earthwork (tons)
Soil	572,400	723,609
Aggregate Import	76,800	38,362
Total	649,200	761,970

Total Emissions from Stockpiling and Truck Loading Soils	PM10 (lbs)	PM2.5 (lbs)	PM10 (tons)	PM2.5 (tons)
Total Emissions from Stockpiling and Truck Loading Soils	68.04	10.30	0.03402	0.00515
Daily Emissions from Stockpiling and Truck Loading Soils	0.31	0.05	0.00	0.00

\*Earthwork assumed to occur over 10 months of civil work phases. Aggregate Import could extend this, but used 10 months as a conservative duration to estimate daily emissions.

Fugitive Dust Emission Factors

Storage Pile and Truck Loading Fugitive Dust Emission Factors

$EF_p = k \times (0.0032) \times ((U/5)^{-1.5}) / ((M/2)^{-1.4})$

Variable	Amount	Units	Notes
EF (PM <sub>10</sub> ) for soil	0.000089	lb/ton	
EF (PM <sub>2.5</sub> ) for soil	0.000014	lb/ton	
k (PM <sub>10</sub> )	0.35	factor	999 0.4995
k (PM <sub>2.5</sub> )	0.053	factor	
U (mean wind speed)	4.92	miles/hr	Based on CalEEMod Appendix D Table 1.1: 2.2 m/s for PCAPCD.
M (moisture content) of saturated soil	12.00	percent	Based on default moisture content in CalEEMod User's Guide (Appendix A)
Soil density (CalEEMod default)	1.26	tons/cy	
Roadway aggregate average density	0.50	tons/cy	EPA: <a href="https://www.epa.gov/sites/default/files/2016-04/documents/volume_to_weight_conversion_factors_memo_randum_04192016_508rnl.pdf">https://www.epa.gov/sites/default/files/2016-04/documents/volume_to_weight_conversion_factors_memo_randum_04192016_508rnl.pdf</a>
M (moisture content) of demolition debris	2.00	percent	Based on CalEEMod default using MRI report (Appendix A)

$E \text{ (lbs)} = EF \text{ (lb/ton)} \times TP \text{ (tons)}$

Bulldozing, Scraping and Grading

$PM_{10} \text{ Emission Factor [lb/hr]} = 0.75 \times (\text{silt content [\%]}^{1.5} / (\text{moisture})^{1.4}$

$PM_{2.5} \text{ Emission Factor [lb/hr]} = 0.60 \times (\text{silt content [\%]}^{1.2} / (\text{moisture})^{1.3}$

Reference: AP-42, Table 11.9-1, July 1998

Parameter	Value	Basis
Silt Content	6.9	USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Correction Factors Applicable to the Predictive Emission
Moisture	7.9	USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Correction Factors Applicable to the Predictive Emission

PM10 Emission Factor	0.75 lb/hr
PM2.5 Emission Factor	0.41 lb/hr

Emissions [pounds per day] = Controlled emission factor [pounds per hour] x Bulldozing, scraping or grading time [hours/day]

Conversion Factors	
tons	pounds
1	2000
cubic feet	cubic yards
27	1

Sources:

3 CalEEMod Appendix A



#### Paved Roads Fugitive Dust Emissions

Paved Roads	100%
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#### Paved Road Dust

$$EF_{DUST} = [(k(sL)^{0.91} \times (W)^{1.02})(1 - P/4N)]$$

Source: AP-42 Section 13.2.1 (Paved Roads) - <http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s0201.pdf>

Variable	Value	Description
k (PM10)	0.0022	particle size multiplier for particle size range and units of interest (lb/VMT)
k (PM2.5)	0.00054	particle size multiplier for particle size range and units of interest (lb/VMT)
sL	0.032	road surface silt loading ( $g/m^2$ ) based on EPA 2011 default for collector streets ( <a href="https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf">https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf</a> )
W	2.4	average weight of all vehicles based on AP-42 and CalEEMod default values.
P	74	number of "wet" days with at least 0.254 mm of precipitation during the averaging period (CalEEMod User Guide, Appendix D, Table 1.1)
N	365	number of days in averaging period

#### All Vehicle Trip Types

EF (PM10)	0.100925461	g/mi
EF (PM2.5)	0.024772613	g/mi

Conversion Units	
lbs	tons
2000	1
lb	grams
1	453.59237

## SMUD Country Acres Operations - Placer-Sacramento County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****SMUD Country Acres Operations****Placer-Sacramento County, Winter****1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	1.00	1,000.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Rural	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	74
<b>Climate Zone</b>	2			<b>Operational Year</b>	2024
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MWhr)</b>	357.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Operational emissions estimates for maximum daily vehicle and equipment use.

Construction Phase -

Off-road Equipment - Operational emissions run only. Construction activity zeroed out.

Grading -

Trips and VMT - Operational emissions run only. Construction activities zeroed out.

Vehicle Trips - Up to 12 daily trips concurrently; assume all are primary trips and C-W to utilize maximum trip distances.

Fleet Mix - Assumes a fleet mix with even split between MDV, LHD1, LHD2, and MHD to capture larger utility trucks and an occasional target truck that could serve the site; and assumes that daily workers by utilize trucks similar to F-150 as opposed to average fleet mix.

Road Dust - Assumes approximately 2.5 miles travelled on unpaved on-site roads as part of daily site work. On-site travel would be slower, anticipated at approximately 15 mph.

Operational Off-Road Equipment - Conservative estimate of on-site equipment use of 1 crane, 1 forklift, 1 loader, and 1 lift for 8 hours on the same day.

Stationary Sources - Emergency Generators and Fire Pumps -

## SMUD Country Acres Operations - Placer-Sacramento County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Construction Off-road Equipment Mitigation -

Energy Mitigation - 748,900 MWh/year estimated power generation.

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.47	0.00
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LHD1	0.03	0.25
tblFleetMix	LHD2	8.3910e-003	0.25
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.15	0.25
tblFleetMix	MH	5.4500e-003	0.00
tblFleetMix	MHD	0.01	0.25
tblFleetMix	OBUS	5.5600e-004	0.00
tblFleetMix	SBUS	9.7700e-004	0.00
tblFleetMix	UBUS	4.1200e-004	0.00
tblLandUse	LandUseSquareFeet	0.00	1,000.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.29	0.29
tblOperationalOffRoadEquipment	OperLoadFactor	0.20	0.20
tblOperationalOffRoadEquipment	OperLoadFactor	0.37	0.37
tblOperationalOffRoadEquipment	OperLoadFactor	0.31	0.31
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00

## SMUD Country Acres Operations - Placer-Sacramento County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblRoadDust	MeanVehicleSpeed	40	15
tblRoadDust	RoadPercentPave	100	85
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	27.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	0.00	12.00

**2.0 Emissions Summary**

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### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

### Unmitigated Construction

### Mitigated Construction

[illegible]

## SMUD Country Acres Operations - Placer-Sacramento County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****2.2 Overall Operational****Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0240	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0359	0.4462	0.2977	2.7100e-003	12.1902	4.5400e-003	12.1948	1.2364	4.3400e-003	1.2407		282.3838	282.3838	2.8600e-003	0.0281	290.8354
Offroad	0.6020	6.3349	6.2211	0.0120		0.2714	0.2714		0.2497	0.2497	0.0000	1,166.1361	1,166.1361	0.3772		1,175.5649
Stationary	0.0443	0.2311	0.1784	2.1000e-004		0.0195	0.0195		0.0195	0.0195		22.6669	22.6669	3.1800e-003		22.7463
<b>Total</b>	<b>0.7062</b>	<b>7.0122</b>	<b>6.6972</b>	<b>0.0150</b>	<b>12.1902</b>	<b>0.2954</b>	<b>12.4856</b>	<b>1.2364</b>	<b>0.2735</b>	<b>1.5099</b>	<b>0.0000</b>	<b>1,471.1870</b>	<b>1,471.1870</b>	<b>0.3832</b>	<b>0.0281</b>	<b>1,489.1469</b>

## SMUD Country Acres Operations - Placer-Sacramento County, Winter

## EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

## 2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0240	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0359	0.4462	0.2977	2.7100e-003	12.1902	4.5400e-003	12.1948	1.2364	4.3400e-003	1.2407		282.3838	282.3838	2.8600e-003	0.0281	290.8354
Offroad	0.6020	6.3349	6.2211	0.0120		0.2714	0.2714		0.2497	0.2497	0.0000	1,166.1361	1,166.1361	0.3772		1,175.5649
Stationary	0.0443	0.2311	0.1784	2.1000e-004		0.0195	0.0195		0.0195	0.0195		22.6669	22.6669	3.1800e-003		22.7463
<b>Total</b>	<b>0.7062</b>	<b>7.0122</b>	<b>6.6972</b>	<b>0.0150</b>	<b>12.1902</b>	<b>0.2954</b>	<b>12.4856</b>	<b>1.2364</b>	<b>0.2735</b>	<b>1.5099</b>	<b>0.0000</b>	<b>1,471.1870</b>	<b>1,471.1870</b>	<b>0.3832</b>	<b>0.0281</b>	<b>1,489.1469</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	8/13/2022	8/15/2022	5	1	

Acres of Grading (Site Preparation Phase): 0

## SMUD Country Acres Operations - Placer-Sacramento County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	0.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	0.00	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**



## SMUD Country Acres Operations - Placer-Sacramento County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.2 Site Preparation - 2022****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

## SMUD Country Acres Operations - Placer-Sacramento County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.2 Site Preparation - 2022****Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

## SMUD Country Acres Operations - Placer-Sacramento County, Winter

## EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

## 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0359	0.4462	0.2977	2.7100e-003	12.1902	4.5400e-003	12.1948	1.2364	4.3400e-003	1.2407		282.3838	282.3838	2.8600e-003	0.0281	290.8354
Unmitigated	0.0359	0.4462	0.2977	2.7100e-003	12.1902	4.5400e-003	12.1948	1.2364	4.3400e-003	1.2407		282.3838	282.3838	2.8600e-003	0.0281	290.8354

## 4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	12.00	0.00	0.00	45,864	45,864
Total	12.00	0.00	0.00	45,864	45,864

## 4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	14.70	6.60	6.60	100.00	0.00	0.00	100	0	0

## 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.000000	0.000000	0.000000	0.250000	0.250000	0.250000	0.250000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

## SMUD Country Acres Operations - Placer-Sacramento County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

Kilowatt Hours of Renewable Electricity Generated

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

## SMUD Country Acres Operations - Placer-Sacramento County, Winter

## EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

## 5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

## 6.0 Area Detail

## 6.1 Mitigation Measures Area

## SMUD Country Acres Operations - Placer-Sacramento County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0240	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.0240	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

**6.2 Area by SubCategory****Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
<b>Total</b>	<b>0.0240</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>		<b>2.3000e-004</b>

## SMUD Country Acres Operations - Placer-Sacramento County, Winter

## EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

## 6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
<b>Total</b>	<b>0.0240</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>		<b>2.3000e-004</b>

## 7.0 Water Detail

## 7.1 Mitigation Measures Water

## 8.0 Waste Detail

## 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Cranes	1	8.00	260	231	0.29	Diesel
Forklifts	1	8.00	260	89	0.20	Diesel
Tractors/Loaders/Backhoes	1	8.00	260	97	0.37	Diesel

## SMUD Country Acres Operations - Placer-Sacramento County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Aerial Lifts	1	8.00	260	63	0.31	Diesel
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**UnMitigated/Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Aerial Lifts	0.0344	0.5232	1.0864	1.6700e-003		9.0700e-003	9.0700e-003		8.3500e-003	8.3500e-003	0.0000	161.6756	161.6756	0.0523		162.9828
Cranes	0.3296	3.4813	1.7631	5.7300e-003		0.1449	0.1449		0.1333	0.1333	0.0000	555.1462	555.1462	0.1796		559.6348
Forklifts	0.0947	0.8879	1.1450	1.5400e-003		0.0513	0.0513		0.0472	0.0472	0.0000	148.7710	148.7710	0.0481		149.9739
Tractors/Loaders/Backhoes	0.1433	1.4424	2.2265	3.1000e-003		0.0662	0.0662		0.0609	0.0609	0.0000	300.5434	300.5434	0.0972		302.9734
<b>Total</b>	<b>0.6020</b>	<b>6.3349</b>	<b>6.2211</b>	<b>0.0120</b>		<b>0.2714</b>	<b>0.2714</b>		<b>0.2497</b>	<b>0.2497</b>	<b>0.0000</b>	<b>1,166.1361</b>	<b>1,166.1361</b>	<b>0.3772</b>		<b>1,175.5649</b>

**10.0 Stationary Equipment****Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	50	27	0.73	Diesel

**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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## SMUD Country Acres Operations - Placer-Sacramento County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****10.1 Stationary Sources****Unmitigated/Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (25 - 50 HP)	0.0443	0.2311	0.1784	2.1000e-004		0.0195	0.0195		0.0195	0.0195		22.6669	22.6669	3.1800e-003		22.7463
<b>Total</b>	<b>0.0443</b>	<b>0.2311</b>	<b>0.1784</b>	<b>2.1000e-004</b>		<b>0.0195</b>	<b>0.0195</b>		<b>0.0195</b>	<b>0.0195</b>		<b>22.6669</b>	<b>22.6669</b>	<b>3.1800e-003</b>		<b>22.7463</b>

**11.0 Vegetation**

## SMUD Country Acres Operations - Placer-Sacramento County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****SMUD Country Acres Operations****Placer-Sacramento County, Annual****1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	1.00	1,000.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Rural	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	74
<b>Climate Zone</b>	2			<b>Operational Year</b>	2024
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MWhr)</b>	357.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Operational emissions estimates for maximum daily vehicle and equipment use.

Construction Phase -

Off-road Equipment - Operational emissions run only. Construction activity zeroed out.

Trips and VMT - Operational emissions run only. Construction activities zeroed out.

Grading -

Vehicle Trips - Up to 12 daily trips concurrently; assume all are primary trips and C-W to utilize maximum trip distances.

Road Dust - Assumes approximately 2.5 miles travelled on unpaved on-site roads as part of daily site work. On-site travel would be slower, anticipated at approximately 15 mph.

Construction Off-road Equipment Mitigation -

Energy Mitigation - 748,900 MWh/year estimated power generation.

Operational Off-Road Equipment - Conservative estimate of on-site equipment use of 1 crane, 1 forklift, 1 loader, and 1 lift for 8 hours on the same day.

## SMUD Country Acres Operations - Placer-Sacramento County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Fleet Mix - Adjusted fleet mix of MDV, LHD1, LHD2, and MHD. Assumes daily workers utilize trucks similar to F-150 as opposed to average fleet mix, and larger utility trucks and an occasional large truck for maintenance.

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.47	0.00
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LHD1	0.03	0.25
tblFleetMix	LHD2	8.3910e-003	0.25
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.15	0.25
tblFleetMix	MH	5.4500e-003	0.00
tblFleetMix	MHD	0.01	0.25
tblFleetMix	OBUS	5.5600e-004	0.00
tblFleetMix	SBUS	9.7700e-004	0.00
tblFleetMix	UBUS	4.1200e-004	0.00
tblLandUse	LandUseSquareFeet	0.00	1,000.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblRoadDust	MeanVehicleSpeed	40	15
tblRoadDust	RoadPercentPave	100	85
tblTripsAndVMT	WorkerTripNumber	5.00	0.00

### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	0.00	12.00

## 2.0 Emissions Summary

## 2.1 Overall Construction

### Unmitigated Construction

[illegible]

### Mitigated Construction

[illegible]

## SMUD Country Acres Operations - Placer-Sacramento County, Annual

## EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

## 2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.3700e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	4.6900e-003	0.0568	0.0386	3.5000e-004	1.5841	5.9000e-004	1.5847	0.1606	5.6000e-004	0.1611	0.0000	33.3340	33.3340	3.3000e-004	3.3000e-003	34.3249
Offroad	0.0786	0.8271	0.8115	1.5700e-003		0.0354	0.0354		0.0326	0.0326	0.0000	138.1271	138.1271	0.0447	0.0000	139.2439
Stationary	1.1100e-003	5.7800e-003	4.4600e-003	1.0000e-005		4.9000e-004	4.9000e-004		4.9000e-004	4.9000e-004	0.0000	0.5141	0.5141	7.0000e-005	0.0000	0.5159
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0888	0.8897	0.8546	1.9300e-003	1.5841	0.0365	1.6206	0.1606	0.0336	0.1942	0.0000	171.9751	171.9751	0.0451	3.3000e-003	174.0847

## SMUD Country Acres Operations - Placer-Sacramento County, Annual

## EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

## 2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.3700e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	-	-	-11.2100	-1.3588	-
												121,604.1328	121,604.1328			122,289.2982
Mobile	4.6900e-003	0.0568	0.0386	3.5000e-004	1.5841	5.9000e-004	1.5847	0.1606	5.6000e-004	0.1611	0.0000	33.3340	33.3340	3.3000e-004	3.3000e-003	34.3249
Offroad	0.0786	0.8271	0.8115	1.5700e-003		0.0354	0.0354		0.0326	0.0326	0.0000	138.1271	138.1271	0.0447	0.0000	139.2439
Stationary	1.1100e-003	5.7800e-003	4.4600e-003	1.0000e-005		4.9000e-004	4.9000e-004		4.9000e-004	4.9000e-004	0.0000	0.5141	0.5141	7.0000e-005	0.0000	0.5159
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0888	0.8897	0.8546	1.9300e-003	1.5841	0.0365	1.6206	0.1606	0.0336	0.1942	0.0000	-	-	-11.1649	-1.3555	-
												121,432.1576	121,432.1576			122,115.2135

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70,710.30	70,710.30	24,872.31	41,175.15	70,246.99

## 3.0 Construction Detail

Construction Phase

## SMUD Country Acres Operations - Placer-Sacramento County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	8/13/2022	8/15/2022	5	1	

**Acres of Grading (Site Preparation Phase): 0****Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	0.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	0.00	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

### Unmitigated Construction On-Site

[illegible]

### Unmitigated Construction Off-Site

[illegible]



### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

### Mitigated Construction On-Site

[illegible]

### Mitigated Construction Off-Site

[illegible]

## SMUD Country Acres Operations - Placer-Sacramento County, Annual

## EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

## 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.6900e-003	0.0568	0.0386	3.5000e-004	1.5841	5.9000e-004	1.5847	0.1606	5.6000e-004	0.1611	0.0000	33.3340	33.3340	3.3000e-004	3.3000e-003	34.3249
Unmitigated	4.6900e-003	0.0568	0.0386	3.5000e-004	1.5841	5.9000e-004	1.5847	0.1606	5.6000e-004	0.1611	0.0000	33.3340	33.3340	3.3000e-004	3.3000e-003	34.3249

## 4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	12.00	0.00	0.00	45,864	45,864
Total	12.00	0.00	0.00	45,864	45,864

## 4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	14.70	6.60	6.60	100.00	0.00	0.00	100	0	0

## 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.000000	0.000000	0.000000	0.250000	0.250000	0.250000	0.250000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Historical Energy Use: N

## Kilowatt Hours of Renewable Electricity Generated

### Percent of Electricity Use Generated with Renewable Energy

[illegible]

[illegible]

## SMUD Country Acres Operations - Placer-Sacramento County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****5.3 Energy by Land Use - Electricity****Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	-7.489e+008	-121,604.1328	-11.2100	-1.3588	-122,289.2982
<b>Total</b>		<b>-121,604.1328</b>	<b>-11.2100</b>	<b>-1.3588</b>	<b>-122,289.2982</b>

**6.0 Area Detail****6.1 Mitigation Measures Area**

## SMUD Country Acres Operations - Placer-Sacramento County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.3700e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	4.3700e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

**6.2 Area by SubCategory****Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
<b>Total</b>	<b>4.3700e-003</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

## SMUD Country Acres Operations - Placer-Sacramento County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****6.2 Area by SubCategory****Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
<b>Total</b>	<b>4.3700e-003</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

**7.0 Water Detail****7.1 Mitigation Measures Water**

## SMUD Country Acres Operations - Placer-Sacramento County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

**7.2 Water by Land Use****Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>



## SMUD Country Acres Operations - Placer-Sacramento County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****7.2 Water by Land Use****Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**8.0 Waste Detail****8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

## SMUD Country Acres Operations - Placer-Sacramento County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****8.2 Waste by Land Use****Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Aerial Lifts	1	8.00	260	63	0.31	Diesel

## SMUD Country Acres Operations - Placer-Sacramento County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Cranes	1	8.00	260	231	0.29	Diesel
Forklifts	1	8.00	260	89	0.20	Diesel
Tractors/Loaders/Backhoes	1	8.00	260	97	0.37	Diesel

**UnMitigated/Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Aerial Lifts	4.5000e-003	0.0684	0.1421	2.2000e-004		1.1900e-003	1.1900e-003		1.0900e-003	1.0900e-003	0.0000	19.1784	19.1784	6.2000e-003	0.0000	19.3335
Cranes	0.0431	0.4556	0.2307	7.5000e-004		0.0190	0.0190		0.0174	0.0174	0.0000	65.9023	65.9023	0.0213	0.0000	66.4352
Forklifts	0.0123	0.1149	0.1481	2.0000e-004		6.6300e-003	6.6300e-003		6.1000e-003	6.1000e-003	0.0000	17.4579	17.4579	5.6500e-003	0.0000	17.5990
Tractors/Loaders/Backhoes	0.0187	0.1883	0.2906	4.1000e-004		8.6400e-003	8.6400e-003		7.9500e-003	7.9500e-003	0.0000	35.5885	35.5885	0.0115	0.0000	35.8763
<b>Total</b>	<b>0.0786</b>	<b>0.8271</b>	<b>0.8115</b>	<b>1.5800e-003</b>		<b>0.0354</b>	<b>0.0354</b>		<b>0.0326</b>	<b>0.0326</b>	<b>0.0000</b>	<b>138.1271</b>	<b>138.1271</b>	<b>0.0447</b>	<b>0.0000</b>	<b>139.2439</b>

**10.0 Stationary Equipment****Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	50	27	0.73	Diesel

**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

## SMUD Country Acres Operations - Placer-Sacramento County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Equipment Type	Number
----------------	--------

**10.1 Stationary Sources****Unmitigated/Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (25 - 50 HP)	1.1100e-003	5.7800e-003	4.4600e-003	1.0000e-005		4.9000e-004	4.9000e-004		4.9000e-004	4.9000e-004	0.0000	0.5141	0.5141	7.0000e-005	0.0000	0.5159
<b>Total</b>	<b>1.1100e-003</b>	<b>5.7800e-003</b>	<b>4.4600e-003</b>	<b>1.0000e-005</b>		<b>4.9000e-004</b>	<b>4.9000e-004</b>		<b>4.9000e-004</b>	<b>4.9000e-004</b>	<b>0.0000</b>	<b>0.5141</b>	<b>0.5141</b>	<b>7.0000e-005</b>	<b>0.0000</b>	<b>0.5159</b>

**11.0 Vegetation**

## SMUD Country Acres Operations - Placer-Sacramento County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****SMUD Country Acres Operations****Placer-Sacramento County, Summer****1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	1.00	1,000.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Rural	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	74
<b>Climate Zone</b>	2			<b>Operational Year</b>	2024
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MWhr)</b>	357.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Operational emissions estimates for maximum daily vehicle and equipment use.

Construction Phase -

Off-road Equipment - Operational emissions run only. Construction activity zeroed out.

Grading -

Trips and VMT - Operational emissions run only. Construction activities zeroed out.

Vehicle Trips - Up to 12 daily trips concurrently; assume all are primary trips and C-W to utilize maximum trip distances.

Fleet Mix - Assumes a fleet mix with even split between MDV, LHD1, LHD2, and MHD to capture larger utility trucks and an occasional target truck that could serve the site; and assumes that daily workers by utilize trucks similar to F-150 as opposed to average fleet mix.

Road Dust - Assumes approximately 2.5 miles travelled on unpaved on-site roads as part of daily site work. On-site travel would be slower, anticipated at approximately 15 mph.

Operational Off-Road Equipment - Conservative estimate of on-site equipment use of 1 crane, 1 forklift, 1 loader, and 1 lift for 8 hours on the same day.

Stationary Sources - Emergency Generators and Fire Pumps -

## SMUD Country Acres Operations - Placer-Sacramento County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Construction Off-road Equipment Mitigation -

Energy Mitigation - 748,900 MWh/year estimated power generation.

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.47	0.00
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LHD1	0.03	0.25
tblFleetMix	LHD2	8.3910e-003	0.25
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.15	0.25
tblFleetMix	MH	5.4500e-003	0.00
tblFleetMix	MHD	0.01	0.25
tblFleetMix	OBUS	5.5600e-004	0.00
tblFleetMix	SBUS	9.7700e-004	0.00
tblFleetMix	UBUS	4.1200e-004	0.00
tblLandUse	LandUseSquareFeet	0.00	1,000.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.29	0.29
tblOperationalOffRoadEquipment	OperLoadFactor	0.20	0.20
tblOperationalOffRoadEquipment	OperLoadFactor	0.37	0.37
tblOperationalOffRoadEquipment	OperLoadFactor	0.31	0.31
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00

## SMUD Country Acres Operations - Placer-Sacramento County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblRoadDust	MeanVehicleSpeed	40	15
tblRoadDust	RoadPercentPave	100	85
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	27.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	0.00	12.00

**2.0 Emissions Summary**

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### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

### Unmitigated Construction

### Mitigated Construction

[illegible]



## SMUD Country Acres Operations - Placer-Sacramento County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****2.2 Overall Operational****Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0240	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0378	0.4116	0.3121	2.7400e-003	12.1902	4.5400e-003	12.1948	1.2364	4.3300e-003	1.2407		285.3589	285.3589	2.7900e-003	0.0278	293.7145
Offroad	0.6020	6.3349	6.2211	0.0120		0.2714	0.2714		0.2497	0.2497	0.0000	1,166.136 1	1,166.136 1	0.3772		1,175.564 9
Stationary	0.0443	0.2311	0.1784	2.1000e-004		0.0195	0.0195		0.0195	0.0195		22.6669	22.6669	3.1800e-003		22.7463
<b>Total</b>	<b>0.7080</b>	<b>6.9776</b>	<b>6.7116</b>	<b>0.0150</b>	<b>12.1902</b>	<b>0.2954</b>	<b>12.4856</b>	<b>1.2364</b>	<b>0.2735</b>	<b>1.5099</b>	<b>0.0000</b>	<b>1,474.162 2</b>	<b>1,474.162 2</b>	<b>0.3831</b>	<b>0.0278</b>	<b>1,492.026 0</b>

## SMUD Country Acres Operations - Placer-Sacramento County, Summer

## EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

## 2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0240	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0378	0.4116	0.3121	2.7400e-003	12.1902	4.5400e-003	12.1948	1.2364	4.3300e-003	1.2407		285.3589	285.3589	2.7900e-003	0.0278	293.7145
Offroad	0.6020	6.3349	6.2211	0.0120		0.2714	0.2714		0.2497	0.2497	0.0000	1,166.1361	1,166.1361	0.3772		1,175.5649
Stationary	0.0443	0.2311	0.1784	2.1000e-004		0.0195	0.0195		0.0195	0.0195		22.6669	22.6669	3.1800e-003		22.7463
<b>Total</b>	<b>0.7080</b>	<b>6.9776</b>	<b>6.7116</b>	<b>0.0150</b>	<b>12.1902</b>	<b>0.2954</b>	<b>12.4856</b>	<b>1.2364</b>	<b>0.2735</b>	<b>1.5099</b>	<b>0.0000</b>	<b>1,474.1622</b>	<b>1,474.1622</b>	<b>0.3831</b>	<b>0.0278</b>	<b>1,492.0260</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	8/13/2022	8/15/2022	5	1	

Acres of Grading (Site Preparation Phase): 0

## SMUD Country Acres Operations - Placer-Sacramento County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	0.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	0.00	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

## SMUD Country Acres Operations - Placer-Sacramento County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.2 Site Preparation - 2022****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

## SMUD Country Acres Operations - Placer-Sacramento County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.2 Site Preparation - 2022****Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

## SMUD Country Acres Operations - Placer-Sacramento County, Summer

## EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

## 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0378	0.4116	0.3121	2.7400e-003	12.1902	4.5400e-003	12.1948	1.2364	4.3300e-003	1.2407		285.3589	285.3589	2.7900e-003	0.0278	293.7145
Unmitigated	0.0378	0.4116	0.3121	2.7400e-003	12.1902	4.5400e-003	12.1948	1.2364	4.3300e-003	1.2407		285.3589	285.3589	2.7900e-003	0.0278	293.7145

## 4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	12.00	0.00	0.00	45,864	45,864
Total	12.00	0.00	0.00	45,864	45,864

## 4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	14.70	6.60	6.60	100.00	0.00	0.00	100	0	0

## 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.000000	0.000000	0.000000	0.250000	0.250000	0.250000	0.250000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

## SMUD Country Acres Operations - Placer-Sacramento County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****5.0 Energy Detail**

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Historical Energy Use: N

**5.1 Mitigation Measures Energy**

Kilowatt Hours of Renewable Electricity Generated

Percent of Electricity Use Generated with Renewable Energy

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

## SMUD Country Acres Operations - Placer-Sacramento County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****5.2 Energy by Land Use - NaturalGas****Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**6.0 Area Detail****6.1 Mitigation Measures Area**



## SMUD Country Acres Operations - Placer-Sacramento County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0240	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.0240	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

**6.2 Area by SubCategory****Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
<b>Total</b>	<b>0.0240</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>		<b>2.3000e-004</b>

## SMUD Country Acres Operations - Placer-Sacramento County, Summer

## EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

## 6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
<b>Total</b>	<b>0.0240</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>		<b>2.3000e-004</b>

## 7.0 Water Detail

## 7.1 Mitigation Measures Water

## 8.0 Waste Detail

## 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Cranes	1	8.00	260	231	0.29	Diesel
Forklifts	1	8.00	260	89	0.20	Diesel
Tractors/Loaders/Backhoes	1	8.00	260	97	0.37	Diesel

## SMUD Country Acres Operations - Placer-Sacramento County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Aerial Lifts	:	1	:	8.00	:	260	:	63	:	0.31	:	Diesel
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**UnMitigated/Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Aerial Lifts	0.0344	0.5232	1.0864	1.6700e-003		9.0700e-003	9.0700e-003		8.3500e-003	8.3500e-003	0.0000	161.6756	161.6756	0.0523		162.9828
Cranes	0.3296	3.4813	1.7631	5.7300e-003		0.1449	0.1449		0.1333	0.1333	0.0000	555.1462	555.1462	0.1796		559.6348
Forklifts	0.0947	0.8879	1.1450	1.5400e-003		0.0513	0.0513		0.0472	0.0472	0.0000	148.7710	148.7710	0.0481		149.9739
Tractors/Loaders/Backhoes	0.1433	1.4424	2.2265	3.1000e-003		0.0662	0.0662		0.0609	0.0609	0.0000	300.5434	300.5434	0.0972		302.9734
<b>Total</b>	<b>0.6020</b>	<b>6.3349</b>	<b>6.2211</b>	<b>0.0120</b>		<b>0.2714</b>	<b>0.2714</b>		<b>0.2497</b>	<b>0.2497</b>	<b>0.0000</b>	<b>1,166.1361</b>	<b>1,166.1361</b>	<b>0.3772</b>		<b>1,175.5649</b>

**10.0 Stationary Equipment****Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	50	27	0.73	Diesel

**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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## SMUD Country Acres Operations - Placer-Sacramento County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****10.1 Stationary Sources****Unmitigated/Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (25 - 50 HP)	0.0443	0.2311	0.1784	2.1000e-004		0.0195	0.0195		0.0195	0.0195		22.6669	22.6669	3.1800e-003		22.7463
<b>Total</b>	<b>0.0443</b>	<b>0.2311</b>	<b>0.1784</b>	<b>2.1000e-004</b>		<b>0.0195</b>	<b>0.0195</b>		<b>0.0195</b>	<b>0.0195</b>		<b>22.6669</b>	<b>22.6669</b>	<b>3.1800e-003</b>		<b>22.7463</b>

**11.0 Vegetation**

## **APPENDIX B**

### **BIOLOGICAL RESOURCES**

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## **BR-1 – DATA BASE RECORDS, SPECIAL-STATUS SPECIES TABLE, PCCP CONSISTENCY TABLE**

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CNDDB 10 Miles

December 2021		CNAME	ELMCODE	OCCNUMBER	MAPNDX	EONDX	KEYQUAD	QQUADNAME	KEYCOUNTY	PLSS	ELEVATION	PARTS	ELMTYPE	TAXONGROUP	EOCOUNT	ACCURACY	PRESENCE	OCCTYPE	OCCRANK	SENSITIVE	SITEDATE	ELMDATE	OWNERMGMT	FEDLIST	CALLIST	GRANK
Juncus leiospermus var. ahartii		Ahart's dwarf rush	PMJUN011L1	3	30031	5555	3812183	Lincoln	PLA	T12N, R06E, Sec. 09, NW (M)	135	1	1	Monocots	1	80 meters	Presumed Extant	Natural/Native occurrence	Fair	N	19900412	19900412	PVT	None	None	G2T1
Alkali Meadow		Alkali Meadow	CTT45310CA	1	11773	22568	3812173	Roseville	PLA	T11N, R06E, Sec. 12, S (M)	175	1	3	Herbaceous	2	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19820823	19820823	UNKNOWN	None	None	G3
Alkali Seep		Alkali Seep	CTT45320CA	2	11773	13316	3812173	Roseville	PLA	T11N, R06E, Sec. 12, S (M)	150	1	3	Herbaceous	2	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19890419	19820823	UNKNOWN	None	None	G3
Andrena subapasta		An andrenid bee	IIHYM35210	4	59354	59390	3812163	Citrus Heights	SAC	T09N, R06E, Sec. 12 (M)	170	1	2	Insects	1	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19540418	19540418	UNKNOWN	None	None	G1G2
Andrena subapasta		An andrenid bee	IIHYM35210	3	59353	59389	3812163	Citrus Heights	PLA	T10N, R06E, Sec. 02 (M)	160	1	2	Insects	1	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19320312	19320312	UNKNOWN	None	None	G1G2
Riparia riparia		bank swallow	ABPAU08010	208	61275	61311	3812176	Knights Landing	YOL	T11N, R03E, Sec. 27, W (M)	23	1	2	Birds	1	1/10 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19910528	19910528	UNKNOWN	None	Threatened	G5
Riparia riparia		bank swallow	ABPAU08010	218	61387	61423	3812176	Knights Landing	SUT	T11N, R03E, Sec. 22, SW (M)	31	1	2	Birds	1	1/10 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19940609	199306XX	UNKNOWN	None	Threatened	G5
Balsamorhiza macrolepis		big-scale balsamroot	PDAST11061	1	30665	20710	3812183	Lincoln	PLA	T12N, R06E, Sec. 15 (M)	165	1	1	Dicots	3	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19391005	19391005	UNKNOWN	None	None	G2
Balsamorhiza macrolepis		big-scale balsamroot	PDAST11061	9	32045	3757	3812173	Roseville	PLA	T11N, R06E, Sec. 21, E (M)	125	1	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19580707	19580707	UNKNOWN	None	None	G2
Nycticorax nycticorax		black-crowned night heron	ABNGA11010	3	17136	9708	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 18, SW (M)	15	1	2	Birds	3	specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	19890619	19890619	UNKNOWN	None	None	G2
Nycticorax nycticorax		black-crowned night heron	ABNGA11010	4	22528	17421	3812175	Verona	SUT	T11N, R04E, Sec. 21, SE (M)	20	1	2	Birds	1	specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	19910328	19910328	UNKNOWN	None	None	G5
Gratiola heterosepala		Boggs Lake hedge-hyssop	PDSCR0R060	3	11397	17785	3812164	Rio Linda	SAC	T10N, R05E, Sec. 21, S (M)	65	1	1	Dicots	1	non-specific area	Possibly Extirpated	Natural/Native occurrence	None	N	19970618	19600421	UNKNOWN	None	Endangered	G2
Gratiola heterosepala		Boggs Lake hedge-hyssop	PDSCR0R060	16	11749	7258	3812173	Roseville	PLA	T11N, R06E, Sec. 25, SW (M)	230	2	1	Dicots	1	specific area	Extirpated	Natural/Native occurrence	None	N	19970618	19870422	PVT	None	Endangered	G2
Gratiola heterosepala		Boggs Lake hedge-hyssop	PDSCR0R060	31	23872	5225	3812183	Lincoln	PLA	T12N, R06E, Sec. 04, SW (M)	155	1	1	Dicots	2	80 meters	Presumed Extant	Natural/Native occurrence	Good	N	19890420	19890420	PVT	None	Endangered	G2
Gratiola heterosepala		Boggs Lake hedge-hyssop	PDSCR0R060	15	11792	17776	3812172	Rocklin	PLA	T11N, R07E, Sec. 31, NW (M)	290	2	1	Dicots	1	specific area	Extirpated	Natural/Native occurrence	None	N	19870417	19870417	PVT	None	Endangered	G2
Gratiola heterosepala		Boggs Lake hedge-hyssop	PDSCR0R060	96	74381	75373	3812174	Pleasant Grove	PLA	T11N, R05E, Sec. 14, NW (M)	88	1	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20080506	20080506	PVT	None	Endangered	G2
Athene cucularia		burrowing owl	ABNSB10010	569	51256	51256	3812154	Sacramento East	SAC	T09N, R05E, Sec. 21 (M)	45	1	2	Birds	1	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19010508	19010508	UNKNOWN	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	129	20689	13167	3812164	Rio Linda	SAC	T10N, R05E, Sec. 19, SW (M)	40	1	2	Birds	1	2/5 mile	Presumed Extant	Natural/Native occurrence	Fair	N	20030505	19930204	PVT	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	122	17367	9705	3812165	Taylor Monument	SAC	T09N, R04E, Sec. 15, NE (M)	20	1	2	Birds	1	1/5 mile	Possibly Extirpated	Natural/Native occurrence	None	N	20030505	19910118	PVT	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	62	11296	19498	3812164	Rio Linda	SAC	T10N, R04E, Sec. 36, N (M)	25	2	2	Birds	1	specific area	Presumed Extant	Natural/Native occurrence	Fair	N	20120530	20120530	PVT, RECLAMATION DISTRICT 1000	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	797	64672	64751	3812165	Taylor Monument	SAC	T09N, R04E, Sec. 14, SE (M)	10	1	2	Birds	1	non-specific area	Presumed Extant	Natural/Native occurrence	Fair	N	20070602	20070602	UNKNOWN	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	339	42028	42028	3812173	Roseville	PLA	T11N, R05E, Sec. 24 (M)	100	1	2	Birds	1	non-specific area	Presumed Extant	Natural/Native occurrence	Good	N	20030505	19980508	PVT	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	1021	70910	71871	3812165	Taylor Monument	SAC	T09N, R04E, Sec. 11, NE (M)	10	3	2	Birds	1	specific area	Presumed Extant	Natural/Native occurrence	Fair	N	20070609	20070609	UNKNOWN	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	1022	70940	71877	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 35, SE (M)	10	1	2	Birds	1	non-specific area	Presumed Extant	Natural/Native occurrence	Fair	N	20070104	20070104	UNKNOWN	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	1267	78122	79010	3812164	Rio Linda	SAC	T10N, R04E, Sec. 24, NW (M)	20	3	2	Birds	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	20070612	20070612	UNKNOWN	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	1863	86835	87794	3812165	Taylor Monument	SAC	T09N, R04E, Sec. 10, NE (M)	20	1	2	Birds	1	specific area	Presumed Extant	Natural/Native occurrence	Fair	N	20120817	20120817	PVT	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	841	66102	66181	3812164	Rio Linda	SAC	T09N, R05E, Sec. 07, SE (M)	30	1	2	Birds	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20070628	20070628	SAC COUNTY FLOOD CONTROL	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	1025	70970	71889	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 26 (M)	25	1	2	Birds	1	non-specific area	Presumed Extant	Natural/Native occurrence	Fair	N	20060716	20060716	PVT	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	590	51441	51441	3812164	Rio Linda	SAC	T10N, R04E, Sec. 25, NW (M)	15	2	2	Birds	1	specific area	Presumed Extant	Natural/Native occurrence	Fair	N	20060714	20060714	UNKNOWN	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	1026	70979	71894	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 11, SE (M)	25	2	2	Birds	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	20060614	20060614	NATOMAS BASIN CONS-SILVA	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	149	23672	7320	3812175	Verona	SUT	T11N, R04E, Sec. 27, SW (M)	30	1	2	Birds	1	specific area	Presumed Extant	Natural/Native occurrence	Fair	N	20030505	19930710	PVT-TENCO CATERPILLAR CO	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	414	46042	46042	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 28, NE (M)	20	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Fair	N	20030505	20010622	UNKNOWN	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	1177	71623	72527	3812173	Roseville	PLA	T12N, R06E, Sec. 31 (M)	110	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Good	N	20080218	20080218	MOORE RANCH CONSERVANCY	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	1181	71650	72551	3812183	Lincoln	PLA	T12N, R06E, Sec. 05 (M)	130	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Excellent	N	20080429	20080429	PVT-PLACER LAND TRUST	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	975	69608	70379	3812165	Taylor Monument	SAC	T09N, R04E, Sec. 11, NW (M)	19	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Poor	N	20070629	20070629	PVT-ARCO ARENA	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	1186	71688	72588	3812164	Rio Linda	SAC	T09N, R04E, Sec. 13, W (M)	10	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Unknown	N	20070620	20070620	UNKNOWN	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	1268	78126	79014	3812164	Rio Linda	PLA	T10N, R05E, Sec. 07, NE (M)	45	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Unknown	N	20070606	20070606	STERLING SILVER STABLES	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	624	51947	51947	3812164	Rio Linda	SAC	T09N, R05E, Sec. 07, NE (M)	30	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Fair	N	20030725	20030725	UNKNOWN	None	None	G4
Athene cucularia		burrowing owl	ABNSB10010	813	64898	64977	3812165	Taylor Monument	SAC	T10N, R03E, Sec. 24, SE (M)	20	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Excellent	N	20060612	20060612	SAC INTERNATIONAL AIRPORT	None	None	G4
Linderiella occidentalis		California linderiella	ICBRA06010	157	38256	33921	3812173	Roseville	PLA	T11N, R06E, Sec. 30 (M)	120	1	2	Crustaceans	1	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19970116	19970116	PVT	None	None	G2G3
Linderiella occidentalis		California linderiella	ICBRA06010	139	34811	8258	3812174	Pleasant Grove	PLA	T11N, R05E, Sec. 20 (M)	60	1	2	Crustaceans	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	19980227	19980227	PVT-ROSEVILLE 150 PARTNERSHIP	None	None	G2G3
Linderiella occidentalis		California linderiella	ICBRA06010	193	47287	47287	3812174	Pleasant Grove	PLA	T12N, R05E, Sec. 26 (M)	90	1	2	Crustaceans	2	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	20010319	20010319	PVT-WILDLANDS INC	None	None	G2G3
Linderiella occidentalis		California linderiella	ICBRA06010	252	64334	64413	3812164	Rio Linda	PLA	T10N, R05E, Sec. 10 (M)	90	1	2	Crustaceans	1	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	2004XXXX	2004XXXX	PVT	None	None	G2G3
Linderiella occidentalis		California linderiella	ICBRA06010	145	34816	5003	3812173	Roseville	PLA	T11N, R06E, Sec. 20, SE (M)	115	1	2	Crustaceans	1	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19960429	19960402	PVT-HEWLETT PACKARD	None	None	G2G3
Linderiella occidentalis		California linderiella	ICBRA06010	199	64299	48405	3812173	Roseville	PLA	T12N, R06E, Sec. 31, NW (M)	110	1	2	Crustaceans	1	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	20050302	20050302	MOORE RANCH CONSERVANCY	None	None	G2G3
Linderiella occidentalis		California linderiella	ICBRA06010	184	42742	42742	3812173	Roseville	PLA	T12N, R06E, Sec. 33 (M)	120	1	2	Crustaceans	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19970212	19970212	UNKNOWN	None	None	G2G3
Linderiella occidentalis		California linderiella	ICBRA06010	146	34817	3450	3812173	Roseville	PLA	T12N, R06E, Sec. 29 (M)	125	8	2	Crustaceans	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19980302	19980302	PVT-STERLING PACIFIC ASSETS	None	None	G2G3
Linderiella occidentalis		California linderiella	ICBRA06010	254	64336	64415	3812164	Rio Linda	PLA	T10N, R05E, Sec. 12 (M)	110	1	2	Crustaceans	1	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	2004XXXX	2004XXXX	PVT	None	None	G

CNDDB 10 Miles

December 2021 SNAME	CNAME	ELMCODE	OCCNUMBER	MAPNDX	EONDx	KEYQUAD	QQUADNAME	KEYCOUNTY	PLSS	ELEVATION	PARTS	ELMTYPE	TAXONGROUP	EOCOUNT	ACCURACY	PRESENCE	OCCTYPE	OCCRANK	SENSITIVE	SITEDATE	ELMDATE	OWNERMGIT	FEDLIST	CALLIST	GRANK
Downingia pusilla	dwarf downingia	PDCAM060C0	60	26041	5230	3812173	Roseville	PLA	T12N, R06E, Sec. 28, SE (M)	130	2	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	19900414	19900414	PVT	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	62	26037	5224	3812183	Lincoln	PLA	T12N, R06E, Sec. 09, W (M)	140	2	1	Dicots	1	specific area	Extirpated	Natural/Native occurrence	None	N	19900418	19900418	PVT	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	100	43408	43408	3812174	Pleasant Grove	PLA	T11N, R05E, Sec. 23, NW (M)	90	3	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20000412	20000412	PVT	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	98	43406	43406	3812173	Roseville	PLA	T11N, R05E, Sec. 24, NW (M)	90	3	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20000412	20000412	PVT	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	37	11676	17396	3812173	Roseville	PLA	T11N, R06E, Sec. 22 (M)	135	3	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Poor	N	20130401	20130401	PVT, CITY OF ROSEVILLE	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	110	50379	50379	3812173	Roseville	PLA	T12N, R06E, Sec. 32, NE (M)	118	1	1	Dicots	1	80 meters	Presumed Extant	Natural/Native occurrence	Excellent	N	20020503	20020503	PVT-WILDLANDS INC	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	61	26040	1727	3812184	Sheridan	PLA	T12N, R05E, Sec. 23, NW (M)	93	1	1	Dicots	1	80 meters	Presumed Extant	Natural/Native occurrence	Unknown	N	1995XXXX	1995XXXX	DOD-USAF	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	127	70823	71736	3812164	Rio Linda	PLA	T10N, R05E, Sec. 09, SE (M)	60	1	1	Dicots	1	80 meters	Presumed Extant	Natural/Native occurrence	Fair	N	20060503	20060503	PVT	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	58	26042	5243	3812164	Rio Linda	SAC	T10N, R04E, Sec. 25, NE (M)	30	1	1	Dicots	2	80 meters	Presumed Extant	Natural/Native occurrence	Fair	N	19970618	19930422	PVT	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	59	26043	5242	3812164	Rio Linda	SAC	T10N, R04E, Sec. 24, SE (M)	28	1	1	Dicots	2	80 meters	Presumed Extant	Natural/Native occurrence	Good	N	19970618	19930512	PVT	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	32	26044	5241	3812164	Rio Linda	SAC	T10N, R05E, Sec. 19, NW (M)	35	1	1	Dicots	1	80 meters	Presumed Extant	Natural/Native occurrence	Fair	N	19940404	19940404	PVT	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	57	26045	5240	3812164	Rio Linda	SAC	T10N, R05E, Sec. 22, NE (M)	75	1	1	Dicots	1	80 meters	Extirpated	Natural/Native occurrence	None	N	19970618	19910526	PVT	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	63	23872	5226	3812183	Lincoln	PLA	T12N, R06E, Sec. 04, SW (M)	155	1	1	Dicots	2	80 meters	Presumed Extant	Natural/Native occurrence	Good	N	19890420	19890420	PVT	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	99	43407	43407	3812173	Roseville	PLA	T11N, R05E, Sec. 24, SW (M)	100	2	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20000412	20000412	PVT	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	131	83692	84720	3812174	Pleasant Grove	PLA	T11N, R05E, Sec. 14, SE (M)	80	1	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20060428	20060428	PVT	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	142	80120	111979	3812173	Roseville	PLA	T11N, R06E, Sec. 32, NW (M)	125	3	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	20130401	20130401	CITY OF ROSEVILLE	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	97	43402	43402	3812173	Roseville	PLA	T11N, R05E, Sec. 24, NE (M)	95	1	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20000412	20000412	PVT	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	141	80119	111978	3812173	Roseville	PLA	T11N, R06E, Sec. 33, NW (M)	135	1	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20140519	20140519	CITY OF ROSEVILLE	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	132	83693	84721	3812174	Pleasant Grove	PLA	T11N, R05E, Sec. 14, SE (M)	80	1	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Poor	N	20060428	20060428	PVT	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	130	83688	84716	3812174	Pleasant Grove	PLA	T11N, R05E, Sec. 14, NE (M)	80	1	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20060428	20060428	PVT	None	None	GU
Downingia pusilla	dwarf downingia	PDCAM060C0	140	80117	111976	3812173	Roseville	PLA	T11N, R06E, Sec. 27, NE (M)	160	1	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	20100429	20100429	CITY OF ROSEVILLE	None	None	GU
Thamnopis gigas	giant gartersnake	ARADB36150	88	21510	18146	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 15 (M)	18	20	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Poor	N	20160921	20160921	NATOMAS BASIN CONSERVANCY, PVT	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	163	47317	47317	3812175	Verona	SUT	T11N, R04E, Sec. 18 (M)	20	12	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20160907	20160907	PVT, NATOMAS BASIN CONSERVANCY	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	11	11172	14771	3812165	Taylor Monument	SAC	T09N, R04E, Sec. 9, W (M)	18	1	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Fair	N	20160911	20160911	NATOMAS BASIN CONSERVANCY, PVT	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	10	11083	27601	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 32 (M)	15	1	2	Reptiles	1	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	20060528	20060528	UNKNOWN	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	188	61204	61240	3812175	Verona	SUT	T11N, R04E, Sec. 30, SW (M)	20	6	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Fair	N	20160909	20160909	NATOMAS BASIN CONS, RD 1000	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	189	61205	61241	3812175	Verona	SUT	T11N, R04E, Sec. 30, E (M)	20	3	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Fair	N	20160710	20160710	NATOMAS BASIN CONS, RD 1000	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	319	93252	94386	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 28 (M)	23	6	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Fair	N	20060704	20060704	UNKNOWN, PVT	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	260	76944	77893	3812175	Verona	SUT	T11N, R04E, Sec. 31 (M)	30	4	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20160822	20160822	NATOMAS BASIN CONS, RD 1000	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	166	47320	47320	3812175	Verona	SUT	T12N, R04E, Sec. 31, W (M)	20	2	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Fair	N	20110727	20110727	RECLAMATION DISTRICT 1001	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	86	21513	18143	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 27 (M)	20	1	2	Reptiles	1	non-specific area	Presumed Extant	Natural/Native occurrence	Fair	N	20000801	20000801	UNKNOWN	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	246	64679	64758	3812185	Nicolaus	SUT	T12N, R04E, Sec. 08, W (M)	30	1	2	Reptiles	1	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	1989XXXX	1989XXXX	UNKNOWN	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	72	11199	27555	3812165	Taylor Monument	SAC	T09N, R04E, Sec. 09, NE (M)	17	1	2	Reptiles	1	1/5 mile	Possibly Extirpated	Natural/Native occurrence	None	N	19860625	19860625	UNKNOWN	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	119	32415	7893	3812175	Verona	SUT	T11N, R04E, Sec. 20, S (M)	20	1	2	Reptiles	1	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	1987XXXX	1987XXXX	UNKNOWN	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	64	11059	27566	3812165	Taylor Monument	SAC	T10N, R03E, Sec. 13, SE (M)	20	1	2	Reptiles	1	1/5 mile	Presumed Extant	Natural/Native occurrence	Excellent	N	19860428	19860428	UNKNOWN	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	66	11091	27562	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 19, NE (M)	20	1	2	Reptiles	1	1/5 mile	Presumed Extant	Natural/Native occurrence	Excellent	N	19860415	19860415	UNKNOWN	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	68	11112	27560	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 20, SW (M)	20	1	2	Reptiles	1	1/5 mile	Presumed Extant	Natural/Native occurrence	Excellent	N	19860511	19860511	UNKNOWN	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	128	32424	8487	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 20, NW (M)	15	1	2	Reptiles	1	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	1987XXXX	1987XXXX	UNKNOWN	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	70	11186	27558	3812165	Taylor Monument	SAC	T09N, R04E, Sec. 04, NE (M)	20	1	2	Reptiles	1	1/5 mile	Possibly Extirpated	Natural/Native occurrence	None	N	19860325	19860325	UNKNOWN	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	60	11203	27572	3812175	Verona	SUT	T11N, R04E, Sec. 20, SE (M)	20	1	2	Reptiles	1	1/5 mile	Presumed Extant	Natural/Native occurrence	Good	N	1988XXXX	1988XXXX	UNKNOWN	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	59	11235	27573	3812175	Verona	SUT	T11N, R04E, Sec. 09, NE (M)	30	1	2	Reptiles	1	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19860525	19860525	UNKNOWN	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	124	32420	8488	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 23, SW (M)	20	1	2	Reptiles	1	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	1987XXXX	1987XXXX	UNKNOWN	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	129	32425	9262	3812165	Taylor Monument	SAC	T09N, R04E, Sec. 10, NE (M)	20	1	2	Reptiles	1	1/5 mile	Possibly Extirpated	Natural/Native occurrence	None	N	1987XXXX	1987XXXX	UNKNOWN	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	121	32417	7895	3812165	Taylor Monument	SUT	T10N, R04E, Sec. 02, SW (M)	23	1	2	Reptiles	1	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	1987XXXX	1987XXXX	UNKNOWN	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	74	11274	27552	3812165	Taylor Monument	SAC	T09N, R04E, Sec. 11, NE (M)	10	1	2	Reptiles	1	1/5 mile	Possibly Extirpated	Natural/Native occurrence	None	N	19860430	19860430	UNKNOWN	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	75	11276	27551	3812165	Taylor Monument	SAC	T09N, R04E, Sec. 14, SE (M)	10	1	2	Reptiles	1	1/5 mile	Possibly Extirpated	Natural/Native occurrence	None	N	19860430	19860430	UNKNOWN	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	262	76958	77898	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 17, NE (M)	25	3	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Fair	N	201609XX	20150717	PVT-NATOMAS MUTUAL WATER	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	63	11064	27567	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 18, NW (M)	22	4	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20120522	20120522	SAC INTERNATIONAL AIRPORT	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	167	47321	47321	3812175	Verona	SUT	T12N, R03E, Sec. 35, E (M)	20	3	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20120716	20120716	RECLAMATION DISTRICT 1001	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	176	51930	51930	3812175	Verona	SUT	T11N, R04E, Sec. 06, W (M)	25	3	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20120708	20120708	PVT	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	18	11183	27594	3812175	Verona	SUT	T10N, R04E, Sec. 04, SE (M)	20	2	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Poor	N	20080707	20080707	PVT	Threatened	Threatened	G2
Thamnopis gigas	giant gartersnake	ARADB36150	317	93248	94383	3812165	Taylor Monument	SAC																	



CNDDDB 10 Miles

December 2021 SNAME	CNAME	ELMCODE	OCCNUMBER	MAPNDX	EONDXX	KEYQUAD	QQUADNAME	KEYCOUNTY	PLSS	ELEVATION	PARTS	ELMTYPE	TAXONGROUP	EOCOUNT	ACCURACY	PRESENCE	OCCTYPE	OCCRANK	SENSITIVE	SITEDATE	ELMDATE	OWNERMGMT	FEDLIST	CALLIST	GRANK
Ardea herodias	great blue heron	ABNGA04010	16	11341	25961	3812164	Rio Linda	SAC	T09N, R05E, Sec. 06, NW (M)	30	1	2	Birds	2	specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	20020404	20020404	CITY OF SACRAMENTO	None	None	G5
Ardea herodias	great blue heron	ABNGA04010	71	54474	54474	3812164	Rio Linda	SAC	T09N, R05E, Sec. 05, SE (M)	35	1	2	Birds	2	80 meters	Presumed Extant	Natural/Native occurrence	Excellent	N	2002XXXX	20010411	SAC AREA FLOOD CONTROL AGENCY	None	None	G5
Ardea herodias	great blue heron	ABNGA04010	72	54478	54478	3812164	Rio Linda	SAC	T09N, R05E, Sec. 06, SW (M)	30	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Fair	N	20020404	20020404	CITY OF SACRAMENTO	None	None	G5
Ardea alba	great egret	ABNGA04040	17	17136	9707	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 18, SW (M)	15	1	2	Birds	3	specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	19890619	19890619	UNKNOWN	None	None	G5
Ardea alba	great egret	ABNGA04040	9	11341	25940	3812164	Rio Linda	SAC	T09N, R05E, Sec. 06, NW (M)	30	1	2	Birds	2	specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	20020404	20020404	CITY OF SACRAMENTO	None	None	G5
Ardea alba	great egret	ABNGA04040	29	54474	54475	3812164	Rio Linda	SAC	T09N, R05E, Sec. 05, SE (M)	35	1	2	Birds	2	80 meters	Presumed Extant	Natural/Native occurrence	Excellent	N	2002XXXX	20010411	SAC AREA FLOOD CONTROL AGENCY	None	None	G5
Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	CTT61420CA	82	25924	19475	3812176	Knights Landing	SUT	T11N, R03E, Sec. 27 (M)	25	1	3	Riparian	1	specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	1987XXXX	1987XXXX	UNKNOWN	None	None	G2
Chloropyron molle ssp. hispidum	hispid salty bird's-beak	PDESCR0J0D1	11	11763	17846	3812173	Roseville	PLA	T11N, R06E, Sec. 12, SW (M)	150	1	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	19970618	19970618	PVT	None	None	G2T1
Legenere limosa	legenere	PDCAAM0C010	14	11739	17380	3812173	Roseville	PLA	T11N, R06E, Sec. 11, SE (M)	150	1	1	Dicots	1	1/5 mile	Extirpated	Natural/Native occurrence	None	N	19970618	19840405	PVT	None	None	G2
Legenere limosa	legenere	PDCAAM0C010	11	11680	28357	3812173	Roseville	PLA	T11N, R06E, Sec. 10, SW (M)	120	1	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19970618	198404XX	PVT	None	None	G2
Legenere limosa	legenere	PDCAAM0C010	58	48978	48978	3812173	Roseville	PLA	T12N, R06E, Sec. 32, NE (M)	118	1	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20020503	20020503	PVT-WILDLANDS INC	None	None	G2
Legenere limosa	legenere	PDCAAM0C010	33	30203	16909	3812164	Rio Linda	SAC	T09N, R05E, Sec. 10, NE (M)	35	1	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Fair	N	19970618	19910511	PVT	None	None	G2
Legenere limosa	legenere	PDCAAM0C010	32	30202	12128	3812164	Rio Linda	SAC	T10N, R05E, Sec. 22, NE (M)	75	1	1	Dicots	1	80 meters	Extirpated	Natural/Native occurrence	None	N	19970618	19910526	PVT	None	None	G2
Legenere limosa	legenere	PDCAAM0C010	84	A7923	109709	3812173	Roseville	PLA	T12N, R06E, Sec. 28, SW (M)	130	2	1	Dicots	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20140522	20140522	PVT	None	None	G2
Northern Claypan Vernal Pool	Northern Claypan Vernal Pool	CTT44120CA	30	11332	26284	3812164	Rio Linda	SAC	T09N, R05E, Sec. 05, NW (M)	35	1	3	Herbaceous	1	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19840413	19830413	UNKNOWN	None	None	G1
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	23	11651	16254	3812173	Roseville	PLA	T12N, R06E, Sec. 33, NW (M)	125	1	3	Herbaceous	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	1980XXXX	1980XXXX	UNKNOWN	None	None	G3
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	79	11427	21462	3812164	Rio Linda	SAC	T09N, R05E, Sec. 19, NE (M)	50	1	3	Herbaceous	2	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	1983XXXX	1983XXXX	PVT	None	None	G3
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	66	11800	16249	3812162	Folsom	PLA	T10N, R07E, Sec. 08, NW (M)	230	1	3	Herbaceous	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	1982XXXX	1982XXXX	UNKNOWN	None	None	G3
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	67	11713	16248	3812173	Roseville	PLA	T11N, R06E, Sec. 26, SW (M)	180	1	3	Herbaceous	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	1982XXXX	1982XXXX	PVT-ROSEVILLE PROPERTIES	None	None	G3
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	78	11433	26870	3812164	Rio Linda	SAC	T10N, R05E, Sec. 22, W (M)	70	1	3	Herbaceous	1	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	1983XXXX	1983XXXX	PVT	None	None	G3
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	24	11653	28050	3812183	Lincoln	PLA	T12N, R06E, Sec. 09, SE (M)	145	1	3	Herbaceous	1	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	197605XX	197605XX	UNKNOWN	None	None	G3
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	68	11613	16247	3812173	Roseville	PLA	T11N, R06E, Sec. 20, S (M)	110	1	3	Herbaceous	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	1982XXXX	1982XXXX	UNKNOWN	None	None	G3
Northern Volcanic Mud Flow Vernal Pool	Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	1	11782	16218	3812173	Roseville	PLA	T10N, R07E, Sec. 06 (M)	240	1	3	Herbaceous	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	1982XXXX	1982XXXX	UNKNOWN	None	None	G1
Northern Volcanic Mud Flow Vernal Pool	Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	4	11746	16214	3812173	Roseville	PLA	T11N, R06E, Sec. 25, NW (M)	225	1	3	Herbaceous	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19870422	19870422	UNKNOWN	None	None	G1
Northern Volcanic Mud Flow Vernal Pool	Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	2	11828	16215	3812172	Rocklin	PLA	T11N, R07E, Sec. 32, NW (M)	400	1	3	Herbaceous	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19860414	19860414	UNKNOWN	None	None	G1
Northern Volcanic Mud Flow Vernal Pool	Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	3	11798	13419	3812172	Rocklin	PLA	T11N, R07E, Sec. 30, S (M)	280	1	3	Herbaceous	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	1982XXXX	1982XXXX	UNKNOWN	None	None	G1
Northern Volcanic Mud Flow Vernal Pool	Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	5	11695	16213	3812173	Roseville	PLA	T11N, R06E, Sec. 27, NE (M)	165	1	3	Herbaceous	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	1982XXXX	1982XXXX	UNKNOWN	None	None	G1
Antrozous pallidus	pallid bat	AMACC10010	425	A0858	102419	3812184	Sheridan	PLA	T13N, R05E, Sec. 36, SW (M)	92	1	2	Mammals	1	80 meters	Presumed Extant	Natural/Native occurrence	Good	N	20151015	20151015	PLA COUNTY	None	None	G4
Navarretia myrsii ssp. myrsii	pinulmion navarretia	PDPLM0C0X1	12	30665	47154	3812183	Lincoln	PLA	T12N, R06E, Sec. 15 (M)	160	1	1	Dicots	3	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19710409	19710409	UNKNOWN	None	None	G2T2
Progne subis	purple martin	ABPAU01010	11	48738	48738	3812164	Rio Linda	SAC	T09N, R05E, Sec. 14, NW (M)	50	1	2	Birds	1	1/10 mile	Presumed Extant	Natural/Native occurrence	Fair	N	20070311	20070311	CALTRANS	None	None	G5
Progne subis	purple martin	ABPAU01010	27	70377	71268	3812173	Roseville	PLA	T11N, R06E, Sec. 25, SE (M)	216	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Good	N	20070523	20070523	CALTRANS, UNION PACIFIC ROW	None	None	G5
Progne subis	purple martin	ABPAU01010	17	54694	54694	3812154	Sacramento East	SAC	T09N, R05E, Sec. 22, NW (M)	50	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Unknown	N	2003XXXX	2003XXXX	UNKNOWN	None	None	G5
Progne subis	purple martin	ABPAU01010	18	54696	54696	3812154	Sacramento East	SAC	T09N, R05E, Sec. 28, NE (M)	45	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Unknown	N	2003XXXX	2003XXXX	UNKNOWN	None	None	G5
Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	PMJUN011L2	10	11642	22188	3812173	Roseville	PLA	T11N, R06E, Sec. 16, NE (M)	110	1	1	Monocots	1	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19970618	19820428	PVT	None	None	G2T2
Hydrochara rickseckeri	Ricksecker's water scavenger beetle	ICCOL5V010	11	60753	60789	3812173	Roseville	PLA	T12N, R06E, Sec. 27 (M)	140	1	2	Insects	1	4/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	XXXXXXX	XXXXXXX	UNKNOWN	None	None	G2?
Pogonichthys macrolepidotus	Sacramento splittail	ACFJB34020	1	24986	881	3812165	Taylor Monument	SAC	T09N, R04E, Sec. 20 (M)	20	1	2	Fish	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	19950226	19950226	PVT, STATE	None	None	GNR
Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	72	73343	74310	3812164	Rio Linda	SAC	T10N, R05E, Sec. 23, NE (M)	70	1	1	Monocots	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20010510	20010510	SAC COUNTY, PVT	None	None	G3
Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	50	37757	32764	3812163	Citrus Heights	SAC	T10N, R07E, Sec. 19, SE (M)	180	1	1	Monocots	1	specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	19940721	19940721	SAC COUNTY-PUBLIC WORKS	None	None	G3
Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	97	89327	90321	3812154	Sacramento East	SAC	T09N, R05E, Sec. 20, N (M)	20	2	1	Monocots	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20111019	20111019	CITY OF SACRAMENTO, UNKNOWN	None	None	G3
Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	46	30124	5004	3812163	Citrus Heights	SAC	T10N, R06E, Sec. 15, SW (M)	150	1	1	Monocots	1	specific area	Presumed Extant	Natural/Native occurrence	Fair	N	19970618	19970618	UNKNOWN	None	None	G3
Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	49	37753	32760	3812163	Citrus Heights	SAC	T10N, R06E, Sec. 15, NW (M)	150	1	1	Monocots	1	80 meters	Presumed Extant	Natural/Native occurrence	Good	N	19970618	19970618	UNKNOWN	None	None	G3
Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	73	73344	74311	3812164	Rio Linda	SAC	T09N, R05E, Sec. 06, NE (M)	30	1	1	Monocots	1	specific area	Possibly Extirpated	Natural/Native occurrence	None	N	20080701	20060723	SAC AREA FLOOD CONTROL AGENCY	None	None	G3
Egretta thula	snowy egret	ABNGA06030	3	17136	9706	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 18, SW (M)	15	1	2	Birds	3	specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	19890619	19890619	UNKNOWN	None	None	G5
Melospiza melodia	song sparrow ("Modesto" population)	ABPBXA3010	83	90034	91047	3812154	Sacramento East	SAC	T08N, R04E, Sec. 01 (M)	20	1	2	Birds	3	5 miles	Presumed Extant	Natural/Native occurrence	Unknown	N	19000609	19000609	UNKNOWN	None	None	G5
Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	28	91655	92726	3812176	Knights Landing	YOL	T11N, R02E, Sec. 13 (M)	0	1	2	Fish	1	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	20120510	20120510	UNKNOWN	Threatened	None	G5T2Q
Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	1	90927	91971	3912155	Oroville	BUT	T19N, R04E, Sec. 07 (M)	0	1	2	Fish	2	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	2012XXXX	2012XXXX	UNKNOWN, DWR, DFG	Threatened	None	G5T2Q
Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	3	90973	92020	3812173	Roseville	PLA	T11N, R06E, Sec. 36 (M)	0	1	2	Fish	1	non-specific area	Presumed Extant	Natural/Native occurrence	Poor	N	2007XXXX	2007XXXX	UNKNOWN	Threatened	None	G5T2Q
Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	4	90980	92029	3812183	Lincoln	PLA	T12N, R06E, Sec. 12 (M)	0	1	2	Fish	1	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	2007XXXX	2007XXXX	UNKNOWN	Threatened	None	G5T2Q
Fritillaria agrestis	stinkbells	PMLIL0V010	10	20978	9239	3812164	Rio Linda	SAC	T09N, R05E, Sec. 10, NE (M)	40	1	1	Monocots	1	specific area	Presumed Extant	Natural/Native occurrence	Fair	N	19970618	19910318	PVT	None	None	G3
Fritillaria agrestis	stinkbells	PMLIL0V010	9	20979	9238	3812164	Rio Linda	SAC	T09N, R05E, Sec. 10, NW (M)	40	1	1	Monocots	1	80 meters	Possibly Extirpated	Natural/Native occurrence	None	N	19970618	19940316	PVT?	None	None	G3
Fritillaria agrestis	stinkbells	PMLIL0V010	12	20958	9075	3812163	Citrus Heights	PLA	T10N, R06E, Sec. 16, NW (M)	130	1	1	Monocots	1	80 meters	Possibly Extirpated	Natural/Native occurrence	None	N	19970618	19790322	UNKNOWN	None	None	G3
Fritillaria agrestis	stinkbells	PMLIL0V010	11	21173	9151	3812163	Citrus Heights	SAC	T09N, R06E, Sec. 09, NE (M)	120	1	1	Monocots	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	19900325	19900325	PVT?			

CNDDDB 10 Miles

December 2021 SNAME	CNAME	ELMCODE	OCCNUMBER	MAPNDX	EONDXX	KEYQUAD	QQUADNAME	KEYCOUNTRY	PLSS	ELEVATION	PARTS	ELMTYPE	TAXONGROUP	EOCOUNT	ACCURACY	PRESENCE	OCCTYPE	OCCRANK	SENSITIVE	SITEDATE	ELMDATE	OWNERMGTT	FEDLIST	CALLIST	GRANK
Buteo swainsoni	Swainson's hawk	ABNKC19070	1483	62612	62649	3812174	Pleasant Grove	PLA	T11N, R05E, Sec. 20, SW (M)	60	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Unknown	N	20010723	20010723	UNKNOWN	None	Threatened	G5
Buteo swainsoni	Swainson's hawk	ABNKC19070	1588	63291	63383	3812185	Nicolaus	SUT	T12N, R04E, Sec. 04, SW (M)	45	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Unknown	N	20040706	20040706	UNKNOWN	None	Threatened	G5
Buteo swainsoni	Swainson's hawk	ABNKC19070	1484	62615	62652	3812173	Roseville	PLA	T12N, R05E, Sec. 25, NW (M)	50	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Unknown	N	20010702	20010702	UNKNOWN	None	Threatened	G5
Buteo swainsoni	Swainson's hawk	ABNKC19070	1500	62752	62789	3812175	Verona	SUT	T11N, R04E, Sec. 18, SW (M)	20	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Unknown	N	20040618	20040618	UNKNOWN	None	Threatened	G5
Buteo swainsoni	Swainson's hawk	ABNKC19070	791	42026	42026	3812173	Roseville	PLA	T11N, R06E, Sec. 30, SE (M)	125	1	2	Birds	1	80 meters	Possibly Extirpated	Natural/Native occurrence	None	N	20010529	19960701	CITY OF ROSEVILLE, UNKNOWN	None	Threatened	G5
Buteo swainsoni	Swainson's hawk	ABNKC19070	1018	50708	50708	3812164	Rio Linda	SAC	T09N, R05E, Sec. 06, SE (M)	30	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Excellent	N	20020715	20020715	CITY OF SACRAMENTO	None	Threatened	G5
Buteo swainsoni	Swainson's hawk	ABNKC19070	1015	50702	50702	3812164	Rio Linda	SAC	T09N, R05E, Sec. 05, NE (M)	35	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Excellent	N	20020701	20020701	PVT	None	Threatened	G5
Buteo swainsoni	Swainson's hawk	ABNKC19070	1017	50706	50706	3812164	Rio Linda	SAC	T10N, R05E, Sec. 32, SW (M)	40	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Good	N	20020711	20020711	SAC COUNTY FLOOD CONTROL	None	Threatened	G5
Buteo swainsoni	Swainson's hawk	ABNKC19070	1016	50704	50704	3812164	Rio Linda	SAC	T10N, R05E, Sec. 32, SE (M)	40	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Good	N	20020711	20020711	PVT	None	Threatened	G5
Buteo swainsoni	Swainson's hawk	ABNKC19070	1026	50761	50761	3812185	Nicolaus	SUT	T12N, R03E, Sec. 13 (M)	30	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Good	N	19970618	19970618	UNKNOWN	None	Threatened	G5
Buteo swainsoni	Swainson's hawk	ABNKC19070	952	46025	46025	3812173	Roseville	PLA	T11N, R06E, Sec. 19, N (M)	110	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Good	N	20010627	200106XX	UNKNOWN	None	Threatened	G5
Buteo swainsoni	Swainson's hawk	ABNKC19070	1495	62727	62764	3812175	Verona	SUT	T11N, R04E, Sec. 08, SW (M)	15	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Unknown	N	20040618	20040618	UNKNOWN	None	Threatened	G5
Agelaius tricolor	tricolored blackbird	ABPBXB0020	113	11032	24713	3812175	Verona	SUT	T11N, R03E, Sec. 22 (M)	20	1	2	Birds	1	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	20140419	19360525	UNKNOWN	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	121	10982	11813	3812176	Knights Landing	YOL	T11N, R03E, Sec. 22 (M)	25	1	2	Birds	1	1 mile	Extirpated	Natural/Native occurrence	None	N	19350618	19350618	UNKNOWN	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	583	30665	98106	3812183	Lincoln	PLA	T12N, R06E, Sec. 15 (M)	165	1	2	Birds	3	1 mile	Possibly Extirpated	Natural/Native occurrence	None	N	20150417	19360526	UNKNOWN	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	202	21578	17765	3812165	Taylor Monument	SAC	T10N, R04E, Sec. 35 (M)	26	1	2	Birds	1	4/5 mile	Possibly Extirpated	Natural/Native occurrence	None	N	19920618	19920618	UNKNOWN	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	494	95903	97047	3812164	Rio Linda	SAC	T09N, R05E, Sec. 03 (M)	50	1	2	Birds	1	3/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	20140420	19980518	UNKNOWN	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	302	30630	4275	3812164	Rio Linda	SAC	T10N, R04E, Sec. 12, SE (M)	24	1	2	Birds	1	2/5 mile	Presumed Extant	Natural/Native occurrence	Excellent	N	20140420	20000504	NATOMAS BASIN CONSERVANCY	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	517	96299	97465	3812175	Verona	SUT	T11N, R04E, Sec. 31 (M)	25	1	2	Birds	1	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	20110416	19920622	NATOMAS BASIN CONSERVANCY, PVT	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	907	A1220	102787	3812173	Roseville	PLA	T12N, R06E, Sec. 35, NE (M)	244	1	2	Birds	1	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19950421	1994XXXX	UNKNOWN	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	1000	A2482	104082	3812184	Sheridan	PLA	T12N, R05E, Sec. 18, W (M)	57	1	2	Birds	1	1 specific area	Presumed Extant	Natural/Native occurrence	Good	N	20150613	20150613	PVT	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	937	B1321	113229	3812173	Roseville	PLA	T12N, R06E, Sec. 29, SW (M)	102	3	2	Birds	1	1 specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	20170523	20170523	PVT	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	579	96865	98087	3812173	Roseville	PLA	T12N, R06E, Sec. 27 (M)	140	1	2	Birds	1	1/10 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	20150417	20110419	UNKNOWN	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	586	96899	98124	3812184	Sheridan	PLA	T12N, R05E, Sec. 17, SW (M)	70	1	2	Birds	1	1/10 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	20150417	20050603	PVT	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	585	96890	98115	3812184	Sheridan	PLA	T12N, R05E, Sec. 17, NW (M)	70	1	2	Birds	1	1/10 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	20150417	20000504	PVT	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	584	96884	98112	3812174	Pleasant Grove	PLA	T11N, R05E, Sec. 10, NW (M)	70	1	2	Birds	1	1/10 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	20150416	20140419	PVT	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	578	96863	98084	3812183	Lincoln	PLA	T12N, R06E, Sec. 04, SW (M)	145	1	2	Birds	1	1/10 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	20140418	20080425	PVT	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	621	98540	99985	3812183	Lincoln	PLA	T12N, R06E, Sec. 05, N (M)	130	1	2	Birds	1	1/10 mile	Presumed Extant	Natural/Native occurrence	Excellent	N	20100519	20100519	PVT-PLACER LAND TRUST	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	242	23971	4277	3812173	Roseville	PLA	T12N, R06E, Sec. 28, SW (M)	125	1	2	Birds	1	1 specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	20150410	20000422	UNKNOWN	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	581	96873	98096	3812173	Roseville	PLA	T12N, R06E, Sec. 33, NE (M)	121	1	2	Birds	1	1 specific area	Presumed Extant	Natural/Native occurrence	Good	N	20150417	20150410	PVT	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	929	A1684	103277	3812173	Roseville	PLA	T12N, R06E, Sec. 27, N (M)	143	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Unknown	N	20150417	20080425	PVT	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	580	96871	98094	3812173	Roseville	PLA	T12N, R06E, Sec. 34, NW (M)	130	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Good	N	20150417	20110416	PVT	None	Threatened	G1G2
Agelaius tricolor	tricolored blackbird	ABPBXB0020	582	96876	98101	3812173	Roseville	PLA	T12N, R06E, Sec. 20, SE (M)	125	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Unknown	N	20150417	20150417	UNKNOWN	None	Threatened	G1G2
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	ICCOL48011	270	95167	96300	3812172	Rocklin	PLA	T11N, R07E, Sec. 29 (M)	330	1	2	Insects	1	1 specific area	Possibly Extirpated	Natural/Native occurrence	None	N	20110622	200104XX	PVT	Threatened	None	G3T2
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	ICCOL48011	222	94687	95801	3812175	Verona	YOL	T11N, R03E, Sec. 22, SE (M)	30	3	2	Insects	1	1 specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	20140312	20140312	PVT-WILDLANDS INC	Threatened	None	G3T2
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	ICCOL48011	271	95172	96307	3812165	Taylor Monument	YOL	T10N, R03E, Sec. 01, NE (M)	30	1	2	Insects	1	1 specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	20070514	20070514	PVT	Threatened	None	G3T2
Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	155	33674	30808	3812173	Roseville	PLA	T11N, R06E, Sec. 19 (M)	100	1	2	Crustaceans	1	1 non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19970116	19970116	UNKNOWN	Threatened	None	G3
Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	158	33675	30430	3812183	Lincoln	PLA	T12N, R06E, Sec. 08 (M)	125	1	2	Crustaceans	1	1 non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19930205	19930205	UNKNOWN	Threatened	None	G3
Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	157	33676	30431	3812173	Roseville	PLA	T12N, R06E, Sec. 22 (M)	150	1	2	Crustaceans	1	1 non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19930118	19930118	UNKNOWN	Threatened	None	G3
Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	319	47287	48240	3812174	Pleasant Grove	PLA	T12N, R05E, Sec. 26 (M)	90	1	2	Crustaceans	2	2 non-specific area	Presumed Extant	Natural/Native occurrence	Good	N	20020121	20020121	PVT-WILDLANDS INC	Threatened	None	G3
Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	167	33694	30606	3812164	Rio Linda	SAC	T10N, R05E, Sec. 31 (M)	30	1	2	Crustaceans	1	1 non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19920401	19920401	UNKNOWN	Threatened	None	G3
Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	707	93438	94576	3812175	Verona	SUT	T11N, R04E, Sec. 34 (M)	25	1	2	Crustaceans	1	2/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	20080417	20080417	PVT	Threatened	None	G3
Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	728	93488	94617	3812174	Pleasant Grove	PLA	T11N, R05E, Sec. 04 (M)	75	18	2	Crustaceans	1	1 specific area	Presumed Extant	Natural/Native occurrence	Good	N	20140325	20140325	PVT-WILDLANDS, INC	Threatened	None	G3
Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	315	93548	47900	3812173	Roseville	PLA	T12N, R06E, Sec. 31 (M)	100	12	2	Crustaceans	1	1 specific area	Presumed Extant	Natural/Native occurrence	Good	N	20131204	20131204	MOORE RANCH CONSERVANCY, PVT	Threatened	None	G3
Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	389	93457	36322	3812183	Lincoln	PLA	T12N, R06E, Sec. 05 (M)	135	5	2	Crustaceans	1	1 specific area	Presumed Extant	Natural/Native occurrence	Good	N	20120403	20120403	PVT-PLACER LAND TRUST	Threatened	None	G3
Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	726	93466	94601	3812184	Sheridan	PLA	T12N, R05E, Sec. 11, N (M)	100	1	2	Crustaceans	1	1 specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	20120312	20120312	PVT-WESTERVELT ECOLOGICAL SVCS	Threatened	None	G3
Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	729	93489	94621	3812174	Pleasant Grove	PLA	T11N, R05E, Sec. 30, SW (M)	50	1	2	Crustaceans	1	1 specific area	Presumed Extant	Natural/Native occurrence	Good	N	20180326	20180326	PVT-WILDLANDS, INC	Threatened	None	G3
Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	29	33250	2571	3812173	Roseville	PLA	T12N, R06E, Sec. 27, NW (M)	140	3	2	Crustaceans	1	1 specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	20090211	20090211	PVT	Threatened	None	G3
Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	737	93556	94689	3812173	Roseville	PLA	T11N, R06E, Sec. 21 (M)	130	2	2	Crustaceans	1	1 non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19950206	19950206	UNKNOWN	Threatened	None	G3
Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	423	93471	67381	3812184	Sheridan	PLA	T12N, R05E, Sec. 23, NW (M)	90	2	2	Crustaceans	1	1 specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	20130211	20130211	PVT-WILDLANDS INC	Threatened	None	G3
Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	4	23050	29284	3812164	Rio Linda	SAC	T10N, R05E, Sec. 19, NW (M)	35	1	2	Crustaceans	1	1/5 mile	Presumed Extant	Natural/Native occurrence	Poor	N	19960					





### CNDDDB 10 Miles

**December 2021**  
**SNAME**

[illegible]

LOCATION

BETWEEN HIGHWAY 65 AND INDUSTRIAL BLVD NORTH OF ORCHARD CREEK, 2.2 MILES NORTH OF LINCOLN. EAST OF LAKESIDE ROAD, ABOUT 1.6 AIR MILES NORTHWEST OF DOWNTOWN LINCOLN.

SOUTH SIDE OF PHILLIP ROAD ABOUT 3 MILES EAST OF BREWER ROAD, NORTHWEST OF ROSEVILLE.

ABOUT 0.7 MILE WEST OF CONFLUENCE OF KASEBERG CREEK AND PLEASANT GROVE CREEK, NORTHWEST OF ROSEVILLE.

WEST OF HIGHWAY 65, ABOUT 0.5 AND 0.8 AIR MILE WEST OF JUNCTION WITH PLEASANT GROVE BLVD, NORTH OF ROSEVILLE.

NORTH SIDE OF ORCHARD CREEK, 3 MILES SW OF LINCOLN, 1.4 MILES NW OF INDUSTRIAL AVE AT ATHENS AVE, NORTH OF ROSEVILLE.

LINCOLN COMMUNICATION ANNEX (USAF) NORTH OF MOORE ROAD, ABOUT 5 AIR MILES WEST OF LINCOLN.

JUST EAST OF PALLADAY ROAD (KNOW ROAD), 1.1 ROAD MILES SOUTH OF ITS INTERSECTION WITH BASE LINE ROAD, ROSEVILLE.

UNDER TRANSMISSION LINE WEST OF EAST LEVEE ROAD AND 1 MILE NORTH OF ELKHORN BLVD, RIO LINDA.

ABOUT 0.6 AIR MILE SOUTH OF ELVERTA ROAD JUST WEST OF EAST LEVEE ROAD, WEST OF RIO LINDA.

ABOUT 800 FEET DUE SOUTH OF THE WEST END OF DELANO ROAD, BETWEEN RIO LINDA AND ELVERTA.

0.2 MILE SOUTH OF ELVERTA ROAD AND 0.6 MILE EAST OF 16TH STREET, RIO LINDA.

ABOUT 2.2 AIR MILES NORTHWEST OF DOWNTOWN LINCOLN, 1.2 ROAD MILES SOUTH OF WISE ROAD / HIGHWAY 65 INTERSECTION.

ABOUT 1 MILE SOUTHWEST OF CONFLUENCE OF KASEBERG CREEK AND PLEASANT GROVE CREEK, NORTHWEST OF ROSEVILLE.

NORTH SIDE OF PLEASANT GROVE CREEK, ABOUT 1.1 AIR MILES NORTHWEST OF R F FIDDYMENT RANCH.

JUST WEST OF THE INTERSECTION OF WOODCREEK OAKS BLVD AND JUNCTION BLVD, ROSEVILLE.

JUST WEST OF CONFLUENCE OF KASEBERG CREEK AND PLEASANT GROVE CREEK, NORTHWEST OF ROSEVILLE.

SOUTH OF PLEASANT GROVE BLVD, ABOUT 300 FT EAST OF COUNTY CLUB DRIVE, ROSEVILLE.

SOUTH SIDE OF PLEASANT GROVE CREEK, ABOUT 1 AIR MILE WNW OF R F FIDDYMENT RANCH.

NORTH OF PLEASANT GROVE CREEK, ABOUT 1.5 AIR MILES NORTHWEST OF R F FIDDYMENT RANCH.

SOUTHWEST SIDE OF ROSEVILLE PARKWAY, APPROXIMATELY 0.15 MILE NORTHWEST OF PLEASANT GROVE BLVD, ROSEVILLE.

ELVERTA CANAL, NORTH & EAST DRAINAGE CANAL & INTERSECTING CANALS, FROM SACRAMENTO/SUTTER COUNTY LINE S TO ELVERTA RD.

NORTH AND SOUTH OF CROSS CANAL (LATERAL 4), NORTH AND NE OF THE END OF POWERLINE RD, 1.9 MILES NE FROM SACRAMENTO RIVER.

VICINITY OF FISHERMANS LAKE & WEST DRAINAGE CANAL, ABOUT 1 MILE SW OF EL CENTRO RD & DEL PASO RD INTERSECTION.

DRAINAGE CANALS ABOUT 0.90 MILE WAY, POWERLINE RD, AND I-5, EAST OF SACRAMENTO INTERNATIONAL AIRPORT, NW OF NATOMAS.

ALONG TWO CANALS ABOUT 0.15 MI SSW OF SANKEY RD & POWERLINE RD, 1.2 MI N OF RIEGO RD, E OF SACRAMENTO RIVER.

ALONG NORTH DRAINAGE CANAL, EAST OF POWERLINE RD, SOUTH OF SANKEY RD & NORTH OF RIEGO RD.

~1.25 MI SSE OF ELVERTA RD & METRO RD INTERSECTION, 1.3 MI NW OF HWY 99 & ELKHORN BLVD INTERSECTION, NW OF SACRAMENTO.

0.5 MI S OF RIEGO RD, 0.2 MI W POWERLINE RD INTERSECTION AND 0.7 MI E OF RIEGO RD & GARDEN INTERSECTION.

MAIN CANAL JUST N OF CATLETT RD, 1.5 MI ESE OF WORTH RD & GARWOOD RD INTERSECTION, 1.7 MI WNW OF SR-99/70 AT CATLETT RD.

CANALS IN VICINITY OF ELKHORN BLVD, EAST OF HWY 99, WEST OF COMMERCE WAY, 3 MI EAST OF SACRAMENTO INTERNATIONAL AIRPORT.

PING SLOUGH, 0.5 MI N MARCUM RD, 1 MILE EAST OF NICOLAUS.

VICINITY OF EL CENTRO ROAD & DEL PASO ROAD INTERSECTION, ABOUT 0.4 MILE WEST OF I-5, NATOMAS, NORTH OF SACRAMENTO.

AMERICAN BASIN; 1.8 KM NNW OF THE INTERSECTION BETWEEN SANKEY ROAD AND EL CENTRO ROAD (HWY 70 AND 99).

0.5 MI N OF ELVERTA RD, ONE MI W OF POWERLINE RD, 1.5 MI NORTH OF SACRAMENTO METRO AIRPORT.

CREEK/MARSH 0.3 MI WEST OF POWERLINE ROAD AND 0.3 MI SOUTH OF ELVERTA ROAD, 1 MI NE OF SACRAMENTO METRO AIRPORT.

CANAL E OF POWERLINE RD, 0.9 MI S OF ELVERTA RD, 1 MI E OF SACRAMENTO AIRPORT.

AMERICAN BASIN; APPROX. 0.7 KM SE OF THE INTERSECTION BETWEEN ELVERTA ROAD AND POWERLINE ROAD.

BAYOU WAY, 0.5 MI SW OF HWY 99/I-5 INTERCHANGE, APPROXIMATELY 1 MI E OF POWERLINE RD, SACRAMENTO.

CANAL ON W SIDE OF EL CENTRO BLVD (HIGHWAY 70 & 99), 0.4 MI N OF SANKEY RD, NNW SACRAMENTO.

CANAL ON NORTHERN SIDE OF HOWSLEY RD, 0.8 MI E OF EL CENTRO BLVD (HIGHWAY 70 AND 99), WEST OF PLEASANT GROVE.

DRAINAGE CANAL; 0.9 KM S OF ELVERTA CANAL; 1.6 KM E OF EAST DRAINAGE CANAL.

AMERICAN BASIN; DRAINAGE CANAL 0.8 KM ESE OF I-5 JUNCTION WITH DEL PASO ROAD.

CANAL; 1.2 KM EAST OF THE CROSSING BETWEEN NORTH MAIN CANAL AND RIEGO ROAD.

SMALL DITCH INTERSECTING EAST DRAINAGE CANAL, 0.3 MI S OF DEL PASO RD, SACRAMENTO.

INTERSECTION OF SMALL E-W CANAL W/ EAST DRAINAGE CANAL, 1.5 MI S DEL PASO RD, SACRAMENTO.

ABOUT 0.8 MI NE ELVERTA RD AT POWER LINE RD, 1.4 MI WNW OF HWY 99 AT ELVERTA RD, NE OF SACRAMENTO INTERNATIONAL AIRPORT.

PRITCHARD LAKE, ABOUT 1.1 MILES NW OF POWER LINE RD & ELVERTA RD INTERSECTION, EAST OF GARDEN HIGHWAY, NW OF SACRAMENTO.

CANALS ALONG GARWOOD ROAD, EXTENDING NORTH OF WEST CATLETT ROAD FOR 0.7 MILE, 3.9 MILES NE OF VERONA.

ABOUT 1.3 MI ESE OF GARWOOD RD AT CATLETT RD, 2 MI WSW OF SR-99 AT CATLETT RD, N SIDE OF CROSS CANAL.

ALONG RIEGO RD ABOUT 0.3-0.7 MILES W OF HWY 99 AND DRAINAGE CANALS 0.9 MI WNW OF RIEGO RD & HWY 99 INTL AIRPORT.

BETWEEN METRO PKWY AND LONE TREE RD, ABOUT 0.7 MILE NE OF ELKHORN RD & METRO PKWY INTERSECTION, E OF SAC INTL AIRPORT.

VICINITY OF BARNEY MOUND, FROM ABOUT 0.7 MI NW TO 0.6 MI NE OF SANKEY RD AT POWERLINE RD, 2.4 MI E OF VERONA.

IRRIGATION CANALS NEAR JUNCTION OF POWERLINE RD & ELVERTA RD, ~1.6 MI E OF GARDEN HWY, NNE OF SACRAMENTO INTL AIRPORT.

ALONG MAIN CANAL ABOUT 2.3 MILES NNE OF GARDEN HWY & HOWSLEY RD INTERSECTION, W OF SR-99/70, N SIDE OF CROSS CANAL.

SMALL DRAINAGE CANALS N OF ELKHORN BLVD & WEST OF EAST DRAINAGE CANAL, NORTH OF SACRAMENTO.

JUST W OF THE NORTH DRAINAGE CANAL, N SIDE OF SANKEY RD, ~0.8 MI WNW OF JUNCTION W/ SR-99 & 0.9 MI ENE OF POWERLINE RD.

ALONG PORTIONS AND W OF NORTH DRAINAGE CANAL APPROXIMATELY, 1.16 MILES NW OF THE JUNCTION OF SANKEY RD & EL CENTRO BLVD POWERLINE RD, ABOUT 0.7 MI S OF RIEGO RD AND 1.7 MI N OF ELVERTA RD, E OF SACRAMENTO RIVER, NNW OF SACRAMENTO.

VICINITY OF NORTH DRAINAGE CANAL, 0.4 MI SE OF RIO VISTA DR AT RIO GRANDE DR, 0.8 MI SW OF POWERLINE RD AT RIEGO RD.

DRAINAGE CANAL EAST OF HWY 99 AND ABOUT 1 MILE SOUTH OF RIEGO RD.

ABOUT 1.2 MILES WSW OF SR-99/70 & CATLETT RD JUNCTION, E OF MAIN CANAL, N OF CROSS CANAL, AMERICAN BASIN.

CANALS ALONG LONE TREE RD, FROM ABOUT 0.5 MI E OF ELKHORN RD AND METRO PKWY INTERSECTION, JUST N OF I-5.

THE JUNCTION OF W ELVERTA RD & LONE TREE RD AND 0.25 MILE EAST AND 0.28 MILE SOUTH OF JUNCTION.

IRRIGATION DITCH S OF ELVERTA RD, ~1 MI SE OF INTERSECTION WITH ERNEST RD, 1.3 MILES SW OF INTERSECTION W/ LEVEE RD.

ABOUT 0.9 MI S OF ELVERTA RD AND METRO PKWY INTERSECTION, 1.8 MI NW OF HWY 99 AT ELKHORN RD, E OF SAC INTL AIRPORT.

IRRIGATION DITCH 1 MILE NE OF THE JUNCTION OF POWER LINE RD & DEL PASO RD, 1.1 MILES WSW OF I-5 AND HWY 99 INTERCHANGE.

ALONG DEL PASO RD, BTWN TRUXEL RD & E DRAINAGE CANAL, 1.9 MI SE OF HWY 99 & I-5 INTERCHANGE, NATOMAS, N OF SACRAMENTO.

5.9 MILES WSW OF PLEASANT GROVE; 0.4 MILE SE OF INTERSECTION OF WORTH ROAD AND GARWOOD ROAD.

LATERAL 15 CANAL, SOUTH OF STRIPLIN ROAD & ABOUT 1.1 MILES WNW OF HWY 70 - HWY 99 SPLIT.

DRAINAGE DITCH ABOUT 0.4 MI SOUTH OF WEST CATLETT ROAD AND 0.9 MI EAST OF VERNON ROAD.

ALONG SANKEY RD, ABOUT 0.1-0.6 MI W OF SR-99/70 INTERSECTION AND 1.6 MI E OF POWERLINE RD INTERSECTION N OF SACRAMENTO.

DRAINAGE CANAL JUST W OF HWY 99, ~0.9 MI NNW OF INTERSECTION W/ ELKHORN BLVD, 1.2 MI SSW OF ELVERTA RD INTERSECTION.

ALONG LONE TREE RD, ABOUT 1 MILE N OF INTERSECTION WITH ELVERTA RD, BETWEEN POWERLINE RD AND HWY 99, N OF SACRAMENTO.

ABOUT 0.8 MILE SW OF SR-99 & CATLETT RD JUNCTION, 0.9 MILE NW OF SR-99 & HOWSLEY RD JUNCTION, NE OF VERONA.

ALONG POWERLINE ROAD, 0.5 MI SOUTH OF THE SUTTER COUNTY LINE.

ALONG THE NORTH BANK OF THE CROSS CANAL, ABOUT 0.7 MI SW OF HWY 99, 1.4 MILES SOUTH OF CATLETT ROAD.

ABOUT 1.3 MI NNE OF HOWSLEY RD & POWERLINE RD INTERSECTION, 2 MI SW OF SR-99/70 & CATLETT RD INTERSECTION, NE OF VERONA.

NORTH DRAINAGE CANAL AT RIEGO RD, 0.7 MI E OF POWERLINE RD, NNW OF SACRAMENTO.

ELKHORN RD, 0.5 MILE WEST OF EAST LEVEE ROAD.

AT THE JUNCTION OF TWO DRAINAGE CANALS ABOUT 0.45 MI SOUTH OF RIEGO RD AND 0.4 MI WEST OF HWY 99.

DRAINAGE CANAL JUST WEST OF HWY 99 AND 0.5 MI NORTH OF RIEGO RD.

ALONG A ROAD ABOUT 0.5 MI SOUTH OF RIEGO ROAD AND ABOUT 1 MI EAST OF HWY 99.

0.67 MILE NORTH OF THE JUNCTION OF W ELVERTA RD & POWERLINE RD.

JUST NORTH OF THE CROSS CANAL (LATERAL 4), 0.72 MILE NE OF THE END OF POWERLINE RD, 2.6 MILES NE FROM SACRAMENTO RIVER.

DRAINAGE CANAL ABOUT 0.6 MILE WSW OF ELVERTA RD & E LEVEE RD INTERSECTION, EAST OF HWY 99, NW OF RIO LINDA.

AT THE INTERSECTION OF LEE RD AND POWERLINE ROAD, WEST OF HIGHWAY 99, 1.6 MILES SSE OF NICOLAUS.

ALONG E LEVEE RD, ABOUT 0.83 MILE N OF ELVERTA RD INTERSECTION, 1.7 MILES S OF RIEGO RD, NW OF RIO LINDA.

ABOUT 1 MILE W OF HOWSLEY RD AND SR-99/70 JUNCTION, 1.6 MI NNE OF HOWSLEY RD & POWERLINE RD JUNCTION, NE OF VERONA.

ABOUT 0.3 MI ENE OF WORTH RD AT GARWOOD RD, 1.4 MI SW OF POWERLINE RD AT STRIPLIN RD, N OF VERONA.

ABOUT 0.46 MI SOUTH OF WEST CATLETT ROAD AND 2.3 MILES WEST OF HWY 70 / 99.

APPROXIMATELY 0.76 MILES NORTH OF THE JUNCTION OF SANKEY RD & PACIFIC AVE.

DRAINAGE CANAL JUST NE OF THE INTERSECTION OF I-5 AND HWY 99, NW OF SACRAMENTO.

0.65 MI NORTH OF ELKHORN BLVD AND 0.3 MI EAST OF HWY 99, 3 MI EAST OF SACRAMENTO METROPOLITAN AIRPORT.

0.65 MI NNW OF ELKHORN BLVD AND 1 MI EAST OF HWY 99, 3.7 MI EAST OF SACRAMENTO METROPOLITAN AIRPORT.

EAST DRAINAGE CANAL, BETWEEN DEL PASO BLVD AND ELKHORN BLVD, 5 MI EAST OF SACRAMENTO INTERNATIONAL AIRPORT.

0.6 MILE ESE OF THE LINCOLN RODEO GROUNDS, EAST OF HIGHWAY 65, SOUTH OF LINCOLN.



[illegible]

DRY CREEK, 0.5 MILE SOUTH OF THE JUNCTION OF WEST 2ND STREET AND ASCOT AVENUE, RIO LINDA.  
 NORTH SIDE OF ROBLA CREEK, DIRECTLY NORTH OF KELTON WAY, RIO LINDA.  
 ALONG ROBLA CREEK, JUST EAST OF THE WPRR TRACKS, RIO LINDA.  
 SMALL DRAINAGE CANAL CROSSING ELVERTA RD, APPROXIMATELY 600 M WEST OF POWERLINE RD, JUST N OF SACRAMENTO METRO AIRPORT.  
 DRY CREEK, 0.5 MILE SOUTH OF THE JUNCTION OF WEST 2ND STREET AND ASCOT AVENUE, RIO LINDA.  
 NORTH SIDE OF ROBLA CREEK, DIRECTLY NORTH OF KELTON WAY, RIO LINDA.  
 SACRAMENTO RIVER, JUST SOUTH OF SACRAMENTO SLOUGH.  
 APPROXIMATELY 4 MILES NE OF ROSEVILLE.  
 FLOODPLAIN OF PLEASANT GROVE CREEK, APPROX 2.2 AIR MILES E OF JCT PLACER BLVD & SPRR TRACKS.  
 N TRIBUTARY OF PLEASANT GROVE CREEK, N OF PLEASANT GROVE CREEK, S OF PLACER BLVD, E OF HWY 65.  
 NORTH SIDE OF ORCHARD CREEK, 1.4 MILES NW OF INTERSECTION OF INDUSTRIAL AND ATHENS AVE, 3 MILES SOUTHWEST OF LINCOLN.  
 EAST OF ROSE STREET & SOUTH OF MAGPIE DRAIN, ROBLA, JUST NORTH OF SACRAMENTO.  
 SOUTH OF ELVERTA ROAD AND 0.5 MILE SOUTHWEST OF GIBSON RANCH, RIO LINDA.  
 SW SIDE OF THE CITY OF LINCOLN; WEST OF THE JUNCTION OF EAGLEFIELD LANE AND REDCLIFFE LANE.  
 NORTH OF DRY CREEK, SOUTH OF ASCOT AVE, JUST EAST OF WESTERN PACIFIC RR TRACKS, SACRAMENTO.  
 SOUTH OF LINCOLN 2-3 MILES WEST OF HWY 65.  
 WEST OF MCCLELLAN AIR FORCE BASE BETWEEN MAGPIE CREEK & ASCOT AVE, NORTH OF SACRAMENTO.  
 BOTH SIDES DOUGLAS BLVD <1 MILE WEST OF JUNCTION WITH SIERRA COLLEGE BLVD, ROSEVILLE.  
 JUST NORTH & EAST OF DIAMOND OAKS MUNICIPAL GOLF COURSE, ROSEVILLE, SOUTH BRANCH PLEASANT GROVE CREEK.  
 BETWEEN ELVERTA ROAD & U STREET, EAST OF 16TH STREET, WEST OF DRY CREEK, NE OF RIO LINDA.  
 LINCOLN NORTH VERNAL POOLS. WEST OF HWY 65 AT NORTHERN CITY LIMITS (1 MILE NORTH OF LINCOLN.  
 ADJACENT TO SOUTH BRANCH (PLEASANT GROVE CREEK) ABOUT 1 MILE SW OF FIDDYMENT RANCH, ROSEVILLE.  
 BETWEEN DOUGLAS BLVD & MINERS Ravine JUST EAST OF ROSEVILLE.  
 WEST OF ANTELOPE CREEK ON HILL EAST OF DIAMOND OAKS MUNICIPAL GOLF COURSE. ROCKLIN-ROSEVILLE BOUNDARY.  
 RIDGE BETWEEN MINERS Ravine & SECRET Ravine, VICINITY OF ROCKLIN-ROSEVILLE CORPORATE BOUNDARIES.  
 NORTH & WEST OF ROSEVILLE RESERVOIR, SE OF SECRET Ravine, ROCKLIN-ROCKLIN CORPORATE BOUNDARY.  
 LESS THAN 1 MILE NORTH OF DIAMOND OAKS MUNICIPAL GOLF COURSE, EAST OF HIGHWAY 65, ROCKLIN.  
 N DOWD RD BRIDGE OVER COON CREEK; 0.6 MI NW OF HWY 65 AT W WISE RD & 1.5 MI SW OF OLD HWY 65 AT NADER RD, NW OF LINCOLN.  
 NORTHERN LIMITS OF LINCOLN, PLACER COUNTY.  
 JUST NORTH OF ARCADE CREEK, WHERE I-80 CROSSES ROSEVILLE ROAD, SACRAMENTO.  
 HIGHWAY 65 OVERPASS OVER TAYLOR ROAD, ON THE SOUTH EDGE OF ROCKLIN.  
 MARCONI AVENUE OVERPASS OF AUBURN BOULEVARD & UNION PACIFIC & SACRAMENTO LIGHT RAIL TRACKS, SACRAMENTO.  
 EL CAMINO OVERPASS OF UNION PACIFIC AND LIGHT RAIL TRACKS, SACRAMENTO.  
 APPROX 0.5 MI N OF SCOW RD INDUSTRIAL BLVD, ROSEVILLE.  
 TWELVE BRIDGES PRESERVE, SOUTH OF LINCOLN.  
 SACRAMENTO RIVER FROM MISSOURI BEND N OF KNIGHTS LANDING TO S OF COURTLAND. ALSO, LOWER 10 MILES OF THE FEATHER RIVER.  
 IN UNNAMED STREAM NORTH OF U ST BETWEEN 28TH ST AND THE OLD SEWAGE DISPOSAL SITE, NORTH HIGHLANDS.  
 CITRUS HEIGHTS; ALONG CREEK JUST EAST OF FAIR OAKS BLVD BETWEEN OAK BLVD AND OLD AUBURN ROAD.  
 ARCADE CREEK AND SHALLOW DITCH TO THE SOUTHEAST, JUST EAST OF THE NATOMAS EAST MAIN DRAINAGE CANAL, SACRAMENTO.  
 EAST SIDE OF ROSEVILLE ROAD ABOUT 0.9 MILE FROM ANTELOPE ROAD, ANTELOPE.  
 ROSEVILLE ROAD AT WHYTE AVE, JUST SOUTH OF SAC/PLA COUNTY LINE, ANTELOPE.  
 HANSEN RANCH; SOUTH OF ASCOT AVE, EAST OF STEELHEAD CREEK & NORTH OF DRY CREEK, SOUTH OF RIO LINDA.  
 SMALL DRAINAGE CANAL CROSSING ELVERTA RD, APPROXIMATELY 600 M WEST OF POWERLINE RD, JUST N OF SACRAMENTO METRO AIRPORT.  
 SACRAMENTO.  
 LOWER-MIDDLE SACRAMENTO RIVER, FROM SHERWOOD HARBOR (RM 55) TO COLUSA (RM 144).  
 LOWER FEATHER RIVER, FROM RMO AT VERONA TO THE FISH BARRIER DAM AT FEATHER RIVER HATCHERY (FRH) AT RM67.  
 DRY CREEK AND ITS TRIBUTARIES SECRET Ravine AND MINERS Ravine.  
 AUBURN Ravine UPSTREAM TO GOLD HILL DAM (=LOWER AUBURN Ravine 1 DIVERSION DAM).  
 E OF ROSE ST, N OF ROOD RD. ABOUT 0.25 MI N OF ROBLA SCHOOL.  
 SW CORNER OF DRY CREEK ROAD AND ROOD ROAD. ABOUT 1.6 MI S OF RIO LINDA.  
 W SIDE OF NORTH ANTELOPE RD, 28 YARDS N OF PLACER/SACRAMENTO COUNTY LINE.  
 CARMICHAEL; AT NE CORNER OF WINDING WAY AND HACKBERRY STREET.  
 ALONG THE SACRAMENTO RIVER FROM RM76.1 TO 78.3, FROM SANKEY RD TO 0.5 MI SOUTH OF RIEGO RD, SOUTH OF JOES LANDING.  
 SACRAMENTO RIVER, FROM R74.8 TO RM75.6, ABOUT 0.75 MI N OF ELVERTA ROAD AT GARDEN HWY, NW OF SACRAMENTO.  
 NORTH OF DRY CREEK, ON EITHER SIDE OF DYER LN ABOUT 0.2 MILE WEST OF ITS JUNCTION WITH WATT AVENUE, NW OF ANTELOPE.  
 ALONG GARWOOD ROAD, BETWEEN GARDEN HIGHWAY AND LEE ROAD, SW OF NICOLAUS.  
 ALONG BOTH SIDES OF THE SACRAMENTO RIVER RM74, AT THE GARDEN HWY/ELVERTA RD JUNCTION, NW OF THE SACRAMENTO INTL AIRPORT.  
 ALONG THE SACRAMENTO RIVER AT JOES LANDING (RM79), ABOUT 1 MILE ESE OF VERONA.  
 E SIDE OF LOCUST RD, ABOUT 0.4 MI S OF SANKEY RD JUNCTION & 1.5 MI NW OF BREWER RD AT BASELINE RD; N OF RIO LINDA.  
 SACRAMENTO RIVER, RM-79.70(L), AT VERONA.  
 E SIDE OF VERONA (NATOMAS) CROSS CANAL, ABOUT 0.25-0.5 MI NNW OF HOWSLEY RD AT PACIFIC AVE, 2.25 MI W OF PLEASANT GROVE.  
 ALONG THE VERONA (NATOMAS) CROSS CANAL, 0.25-0.6 MILES NE OF HWY 99 AT HOWSLEY RD, NW OF SACRAMENTO.  
 ABOUT 0.25-0.5 MI N OF THE HWY 70/HWY 99 SPLIT, ON EITHER SIDE OF HWY 99; 3.6 MILES SSE OF NICOLAUS.  
 ALONG LEE ROAD, ABOUT 0.5 MILE ESE OF THE GARDEN HIGHWAY JUNCTION, 2 MILES SW OF NICOLAUS.  
 BETWEEN I-5 AND SOUTH BAYOU WAY, 0.9 MILE EAST OF POWERLINE ROAD, SE OF SACRAMENTO METROPOLITAN AIRPORT.  
 ALONG FARM ROAD ABOUT 0.6 MILE NW OF LEE RD AT POWER LINE ROAD AND 1.5 MILES SOUTH OF NICOLAUS.  
 ALONG WEST CATLETT ROAD JUST WEST OF HIGHWAY 99, ABOUT 4.8 MILES SSE OF NICOLAUS.  
 FARMSTEAD ON WEST SIDE OF POWER LINE RD, ABOUT 0.4 MILE S OF LEE RD JUNCTION AND 1.1 MILES NW OF HWY 99 AT STRIPLIN RD.  
 ABOUT 0.25 MI SW OF W ELKHORN BLVD AT LONE TREE RD, 1 MILE EAST OF THE SACRAMENTO INTERNATIONAL AIRPORT.  
 NORTH END OF FISHERMANS LAKE, WHERE IT INTERSECTS DEL PASO ROAD, 1 MILE WEST OF EL CENTRO ROAD, NORTH OF SACRAMENTO.  
 NE OF THE INTERSECTION OF I-5 AND POWERLINE ROAD, NORTH OF SACRAMENTO.  
 NORTH SIDE OF DEL PASO ROAD, 0.6 MILE EAST OF I-5, SACRAMENTO.  
 NORTH SIDE OF SAN JUAN ROAD, JUST EAST OF THE NORTHBEND I-5 ONRAMP, NORTH NATOMAS AREA OF SACRAMENTO.  
 N SIDE OF DYER LN, ABOUT 0.25 MI ENE OF TAN WOODS RD JUNCTION & 1.75 MI NNW OF WATT AVE AT ELVERTA RD, NW OF ANTELOPE.  
 VERONA CROSS CANAL, 1.5 MILES SW OF THE INTERSECTION OF HOWSLEY ROAD AND HIGHWAY 99, NW OF SACRAMENTO.  
 ALONG CURRY CREEK, JUST EAST OF S BREWER RD; ABOUT 2 MILES NORTH OF BASELINE RD AT BREWER RD, WEST OF ROSEVILLE.  
 SOUTH SIDE OF WEST CATLETT ROAD, ALONG THE EAST SIDE CANAL LEVEE, 5 MILES SE OF NICOLAUS.  
 ALONG COON CREEK, ABOUT 0.1 MILE SE OF WARREN RD AT NICOLAUS AVE AND 1 MILE ESE OF TROWBRIDGE.  
 ALONG W WISE RD ABOUT 0.8 MI W OF DOWD RD INTERSECTION & 1.6 MI SE OF WHEATLAND RD AT WALTZ RD; SOUTH OF COON CREEK.  
 NORTH SIDE OF PLEASANT GROVE CREEK, JUST S OF STARWOOD CT AT TRADEWINDS DR IN BLUE OAKS DEVELOPMENT NW OF ROSEVILLE.  
 ALONG SLING SLOUGH ABOUT 0.5 MILE SSE OF S BREWER RD AT E CATLETT RD AND 2 MILES NE OF PLEASANT GROVE.  
 S SIDE OF HOWSLEY RD, IN PLEASANT GROVE; ABOUT 2.1 MI SW OF E CATLETT RD AT S BREWER RD.  
 S SIDE OF FIELD RD AND PLEASANT GROVE CREEK, ABOUT 0.4 MI W OF PLEASANT GROVE RD JUNCTION & 1.5 MI E OF NATOMAS RD.  
 NORTH SIDE OF SANKEY RD, ABOUT 0.1 MI NE OF NATOMAS RD INTERSECTION AND 0.6 MI WNW OF PLEASANT GROVE RD INTERSECTION.  
 IN MEDIAN ISLAND AT HWY 99/70 SPLIT, ABOUT 1.1 MI WNW OF CATLETT RD AT PACIFIC AVE AND 3.8 MI NW OF PLEASANT GROVE.  
 EAST OF COON CREEK, ABOUT 0.5 MILE SSW OF POWER LINE RD AT STRIPLIN RD AND 3 MILES S OF NICOLAUS.  
 WEST SIDE OF GARWOOD ROAD JUST SW OF JUNCTION WITH PEACOCK LANE, ABOUT 2.2 MI SW OF NICOLAUS.  
 SOUTH OF LOCUST ROAD, 0.2 MILE SOUTH OF THE INTERSECTION OF BROWNING STREET AND LOCUST ROAD, 2 MILES NORTH OF ELVERTA.  
 ALONG THE SOUTH SIDE OF COON CREEK, 0.2 MILE WEST OF HIGHWAY 70, 2 MILES SE OF NICOLAUS.  
 EAST EDGE OF AMERICAN BASIN, 1.1 MILES SW OF THE INTERSECTION OF ELKHORN BOULEVARD & WEST 6TH STREET, WEST OF RIO LINDA.  
 ALONG THE NORTH SIDE OF FIELD ROAD, ABOUT 0.1 MILE WEST OF NATOMAS ROAD AND 10 MILES NW OF SACRAMENTO.  
 0.15 MILE NW OF THE INTERSECTION OF JOINER PARKWAY WITH NICOLAUS ROAD, NW LINCOLN.  
 WEST SIDE OF PLEASANT GROVE RD, ABOUT 0.25 MILE SOUTH OF W RIEGO RD & 1 MILE NORTH OF RIO LINDA BLVD, NW OF RIO LINDA.  
 0.5 MILE NORTH OF THE CONFLUENCE OF THE FEATHER RIVER AND THE SACRAMENTO RIVER.  
 WEST SIDE OF POWER LINE ROAD, ABOUT 0.1 MILE S OF THE HWY 99 (LAUREL AVE) INTERSECTION, 1.4 MILES SSE OF NICOLAUS.  
 WEST SIDE OF HIGHWAY 99, 0.5 MILE NW OF THE INTERSECTION OF HIGHWAY 99 AND POWERLINE ROAD, 0.9 MILE SOUTH OF NICOLAUS.  
 NICOLAUS CEMETERY, ON THE NORTH SIDE OF MARCUM ROAD, JUST SE OF NICOLAUS.  
 WEST SIDE OF COUNTRY ACRES LANE, 0.4 MILE NORTH OF BASELINE (RIEGO) ROAD, 5 MILES WEST OF ROSEVILLE.

### CNDDDB 10 Miles

**December 2021**  
**SNAME**

NAME	CNAME	SRANK	RPLANTRANK	CDWFSTATUS	OTHRSTATUS	LOCATION
Buteo swainsoni	Swainson's hawk	S3			BLM_S; IUCN_LC; USFWS_BCC	N SIDE OF CURRY CREEK, ABOUT 0.4 MI E OF S BREWER RD CROSSING & 2.1 MI NNE OF BASELINE RD AT BREWER RD, W OF ROSEVILLE.
Buteo swainsoni	Swainson's hawk	S3			BLM_S; IUCN_LC; USFWS_BCC	0.25 MILE NE OF THE INTERSECTION OF WATTS AVENUE AND HIGHWAY 70, JUST NORTH OF EAST NICOLAUS.
Buteo swainsoni	Swainson's hawk	S3			BLM_S; IUCN_LC; USFWS_BCC	0.2 MILE SOUTH OF MOORE ROAD AND 0.4 MILE EAST OF SOUTH DOWD AVENUE, AUBURN RAVINE, SW OF LINCOLN.
Buteo swainsoni	Swainson's hawk	S3			BLM_S; IUCN_LC; USFWS_BCC	VERONA CROSS CANAL, 0.2 MILE NW OF THE END OF POWERLINE ROAD, 2 MILES NE OF JOES LANDING ALONG THE SACRAMENTO RIVER.
Buteo swainsoni	Swainson's hawk	S3			BLM_S; IUCN_LC; USFWS_BCC	KASEBERG CREEK, 0.75 MILE E OF FIDDYMENT ROAD AND 0.25 MILE N OF PLEASANT GROVE BOULEVARD, E SIDE OF ROSEVILLE.
Buteo swainsoni	Swainson's hawk	S3			BLM_S; IUCN_LC; USFWS_BCC	ALONG DRY CREEK, APPROXIMATELY 300' EAST OF THE NATOMAS EAST MAIN DRAINAGE CANAL, RIO LINDA.
Buteo swainsoni	Swainson's hawk	S3			BLM_S; IUCN_LC; USFWS_BCC	ALONG DRY CREEK, BETWEEN RIO LINDA/MARYSVILLE BOULEVARD AND NATOMAS EAST MAIN DRAINAGE CANAL, IN RIO LINDA.
Buteo swainsoni	Swainson's hawk	S3			BLM_S; IUCN_LC; USFWS_BCC	ALONG DRY CREEK SOUTH, JUST EAST OF RIO LINDA/MARYSVILLE BOULEVARD, RIO LINDA.
Buteo swainsoni	Swainson's hawk	S3			BLM_S; IUCN_LC; USFWS_BCC	ALONG NW SIDE OF DRY CREEK SOUTH, JUST WEST OF THE RIO LINDA AIRPORT, RIO LINDA.
Buteo swainsoni	Swainson's hawk	S3			BLM_S; IUCN_LC; USFWS_BCC	JUST SOUTH OF THE HIGHWAY 99 BRIDGE OVER THE FEATHER RIVER, 0.85 MILE SOUTH OF NICOLAUS.
Buteo swainsoni	Swainson's hawk	S3			BLM_S; IUCN_LC; USFWS_BCC	ALONG PLEASANT GROVE CREEK, BETWEEN FIDDYMENT ROAD AND BLUE OAKS BOULEVARD, WEST SIDE OF ROSEVILLE.
Buteo swainsoni	Swainson's hawk	S3			BLM_S; IUCN_LC; USFWS_BCC	VERONA CROSS CANAL, 1.1 MILES SW OF THE HOWSLEY ROAD JUNCTION WITH HIGHWAY 99, NW OF SACRAMENTO.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	VICINITY OF VERONA, 5.5 MILES ESE OF KNIGHTS LANDING POST OFFICE.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	POTHOLE, SW OF VERONA.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	VICINITY OF LINCOLN.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	1.7 MI NE OF THE INTERSECTION OF I-5 & HWY 99, 6 MI NORTH OF SACRAMENTO.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	GENERAL AREA BETWEEN DRY CREEK RD AND PATROL ROAD, S OF ASCOT AVE, W OF MCCLELLAN AIR FORCE BASE, SE OF RIO LINDA.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	JUST WEST OF EAST LEVEE ROAD (NATOMAS DRAIN LEVEE ROAD), 0.2 MILE SOUTH OF THE SACRAMENTO COUNTY LINE, RIO LINDA.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	ABOUT 1 MILE NNW OF RIEGO RD & POWER LINE RD INTERSECTION, 2.1 MI WSW OF HWY 99 & SANKEY RD INTERSECTION, JOES LANDING.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	ON N SIDE OF TWELVE BRIDGES DR, ABOUT 2.7 MI E OF INTERSECTION WITH HWY 65, S OF LINCOLN.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	MARKHAM RAVINE, S SIDE OF MARCUM RD, 0.8 MI SW OF BREWER RD INTNX, 1.3 MI ESE OF PLEASANT GROVE RD INTNX, W OF LINCOLN.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	AROUND THE CONFLUENCE OF INGRAM SLOUGH & ORCHARD CREEK, ABOUT 1.0 MI NE OF FIDDYMENT RD AT E CATLETT RD, SW OF LINCOLN.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	ABOUT 0.7 MI N OF HWY 65 AT TWELVE BRIDGES DR, 0.9 MI S OF HWY 65 AT JOINER PKWY, S OF LINCOLN.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	ABOUT 0.5 MI S OF BREWER RD & NICOLAUS RD INTERSECTION, 1.4 MI N OF BREWER RD & MOORE RD INTERSECTION, W OF LINCOLN.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	ABOUT 0.7 MI SW OF CRITTER CREEK RD & NICOLAUS RD INTERSECTION, 0.8 MI SE OF NICOLAUS RD AT BREWER RD, W OF LINCOLN.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	ABOUT 1 MI ESE OF SUNSET BLVD AT PETTIGREW RD, 1 MI WSW OF SUNSET BLVD AT AMORUSO WAY, W OF LINCOLN.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	ABOUT 1 MILE SE OF HWY 65 & WISE RD INTERSECTION, 1.8 MI NW OF HWY 65 & GLADDING RD INTERSECTION, NW OF LINCOLN.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	ABOUT 0.4 MI ESE OF HWY 65 & WISE RD INTERSECTION, 2 MI E OF GLADDING RD & WISE RD INTERSECTION, NW OF LINCOLN.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	"0.2 MI WSW OF BRENTFORD CIR & FOREBRIDGE LN, 0.8 MI NW OF TWELVE BRIDGES DR & INDUSTRIAL AVE INTERSECTION, LINCOLN.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	ABOUT 0.2 MI S OF TWELVE BRIDGES DR & INDUSTRIAL AVE INTERSECTION, 0.6 MI N OF ATHENS RD AT INDUSTRIAL AVE, LINCOLN.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	ABOUT 0.3 MI SSW OF JOINER PKWY & DEL WEBB BLVD INTERSECTION, 0.6 MI SSE OF HWY 65 & JOINER PKWY INTERSECTION, LINCOLN.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	ABOUT 0.2 MI NNW OF HWY 65 & TWELVE BRIDGES DR INTERSECTION, 0.3 MI NE OF TWELVE BRIDGES DR AT INDUSTRIAL AVE, LINCOLN.
Agelaius tricolor	tricolored blackbird	S1S2		SSC	BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	ABOUT 0.3 MI S OF MOORE RD AT PHEASANT WAY, 0.7 MI WSW OF FERRARI RANCH RD AT HWY 65 BYPASS, LINCOLN.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	S3			BLM_S; IUCN_EN; NABCI_RWL; USFWS_BCC	VICINITY OF BOARDMAN CANAL, BETWEEN I-80 AND SIERRA COLLEGE BLVD, N OF SECRET RAVINE PKWY, 1 MILE SE OF ROCKLIN PO.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	S3				VICINITY OF SACRAMENTO RIVER & FEATHER RIVER CONFLUENCE, ABOUT 0.5 MILE S OF VERONA, 0.8 MILE W OF JOE'S LANDING.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	S3				ALONG ROAD 16 ABOUT 0.2 MI W OF JUNCTION W/ COUNTY RD 117, 2.4 MI N OF ELVERTA RD & GARDEN HWY JCT, NW OF SACRAMENTO.
Branchinecta lynchi	vernal pool fairy shrimp	S3			IUCN_VU	VICINITY OF FIDDYMENT RD, FROM PLEASANT GROVE BLVD TO ABOUT

CNDDDB 10 Miles

December 2021 SNAME	CNAME	SRANK	RPLANTRANK	CDFWSTATUS	OTHRSTATUS
Branchinecta lynchi	vernal pool fairy shrimp	S3			IUCN_VU
Branchinecta lynchi	vernal pool fairy shrimp	S3			IUCN_VU
Branchinecta lynchi	vernal pool fairy shrimp	S3			IUCN_VU
Branchinecta lynchi	vernal pool fairy shrimp	S3			IUCN_VU
Branchinecta lynchi	vernal pool fairy shrimp	S3			IUCN_VU
Branchinecta lynchi	vernal pool fairy shrimp	S3			IUCN_VU
Lepidurus packardii	vernal pool tadpole shrimp	S3S4			IUCN_EN
Lepidurus packardii	vernal pool tadpole shrimp	S3S4			IUCN_EN
Lepidurus packardii	vernal pool tadpole shrimp	S3S4			IUCN_EN
Lepidurus packardii	vernal pool tadpole shrimp	S3S4			IUCN_EN
Lepidurus packardii	vernal pool tadpole shrimp	S3S4			IUCN_EN
Lepidurus packardii	vernal pool tadpole shrimp	S3S4			IUCN_EN
Lepidurus packardii	vernal pool tadpole shrimp	S3S4			IUCN_EN
Lepidurus packardii	vernal pool tadpole shrimp	S3S4			IUCN_EN
Lepidurus packardii	vernal pool tadpole shrimp	S3S4			IUCN_EN
Emys marmorata	western pond turtle	S3		SSC	BLM_S; IUCN_VU; USFS_S
Gonidea angulata	western ridged mussel	S1S2			
Spea hammondi	western spadefoot	S3		SSC	BLM_S; IUCN_NT
Spea hammondi	western spadefoot	S3		SSC	BLM_S; IUCN_NT
Spea hammondi	western spadefoot	S3		SSC	BLM_S; IUCN_NT
Spea hammondi	western spadefoot	S3		SSC	BLM_S; IUCN_NT
Spea hammondi	western spadefoot	S3		SSC	BLM_S; IUCN_NT
Spea hammondi	western spadefoot	S3		SSC	BLM_S; IUCN_NT
Spea hammondi	western spadefoot	S3		SSC	BLM_S; IUCN_NT
Spea hammondi	western spadefoot	S3		SSC	BLM_S; IUCN_NT
Spea hammondi	western spadefoot	S3		SSC	BLM_S; IUCN_NT
Spea hammondi	western spadefoot	S3		SSC	BLM_S; IUCN_NT
Spea hammondi	western spadefoot	S3		SSC	BLM_S; IUCN_NT
Coccyzus americanus occidentalis	western yellow-billed cuckoo	S1			BLM_S; NABCI_RWL; USFS_S; USFWS_BCC
Elanus leucurus	white-tailed kite	S3S4		FP	BLM_S; IUCN_LC
Elanus leucurus	white-tailed kite	S3S4		FP	BLM_S; IUCN_LC
Elanus leucurus	white-tailed kite	S3S4		FP	BLM_S; IUCN_LC
Elanus leucurus	white-tailed kite	S3S4		FP	BLM_S; IUCN_LC
Elanus leucurus	white-tailed kite	S3S4		FP	BLM_S; IUCN_LC
Elanus leucurus	white-tailed kite	S3S4		FP	BLM_S; IUCN_LC
Elanus leucurus	white-tailed kite	S3S4		FP	BLM_S; IUCN_LC
Elanus leucurus	white-tailed kite	S3S4		FP	BLM_S; IUCN_LC
Elanus leucurus	white-tailed kite	S3S4		FP	BLM_S; IUCN_LC
Elanus leucurus	white-tailed kite	S3S4		FP	BLM_S; IUCN_LC
Hibiscus lasiocarpus var. occidentalis	woolly rose-mallow	S3	18.2		SB_CalBG/RSABG; SB_UCBG

**LOCATION**

ALONG UNION PACIFIC RAILROAD (USED TO BE WESTERN PACIFIC RR?); 0.2 MILE SOUTH OF ELKHORN BLVD, RIO LINDA.

APPROX. 1500 FEET NORTHEAST OF NATOMAS EAST MAIN DRAINAGE CANAL AT DRY CREEK; 700 FEET SE OF ASCOT AVE AT WEST 6TH ST.

2.1 KM SOUTHWEST OF LINCOLN IN INGRAM SLOUGH, 1.5 KM WSW OF INTERSECTION OF MOORE ROAD AND HIGHWAY 65.

NNW OF ROSEVILLE IN INGRAM SLOUGH; 0.4 KM WEST OF INTERSECTION OF HIGHWAY 65 AND INDUSTRIAL BLVD.

2 MILES SE OF THE LINCOLN RODEO GROUNDS, ABOUT 3 MILES SSE OF LINCOLN.

0.6 MILES ENE OF BREWER RD AT SUNSET BLVD, PLEASANT GROVE, NW OF ROSEVILLE.

SOUTHWEST OF THE INTERSECTION OF PLEASANT GROVE ROAD AND HOWSLEY ROAD.

SOUTHWEST OF THE INTERSECTION OF PLEASANT GROVE ROAD AND SANKEY ROAD.

WEST OF MCCLELLAN AIR FORCE BASE BETWEEN MAGPIE CREEK & ASCOT AVE, DEL PASO, NORTH OF SACRAMENTO.

BETWEEN MARKHAM AND AUBURN RAVINES, FROM ABOUT 0.1 TO 0.9 MILE S OF WILLIAM LN AND 0.5 TO 0.9 MILE W OF S DOWD RD.

BETWEEN KASEBERG CREEK & SOUTH BRANCH PLEASANT GROVE CREEK; ABOUT 0.6 MILE SW OF FOOTHILLS BLVD AT PLEASANT GROVE BLVD.

ALONG INDUSTRIAL AVE (=LINCOLN BLVD), ABOUT 0.3 MILE SSW OF THE LINCOLN BYPASS (=HWY 65) OVERPASS, SSW OF LINCOLN.

1.7 KM S OF HWY 70 AT MARCUM ROAD, ON W SIDE OF HIGHWAY AND E OF OLD RAILROAD GRADE; 45 FT W OF HWY SHOULDER.

IMMEDIATELY N OF MARCUM ROAD INTERSECTION WITH STATE ROUTE 70. BETWEEN HWY 70 AND ABANDONED RR GRADE W OF HWY 70.

MCCLELLAN AFB. DON JULIO CREEK ABOUT 1.4 KM NE OF THE INTERSECTION OF MAIN AVE & RALEY BLVD.

SACRAMENTO.

NEAR THE INTERSECTION OF WOODCREEK OAKS BLVD AND PLEASANT GROVE BLVD, WOODCREEK OAKS SUBDIVISION IN WESTERN ROSEVILLE.

ALONG MOORE ROAD, BETWEEN 1.2 AND 0.5 MILES WEST OF S DOWD ROAD, WEST OF LINCOLN.

ON SOUTH SIDE OF EAST CATLETT ROAD, JUST WEST OF FIDDYMENT ROAD, SW OF LINCOLN.

ON SOUTH SIDE OF MOORE RD, ABOUT 0.5 MILE EAST OF ITS INTERSECTION WITH S DOWD RD, WEST OF LINCOLN.

ALONG EAST CATLETT ROAD NEAR ITS INTERSECTION WITH AITKEN ROAD, SW OF LINCOLN.

UNNAMED TRIBUTARY TO PLEASANT GROVE CREEK VICINITY OF BOBDOYLE DR AT HAYDEN PKWY, WESTPARK NEIGHBORHOOD OF ROSEVILLE.

POOLS ADJACENT TO RAILROAD TRACKS NEAR TAYLOR ROAD, 0.4 MILE SOUTH OF SEWAGE DISPOSAL PONDS, ROSEVILLE.

N DOWD RD, 1.1 MILES NORTH OF ITS INTERSECTION WITH NICOLAUS RD, WEST OF LINCOLN.

S DOWD RD, JUST NORTH OF ITS INTERSECTION WITH MOORE RD, WEST OF LINCOLN.

EAST CATLETT ROAD, 0.7 MILE WEST OF ITS INTERESCTION WITH FIDDYMENT ROAD, SWOF LINCOLN

TRIBUTARY TO KASEBERG CREEK, 1.3 MILES NE OF JCT BASE LINE & FIDDYMENT ROADS, ROSEVILLE.

BEND IN PHILLUP ROAD, 1.5 MILE W OF JCT WITH FIDDYMENT ROAD, 0.3 MILE WEST WHERE ROAD PARALLELS PLEASANT GROVE CREEK.

SACRAMENTO.

ALONG DON JULIO CREEK, ABOUT 1.4 KM NE OF THE INTERSECTION OF MAIN AVENUE AND RALEY BOULEVARD, MCCLELLAN AIR FORCE BASE.

JUST WEST OF WHERE THE SACRAMENTO NORTH BIKE TRAIL CROSSES DRY CREEK SOUTH, RIO LINDA.

JUST SE OF THE DRY CREEK CONVERGENCE WITH NEMDC, DEL PASO.

ALONG ROBLA CREEK, JUST UPSTREAM OF THE MAGPIE CREEK DIVERSION CHANNEL CONFLUENCE, SW OF RIO LINDA AIRPORT.

NE OF THE INTERSECTION OF SOTNIP AND TUNIS, JUST WEST OF NEMDC, DEL PASO.

JUST SOUTH OF WHERE DRY CREEK CONVERGES WITH NEMDC, BETWEEN NEMDC AND THE WESTERN PACIFIC RAILROAD TRACKS, DEL PASO.

0.2 MILE EAST OF DRY CREEK ROAD, BETWEEN E STREET AND ROBLA CREEK, RIO LINDA.

JUST NE OF WHERE ROBLA CREEK CONVERGES WITH THE NEMDC, BETWEEN NEMDC AND THE WESTERN PACIFIC RAILROAD TRACKS, DEL PASO.

ON THE WEST SIDE OF THE SOUTH BRANCH OF PLEASANT GROVE CREEK, BETWEEN FOOTHILLS BLVD AND WOODCREEK OAKS BLVD, ROSEVILLE.

WOODBIDGE PARK, EAST SIDE OF LINDA CREEK, 0.5 MILE SOUTH OF OLD AUBURN ROAD, ORANGEVALE.

WEST SIDE OF EAST SIDE CANAL, ON EAST SIDE OF PACIFIC AVE, 0.5-1.0 MILE NORTH OF CATLETT RD.





































CNDDDB 10 Miles  
December 2021  
SNAME  
Branchinecta lynchi  
Branchinecta lynchi  
Branchinecta lynchi  
Branchinecta lynchi  
Branchinecta lynchi  
Branchinecta lynchi  
Branchinecta lynchi  
Lepidurus packardii  
Lepidurus packardii  
Lepidurus packardii  
Lepidurus packardii  
Lepidurus packardii  
Lepidurus packardii  
Lepidurus packardii  
Lepidurus packardii  
Emys marmorata  
Gonidea angulata  
Spea hammondi  
Spea hammondi  
Spea hammondi  
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Spea hammondi  
Spea hammondi  
Spea hammondi  
Coccyzus americanus occidentalis  
Elanus leucurus  
Elanus leucurus  
Elanus leucurus  
Elanus leucurus  
Elanus leucurus  
Elanus leucurus  
Elanus leucurus  
Elanus leucurus  
Elanus leucurus  
Elanus leucurus  
Elanus leucurus  
Hibiscus lasiocarpus var. occidentalis

CNAME  
vernal pool fairy shrimp  
vernal pool fairy shrimp  
vernal pool fairy shrimp  
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vernal pool fairy shrimp  
vernal pool fairy shrimp  
vernal pool fairy shrimp  
vernal pool tadpole shrimp  
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vernal pool tadpole shrimp  
vernal pool tadpole shrimp  
vernal pool tadpole shrimp  
western pond turtle  
western ridged mussel  
western spadefoot  
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western spadefoot  
western spadefoot  
western yellow-billed cuckoo  
white-tailed kite  
white-tailed kite  
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white-tailed kite  
white-tailed kite  
white-tailed kite  
white-tailed kite  
white-tailed kite  
white-tailed kite  
white-tailed kite  
woolly rose-mallow

GENERAL  
KOFORD OBSERVED B. LYNCHI DURING SURVEY IN SPRING OF 1992; LINDERIELLA OCCIDENTALIS ALSO OBSERVED.  
<10 ADULTS OBSERVED IN POND, NO VOUCHER SPECIMENS TAKEN.  
1996: POOL #229: <50 ADULTS OBSERVED IN POOL; SURFACE AREA=1,177 SQ. METERS, WATER DEPTH=28.0 CM. 1998: 100'S OBSERVED IN POOL #228; SURFACE AREA=10 M X 16 M, DEPTH=18 CM.  
1996: <50 ADULTS OBSERVED IN POOL #222; SURFACE AREA=574 SQ METERS, WATER DEPTH=32.0 CM, TEMPERATURE= 11.5 DEGREES C, CONDUCTIVITY=75.80, TURBIDITY WAS LOW. LINDERIELLA ALSO PRESENT IN POOL AND IN SURROUNDING AREAS.  
MANY SHRIMP OBSERVED/COLLECTED (DEPOSITED AT CAS) ON 28 DECEMBER 1994.  
FOUND IN 5 SMALL POOLS OF 67 SAMPLED ON 29 MAR 2018; POOLS MAY HAVE BEEN INOCULATED.  
LEPIDURUS PACKARDI OBSERVED IN THE 2 FEATURES INSPECTED. SUGNET RECORD #185. NO B. LYNCHI OBSERVED.  
LEPIDURUS PACKARDI OBSERVED IN THE ONE FEATURE INSPECTED. SUGNET RECORD #186. B. LYNCHI ALSO OBSERVED.  
10 CYSTS WERE FOUND IN THE SURVEYS IN JUNE AND JULY, 1998.  
USAF: CARAPACES FOUND, 1994; 1 ADULT FOUND, 1995; 100S IN 4 POOLS, 2 COLLECTED (CASIZ#106745) 15 FEB 1996; 0 FOUND DEC 2009. WPCB: FOUND IN >25 POOLS, 2006; 50 IN 10 POOLS, 2009; >100 IN 8 POOLS, 3 FEB 2011; >100 IN 2 POOLS 11 FEB 2013.  
FOUND IN 1 POOL ON 4 FEB 1993. FOUND IN 1 OF 14 BASINS SAMPLED FEB-MAR 1995; 3 COLLECTED (CASIZ #103128). FWS 5-YEAR PLAN DESCRIBED OCCURRENCE AS LIKELY EXTIRPATED IN 2007 (P. BALFOUR, PERS. COMM.)  
1 CYST IDENTIFIED FROM SOIL SAMPLED ON 23 MAR 2002.  
4-6 ADULTS OBSERVED. 1 COLLECTED FOR PERSONAL COLLECTION.  
>50 ADULTS OBSERVED OF LEPIDURUS PACKARDI AND LINDERIELLA OCCIDENTALIS.  
2 TURTLES SEEN AT ONE SITE AND AN UNKNOWN NUMBER SEEN AT A NEARBY BASKING SITE DURING A FEBRUARY TO JUNE FAIRY SHRIMP SURVEY.  
5 COLLECTED ON UNKNOWN DATE, LIKELY A HISTORICAL OCCURRENCE.  
30+ METAMORPHS OBSERVED IN A DRYING INTERMITTENT DRAINAGE, 1990.  
MULTIPLE INDIVIDUALS FOUND ALONG ROAD AND HEARD CALLING FROM SOUTH OF ROAD ON 5 MAR 2016.  
HEARD CALLING FROM ROAD ON 5 MAR 2016.  
SPADEFEET OBSERVED HEARD CALLING FROM ROAD ON 5 MAR 2016.  
5 JUVENILES (3 DEAD) AND 3 ADULTS (2 DEAD) FOUND ON ROAD ON 5 MAR 2016.  
ONE POOL SUPPORTED <10 TADPOLES AND THE OTHER SUPPORTED 50-100 TADPOLES ON 23 APR 2004. TOADS CAPTURED WITH A DIPNET, NONE COLLECTED.  
5 TADPOLES OBSERVED ON 19 MAR 1994. 12-24 LARVAE OBSERVED ON 13 APR 2018; OBSERVED SWIMMING AND RESTING. LARVAE ANECDOTALLY REPORTED AS PRESENT IN "MANY YEARS" BETWEEN 1994 AND 2018  
1 POSSIBLY GRAVID ADULT FEMALE FOUND ALIVE ON ROAD ON 5 MAR 2016.  
2 JUVENILES FOUND ON ROAD ON 5 MAR 2016.  
1 JUVENILE FOUND DEAD ON ROAD ON 5 MAR 2016.  
SEVERAL TADPOLES OBSERVED, 1991.  
1 ADULT FOUND CROSSING THE ROAD.  
FOUND BREEDING IN VICINITY OF SACRAMENTO BETWEEN 6 JUN AND 4 JUL 1877.  
1 NEST OBSERVED FROM FEB-JUN 1995 DURING A FAIRY SHRIMP SURVEY; NESTING SUCCESS UNKNOWN.  
NEST OBSERVED ON 1 JUL 2002, DURING NEST-BUILDING STAGE; SITE REVISITED SEVERAL TIMES, BUT NO EVIDENCE OF NESTLINGS EVER OBSERVED.  
NEST-BUILDING OBSERVED ON 25 JUN 2002; SITE REVISITED THROUGHOUT THE NESTING SEASON, BUT THERE WAS NO EVIDENCE OF NESTLINGS OR FLEDGLINGS (PRESUMABLY A FAILED NESTING ATTEMPT).  
THIS SITE WAS ALSO OCCUPIED IN 2001. NEST FAILED DURING THE NESTLING STAGE IN 2002, POSSIBLY DUE TO HEAVY RAIN AND WIND; THE PAIR BUILT SEVERAL REPLACEMENT NESTS WHICH NEVER REACHED INCUBATION STAGE.  
NEST BUILDING OBSERVED ON 25 JUN 2002; SITE REVISITED SEVERAL TIMES, BUT NO EVIDENCE OF NESTLINGS OR FLEDGLINGS OBSERVED, SO NEST PRESUMED TO HAVE FAILED.  
NESTING OBSERVED ON 25 JUN 2002; NESTING SUCCESSFUL WITH 2 YOUNG FLEDGED.  
NEST BUILDING OBSERVED ON 11 JUL 2002; SITE REVISITED SEVERAL TIMES, BUT NO EVIDENCE OF NESTLINGS OR FLEDGLINGS OBSERVED, SO NEST PRESUMED TO HAVE FAILED.  
NESTING OBSERVED ON 25 JUN 2002; NESTING SUCCESSFUL WITH 2 YOUNG FLEDGED.  
SITE WAS VISITED WEEKLY, MAR-JUL 1998; ADULT COURTSHIP TO 5 BEGGING FLEDGLINGS OBSERVED. KITES DID NOT NEST AT THIS LOCATION IN 1999, POSSIBLY DUE TO BOTH GREAT HORNED OWLS AND AMERICAN KESTRELS NESTING NEARBY.  
NEST WITH 2 ADULTS OBSERVED ON 26 MAY 1992; 2 YOUNG OBSERVED IN NEST DURING A SUBSEQUENT VISIT.  
ABOUT 500 PLANTS OBSERVED ON WEST SIDE OF CANAL IN 2015. ADDITIONAL PLANTS MAY ALSO BE PRESENT ON EASTERN SIDE OF CANAL.









### CNDDDB 10 Miles

**December 2021**  
**SNAME**

Buteo swainsoni	Swainson's hawk	THREATENED BY DEVELOPMENT AND THE RESULTING LOSS OF FORAGING HABITAT.	
Buteo swainsoni	Swainson's hawk		
Buteo swainsoni	Swainson's hawk		
Buteo swainsoni	Swainson's hawk	SURROUNDING SUBDIVISIONS & GOLF COURSE IN RIPARIAN CORRIDOR WERE CONSTRUCTED BEGINNING IN 1996. CONTINUING DEVELOPMENT.	Development
Buteo swainsoni	Swainson's hawk		
Buteo swainsoni	Swainson's hawk	1992 SURVEYORS CITED POTENTIAL THREAT OF URBAN DEVELOPMENT.	Development
Buteo swainsoni	Swainson's hawk		
Buteo swainsoni	Swainson's hawk		
Buteo swainsoni	Swainson's hawk	THREATENED BY DEVELOPMENT JUST WEST OF THE NEST SITE.	Development
Buteo swainsoni	Swainson's hawk		
Agelaius tricolor	tricolored blackbird		
Agelaius tricolor	tricolored blackbird		
Agelaius tricolor	tricolored blackbird	DEVELOPMENT.	Development
Agelaius tricolor	tricolored blackbird		
Agelaius tricolor	tricolored blackbird		
Agelaius tricolor	tricolored blackbird	POTENTIAL THREAT FROM DEVELOPMENT.	
Agelaius tricolor	tricolored blackbird	URBAN DEVELOPMENT IN ADJACENT PARCELS.	Development
Agelaius tricolor	tricolored blackbird		
Agelaius tricolor	tricolored blackbird		
Agelaius tricolor	tricolored blackbird	BLACKBERRIES BEING REMOVED IN 2014, POSSIBLE DEVELOPMENT IN THE FUTURE (GRADING).	
Agelaius tricolor	tricolored blackbird	PONTENTIAL THREATS DUE TO HUNTING, LAND USE CHANGE IN SURROUNDING AREA, AND PESTICIDE/HERBICIDE USAGE.	Biocides; Other
Agelaius tricolor	tricolored blackbird	THREATENED BY FUTURE DEVELOPMENT.	Development
Agelaius tricolor	tricolored blackbird	VEHICLE COLLISIONS.	Vehicle collisions
Agelaius tricolor	tricolored blackbird	POTENTIALLY THREATENED BY DEVELOPMENT OF SURROUNDING HABITAT.	Development
Agelaius tricolor	tricolored blackbird		
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	DEVELOPMENT. MASS GRADING FOR BUILDING OF ROADS, BRIDGES, & RELATED INFRASTRUCTURE; PREDOMINANTLY ON EAST SIDE OF SITE.	Development
Desmocerus californicus dimorphus	valley elderberry longhorn beetle		
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	NATURAL GAS PIPELINE CONSTRUCTION DUE TO RESIDENTIAL/COMMERCIAL GROWTH; CONSTRUCTION PROPOSED FOR 2009-2012.	Development; Other
Branchinecta lynchi	vernal pool fairy shrimp	THREATENED BY DEVELOPMENT (GOLF COURSES AND RESIDENTIAL DEVELOPMENT).	Development
Branchinecta lynchi	vernal pool fairy shrimp	DEVELOPMENT; SEC 7 HAS BEEN EXTENSIVELY DEVELOPED SINCE 1993 (AIR PHOTOS).	Development
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp	LAND USE CONVERSION IN AREA, PESTICIDE/HERBICIDE USE, TRESPASSING FROM NEARBY HOUSING DEVELOPMENTS (2010).	Biocides; Development
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp	FUTURE RESIDENTIAL DEVELOPMENT PLANNED IN ADJACENT AREA; DIRT ROADS BISECT PRESERVE; GRAZING; RODEO GROUNDS TO THE NW.	Development; Grazing; Other
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp	THREAT: HIGH POTENTIAL FOR DEGRADATION OF WATER QUALITY; POSSIBLE HERBICIDE USE; SEDIMENTATION OF POOLS, RR ROW, ET AL.	Degraded water quality; Other
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp	AVAILABLE HABITAT REDUCED BY DEVELOPMENT.	Development
Branchinecta lynchi	vernal pool fairy shrimp	DEVELOPMENT (2009).	Development
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp	SURROUNDING AREA IS BEING DEVELOPED.	Development
Branchinecta lynchi	vernal pool fairy shrimp	IMPROPER GRAZING REGIME (2013).	Grazing
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp	COMMERCIAL & RESIDENTIAL DEVELOPMENT. SITE IS DISTURBED BY DUMPED GARBAGE AND NUMEROUS TIRE TRACKS FROM ORV ACTIVITY.	Development
Branchinecta lynchi	vernal pool fairy shrimp	COMMERCIAL AND RESIDENTIAL DEVELOPMENT. DISTURBANCE FROM GARBAGE DUMPING AND ORV ACTIVITY.	Development; ORV activity; Vandalism/dumping/litter
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp	SURROUNDED BY DEVELOPMENT.	
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp	MAINTENANCE ROAD FOR WESTERN PACIFIC RAILROAD, AREA IMPACTED BY SACRAMENTO AREA FLOOD CONTROL AGENCY (1995).	Other; Road/trail construction/maint.
Branchinecta lynchi	vernal pool fairy shrimp	DEVELOPMENT (2009).	Development
Branchinecta lynchi	vernal pool fairy shrimp	DEVELOPMENT (2009).	Development
Branchinecta lynchi	vernal pool fairy shrimp	POSSIBLY THREATENED BY PROPOSED CONSTRUCTION OF AN ACCESS ROAD LEADING TO A NEW POWER PLANT.	Development; Road/trail construction/maint.
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp	RESIDENTIAL DEVELOPMENT	Development
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp	POSSIBLY THREATENED BY CONTAMINATED RUNOFF FROM A CEMENT MIXING FACILITY SE OF THE SITE.	Erosion/runoff; Pollution
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp	DEVELOPMENT.	Development
Branchinecta lynchi	vernal pool fairy shrimp	DEVELOPMENT.	Development
Branchinecta lynchi	vernal pool fairy shrimp	AGRICULTURE: DRY-FARMING.	Agriculture
Branchinecta lynchi	vernal pool fairy shrimp	DISTURBED FIELD (SOURCE OF DISTURBANCE NOT GIVEN).	
Branchinecta lynchi	vernal pool fairy shrimp	EXPANSION OF BASE FACILITIES; MODIFICATION OF WATERSHED; AIRCRAFT REPAIR, DEVELOPMENT (1996).	Development; Other
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp	DISTURBANCE FROM FREE-RANGE PIGS (2011).	Non-native animal impacts
Branchinecta lynchi	vernal pool fairy shrimp	DUMPING, IMPACTS FROM ADJACENT ROAD (2011).	Other; Vandalism/dumping/litter
Branchinecta lynchi	vernal pool fairy shrimp		
Branchinecta lynchi	vernal pool fairy shrimp	AVAILABLE HABITAT REDUCED BY RESIDENTIAL DEVELOPMENT.	Development
Branchinecta lynchi	vernal pool fairy shrimp	DEVELOPMENT.	Development
Branchinecta lynchi	vernal pool fairy shrimp	SOILS IN THE AREA ARE KNOWN TO BE CONTAMINATED.	Pollution



### CNDDDB 10 Miles

## December 2021

CNAME	CNAME	LASTUPDATE	AREA	PERIMETER	AVLCODE	Symbology	Shape_Length	Shape_Area
Juncus leiospermus var. ahartii	Ahart's dwarf rush	19940527	20009.27642	502.080466	10101	101	502.080466	20009.27642
Alkali Meadow	Alkali Meadow	19980715	281368.6874	1882.762572	30502	805	1882.762572	281368.6874
Alkali Seep	Alkali Seep	19980720	281368.6874	1882.762572	30502	805	1882.762572	281368.6874
Andrena subapasta	An andrenid bee	20120509	8042071.298	10052.97189	20901	209	10052.97189	8042071.298
Andrena subapasta	An andrenid bee	20120509	8042068.886	10052.96889	20901	209	10052.96889	8042068.886
Riparia riparia	bank swallow	20050510	70602.60405	942.200292	20401	204	942.200292	70602.60405
Riparia riparia	bank swallow	20051129	70602.60112	942.200263	20401	204	942.200263	70602.60112
Balsamorhiza macrolepis	big-scale balsamroot	19950118	8003568.771	10041.52062	10903	809	10041.52062	8003568.771
Balsamorhiza macrolepis	big-scale balsamroot	20130813	397507.8898	5230.895891	10201	102	5230.895891	397507.8898
Nycticorax nycticorax	black-crowned night heron	19992019	128882.1172	1866.075102	20203	802	1866.075102	128882.1172
Nycticorax nycticorax	black-crowned night heron	19930710	110070.4956	1475.942493	20203	202	1475.942493	110070.4956
Gratiola heterosepala	Boggs Lake hedge-hyssop	20110104	533888.3673	6925.553753	10301	103	6925.553753	533888.3673
Gratiola heterosepala	Boggs Lake hedge-hyssop	20110118	26322.13896	831.769603	10201	102	831.769603	26322.13896
Gratiola heterosepala	Boggs Lake hedge-hyssop	20130523	20009.25436	502.080191	10102	801	502.080191	20009.25436
Gratiola heterosepala	Boggs Lake hedge-hyssop	20171213	5834.761195	410.641455	10201	102	410.641455	5834.761195
Gratiola heterosepala	Boggs Lake hedge-hyssop	20090406	1675.802704	177.286647	10201	102	177.286647	1675.802704
Athene cucularia	burrowing owl	20040217	8042068.816	10052.96885	20901	209	10052.96885	8042068.816
Athene cucularia	burrowing owl	20030821	1125622.349	3765.772396	20601	206	3765.772396	1125622.349
Athene cucularia	burrowing owl	20030821	281414.03	1882.914551	20501	205	1882.914551	281414.03
Athene cucularia	burrowing owl	20120611	146285.5478	2215.487347	20201	202	2215.487347	146285.5478
Athene cucularia	burrowing owl	20100216	132456.3444	1907.646921	20301	203	1907.646921	132456.3444
Athene cucularia	burrowing owl	20030821	108291.2661	1295.534042	20301	203	1295.534042	108291.2661
Athene cucularia	burrowing owl	20100216	106362.2453	2230.153197	20201	202	2230.153197	106362.2453
Athene cucularia	burrowing owl	20080228	77107.35016	1215.789676	20301	203	1215.789676	77107.35016
Athene cucularia	burrowing owl	20100211	60279.10075	1507.04038	20201	202	1507.04038	60279.10075
Athene cucularia	burrowing owl	20121001	50150.8837	870.740561	20201	202	870.740561	50150.8837
Athene cucularia	burrowing owl	20100216	42682.15334	817.38729	20201	202	817.38729	42682.15334
Athene cucularia	burrowing owl	20080229	40947.13544	763.786757	20301	203	763.786757	40947.13544
Athene cucularia	burrowing owl	20100216	40185.93231	1005.145584	20201	202	1005.145584	40185.93231
Athene cucularia	burrowing owl	20100216	40185.88675	1005.145	20201	202	1005.145	40185.88675
Athene cucularia	burrowing owl	20030821	21017.46051	602.487785	20201	202	602.487785	21017.46051
Athene cucularia	burrowing owl	20030821	20023.42513	502.137671	20101	201	502.137671	20023.42513
Athene cucularia	burrowing owl	20080701	20023.32625	502.136432	20101	201	502.136432	20023.32625
Athene cucularia	burrowing owl	20080707	20023.32488	502.136414	20101	201	502.136414	20023.32488
Athene cucularia	burrowing owl	20070703	2002					

[illegible]

STUTTPDATE	AREA	PERIMETER	AVLCODE	Symbology	Shape Length	Shape Area
19940808	40956.56664	1091.018453	10201	102	1091.018453	40956.56664
20100921	39518.23085	1000.743375	10201	102	1000.743375	39518.23085
20000810	34321.55442	1222.340541	10201	102	1222.340541	34321.55442
20000810	28729.12459	1135.964546	10201	102	1135.964546	28729.12459
180724	25756.98776	879.582061	10201	102	879.582061	25756.98776
2010914	20024.4322	502.178646	10101	101	502.178646	20024.4322
20130830	2023.32619	502.136439	10101	101	502.136439	20023.32619
20080213	20023.32386	502.136401	10101	101	502.136401	20023.32386
1970811	20011.13825	502.103921	10102	801	502.103921	20011.13825
20131031	20011.12711	502.103779	10102	801	502.103779	20011.12711
19940808	20011.01447	502.102365	10101	101	502.102365	20011.01447
19970811	20010.31799	502.093625	10101	101	502.093625	20010.31799
19940808	20009.25436	502.080619	10102	801	502.080619	20009.25436
2010914	15434.28024	572.224879	10201	102	572.224879	15434.28024
2010914	14570.74616	577.784507	10201	102	577.784507	14570.74616
20180724	8859.086329	578.837776	10201	102	578.837776	8859.086329
20000810	7391.424164	308.036335	10201	102	308.036335	7391.424164
2018724	3961.500137	226.596425	10201	102	226.596425	3961.500137
2010921	2825.573656	188.464795	10201	102	188.464795	2825.573656
2010914	2825.572948	188.464765	10201	102	188.464765	2825.572948
2018724	2825.572906	188.464768	10201	102	188.464768	2825.572906
20171011	2902935.224	36958.46261	20201	202	36958.46261	2902935.224
20171010	1532614.004	17715.58674	20201	202	17715.58674	1532614.004
20170830	68108.45691	9129.179239	20301	202	9129.179239	68108.45691
20141205	65806.07574	8375.749127	20301	203	8375.749127	65806.07574
20171009	45217.117	6792.528109	20201	202	6792.528109	45217.117
20171009	394144.3377	4740.492644	20201	202	4740.492644	394144.3377
20141003	384936.5632	6405.938082	20201	202	6405.938082	384936.5632
20170830	356428.1902	5109.320504	20201	202	5109.320504	356428.1902
20141209	332320.1146	4656.354785	20201	202	4656.354785	332320.1146
20141208	320694.0126	2607.175533	20201	202	2607.175533	320694.0126
20060512	282659.3692	1884.815642	20301	205	1884.815642	282659.3692
20141212	282659.3667	1884.815631	20301	205	1884.815631	282659.3667
20100811	282659.3577	1884.815604	20301	205	1884.815604	282659.3577
19950810	281426.0063	1882.954483	20301	205	1882.954483	281426.0063
19950810	281423.8272	1882.947214	20301	205	1882.947214	281423.8272
19950810	281422.6588	1882.943314	20301	205	1882.943314	281422.6588
19950731	281421.7413	1882.940209	20301	205	1882.940209	281421.7413
20091026	281417.188	1882.92507	20301	205	1882.92507	281417.188
20060509	281415.8617	1882.920422	20301	205	1882.920422	281415.8617
19950727	281414.0732	1882.914379	20301	205	1882.914379	281414.0732
19950731	281413.8009	1882.913671	20301	205	1882.913671	281413.8009
20100818	281413.6736	1882.913322	20301	205	1882.913322	281413.6736
19950731	281412.8148	1882.910293	20301	205	1882.910293	281412.8148
20100818	281410.6899	1882.903349	20301	205	1882.903349	281410.6899
20100818	281410.2239	1882.901823	20301	205	1882.901823	281410.2239
20171009	273344.3532	4082.478955	20201	202	4082.478955	273344.3532
20170831	271030.6677	4206.858589	20201	202	4206.858589	271030.6677
20171011	265060.9368	4070.475918	20201	202	4070.475918	265060.9368
20171011	250964.8237	3893.341597	20201	202	3893.341597	250964.8237
20141202	240502.7278	3509.332406	20201	202	3509.332406	240502.7278
20141217	239864.1805	2979.300027	20201	202	2979.300027	239864.1805
20171010	224980.2593	4061.675334	20201	202	4061.675334	224980.2593
20141205	217533.6381	3648.394935	20301	203	3648.394935	217533.6381
20171017	217561.2428	4243.463016	20201	202	4243.463016	217561.2428
20141209	175838.4106	2433.350839	20301	203	2433.350839	175838.4106
20171010	15555.0718	2699.459522	20201	202	2699.459522	15555.0718
20140731	15049.8786	2942.313911	20201	202	2942.313911	15049.8786
20170830	139569.8776	1994.196278	20301	203	1994.196278	139569.8776
20171009	138363.7527	1882.283606	20201	202	1882.283606	138363.7527
20141205	132974.5227	1913.386343	20301	203	1913.386343	132974.5227
20171011	110965.7962	1854.218173	20201	202	1854.218173	110965.7962
20141212	95993.19837	1703.299669	20201	202	1703.299669	95993.19837
20141003	93706.28148	1996.986201	20201	202	1996.986201	93706.28148
20141001	91618.4442	1854.661458	20201	202	1854.661458	91618.4442
20141001	89583.41529	1668.138059	20201	202	1668.138059	89583.41529
20171026	87322.9622	2099.374353	20201	202	2099.374353	87322.9622
20141205	84031.25438	1202.238262	20301	203	1202.238262	84031.25438
20050727	79116.36365	1239.029928	20201	202	1239.029928	79116.36365
2003729	70602.60043	942.200264	20401	204	942.200264	70602.60043
2003729	70602.6004	942.200263	20401	204	942.200263	70602.6004
20141210	64980.28784	1314.68802	20201	202	1314.68802	64980.28784
20141205	40185.93233	1005.145593	20201	202	1005.145593	40185.93233
20140718	40185.93034	1005.145529	20201	202	1005.145529	40185.93034
20140801	35775.69812	698.325451	20201	202	698.325451	35775.69812
20091015	33464.19708	669.466902	20201	202	669.466902	33464.19708
20171011	33386.33421	668.745724	20201	202	668.745724	33386.33421
20140801	27487.43602	594.89312	20201	202	594.89312	27487.43602
20170929	20105.86531	502.652819	20101	101	502.652819	20105.86531
20171010	20105.862	502.652778	20101	101	502.652778	20105.862
19970904	20105.03565	502.656077	20101	101	502.656077	20105.03565
20141205	20023.32682	502.136439	20101	101	502.136439	20023.32682
20141205	20023.32581	502.136426	20101	101	502.136426	20023.32581
20141205	20023.32526	502.136419	20101	101	502.136419	20023.32526
20091119	20023.32519	502.136418	20101	101	502.136418	20023.32519
20091008	20023.32518	502.136418	20101	101	502.136418	20023.32518
20141210	20023.32394	502.136401	20101	101	502.136401	20023.32394
20171011	20023.32386	502.136401	20101	101	502.136401	20023.32386
20140718	20023.32386	502.136401	20101	101	502.136401	20023.32386
20140801	20023.32386	502.136401	20101	101	502.136401	20023.32386
20140804	20023.32386	502.136401	20101	101	502.136401	20023.32386
20030730	20023.32386	502.136401	20101	101	502.136401	20023.32386
20091119	20023.32289	502.136389	20101	101	502.136389	20023.32289
20141205	20023.32113	502.136365	20101	101	502.136365	20023.32113
19930209	20011.78966	502.112094	20101	101	502.112094	20011.78966
20060510	20011.63898	502.112023	20101	101	502.112023	20011.63898
20100818	20011.43905	502.107707	20101	101	502.107707	20011.43905
20070612	20023.32704	502.136441	20101	101	502.136441	20023.32704

CNDDDB 10 Miles

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SNAME	CNAME	LASTUPDATE	AREA	PERIMETER	AVLCODE	Symbology	Shape_Length	Shape_Area
Ardea herodias	great blue heron	20030227	40023.69985	751.668408	20202	802	751.668408	40023.69985
Ardea herodias	great blue heron	20040225	20023.32776	502.136455	20102	801	502.136455	20023.32776
Ardea herodias	great blue heron	20040225	20023.32494	502.136415	20101	201	502.136415	20023.32494
Ardea alba	great egret	19920219	128882.1172	1866.075102	20203	802	1866.075102	128882.1172
Ardea alba	great egret	20030227	40023.69985	751.668408	20202	802	751.668408	40023.69985
Ardea alba	great egret	20040225	20023.32776	502.136455	20102	801	502.136455	20023.32776
Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	19980721	314489.2824	4648.926559	30201	302	4648.926559	314489.2824
Chloropyron molle ssp. hispidum	hispid salty bird's-beak	20110804	102790.6865	1536.66142	10201	102	1536.66142	102790.6865
Legenere limosa	legenere	19970811	281370.6404	1882.769114	10501	105	1882.769114	281370.6404
Legenere limosa	legenere	19970811	237305.5845	2482.591252	10201	102	2482.591252	237305.5845
Legenere limosa	legenere	20100429	29654.27825	740.833144	10201	102	740.833144	29654.27825
Legenere limosa	legenere	20180109	23870.22619	626.420403	10201	102	626.420403	23870.22619
Legenere limosa	legenere	20180109	20010.29468	502.093333	10101	101	502.093333	20010.29468
Legenere limosa	legenere	20180103	5618.580755	376.385521	10201	102	376.385521	5618.580755
Northern Claypan Vernal Pool	Northern Claypan Vernal Pool	19980715	281404.028	1882.881044	30501	305	1882.881044	281404.028
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	19980715	5060666.041	9357.799986	30201	302	9357.799986	5060666.041
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	19980715	1296241.248	4533.952817	30202	802	4533.952817	1296241.247
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	19980715	608841.5023	4586.214701	30201	302	4586.214701	608841.5023
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	20010524	295000.2484	4099.637089	30201	302	4099.637089	295000.2484
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	19980715	281395.7605	1882.853323	30501	305	1882.853323	281395.7605
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	19980715	281378.3739	1882.794833	30501	305	1882.794833	281378.3739
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	19980715	207702.3334	3307.326826	30201	302	3307.326826	207702.3334
Northern Volcanic Mud Flow Vernal Pool	Northern Volcanic Mud Flow Vernal Pool	19980716	1748007.669	5878.011577	30201	302	5878.011577	1748007.669
Northern Volcanic Mud Flow Vernal Pool	Northern Volcanic Mud Flow Vernal Pool	19980716	1731775.007	6493.983007	30201	302	6493.983007	1731775.007
Northern Volcanic Mud Flow Vernal Pool	Northern Volcanic Mud Flow Vernal Pool	19980716	1400527.48	9397.55889	30201	302	9397.55889	1400527.48
Northern Volcanic Mud Flow Vernal Pool	Northern Volcanic Mud Flow Vernal Pool	19980716	573352.8117	4928.272667	30201	302	4928.272667	573352.8117
Northern Volcanic Mud Flow Vernal Pool	Northern Volcanic Mud Flow Vernal Pool	19980716	253674.4704	2932.344448	30201	302	2932.344448	253674.4704
Antrozous pallidus	pallid bat	20160629	20105.84298	502.65254	20101	201	502.65254	20105.84298
Navarretia myersii ssp. myersii	pincushion navarretia	20020131	8003568.771	10041.52062	10903	809	10041.52062	8003568.771
Progne subis	purple martin	20071105	70602.42516	942.199091	20401	204	942.199091	70602.42516
Progne subis	purple martin	20071031	20023.33004	502.136479	20101	201	502.136479	20023.33004
Progne subis	purple martin	20040312	20023.32931	502.136464	20101	201	502.136464	20023.32931
Progne subis	purple martin	20040312	20023.3257	502.136424	20101	201	502.136424	20023.3257
Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	20030408	281378.0633	1882.793953	10501	105	1882.793953	281378.0633
Hydrochara rickseckeri	Ricksecker's water scavenger beetle	20050330	5309020.839	8168.036427	20801	208	8168.036427	5309020.839
Pogonichthys macrolepidotus	Sacramento splittail	19960102	20361008.41	238771.7885	20201	202	238771.7885	20361008.41
Sagittaria sanfordii	Sanford's arrowhead	20090211	167724.5666	2341.000822	10201	102	2341.000822	167724.5666
Sagittaria sanfordii	Sanford's arrowhead	19971223	88780.44145	1349.868883	10201	102	1349.868883	88780.44145
Sagittaria sanfordii	Sanford's arrowhead	20130610	75428.99223	2700.430092	10201	102	2700.430092	75428.99223
Sagittaria sanfordii	Sanford's arrowhead	19940804	68397.55344	1028.144649	10201	102	1028.144649	68397.55345
Sagittaria sanfordii	Sanford's arrowhead	19971223	20105.08548	502.647361	10101	101	502.647361	20105.08548
Sagittaria sanfordii	Sanford's arrowhead	20090115	9350.4611	509.592363	10201	102	509.592363	9350.4611
Egretta thula	snowy egret	19920219	128882.1172	1866.075102	20203	802	1866.075102	128882.1172
Melospiza melodia	song sparrow ("Modesto" population)	20130813	201051722.1	50264.84447	21003	810	50264.84447	201051722.1
Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	20140328	84906182.08	275987.3342	20301	203	275987.3342	84906182.08
Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	20140224	32613750.71	216659.58	20302	803	216659.58	32613750.71
Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	20140328	20141005.68	132783.0975	20301	203	132783.0975	20141005.68
Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	20131203	11107030.17	73796.02977	20301	203	73796.02977	11107030.17
Fritillaria agrestis	stinkbells	19970811	30715.62921	881.740221	10201	102	881.740221	30715.62921
Fritillaria agrestis	stinkbells	20080804	20010.55773	502.096653	10101	101	502.096653	20010.55773
Fritillaria agrestis	stinkbells	20080804	20009.20063	502.0796	10101	101	502.0796	20009.20063
Fritillaria agrestis	stinkbells	19920515	18215.07912	592.151528	10201	102	592.151528	18215.07912
Buteo swainsoni	Swainson's hawk	20161024	376365.8591	6333.179103	20301	203	6333.179103	376365.8591
Buteo swainsoni	Swainson's hawk	20130322	372159.6326	3327.856138	20301	203	3327.856138	372159.6326
Buteo swainsoni	Swainson's hawk	20130510	302650.0674	2387.217733	20301	203	2387.217733	302650.0674
Buteo swainsoni	Swainson's hawk	20130523	110788.4211	1947.344248	20301	203	1947.344248	110788.4211
Buteo swainsoni	Swainson's hawk	20130322	90732.7898	1444.900656	20301	203	1444.900656	90732.7898
Buteo swainsoni	Swainson's hawk	20130228	90732.10706	1444.894396	20301	203	1444.894396	90732.10706
Buteo swainsoni	Swainson's hawk	20130315	70602.60027	942.200263	20401	204	942.200263	70602.60027
Buteo swainsoni	Swainson's hawk	20130228	70602.59982	942.200263	20401	204	942.200263	70602.59982
Buteo swainsoni	Swainson's hawk	20130620	67003.49163	1340.267895	20201	202	1340.267895	67003.49163
Buteo swainsoni	Swainson's hawk	20130507	60209.25569	1507.281864	20201	202	1507.281864	60209.25569
Buteo swainsoni	Swainson's hawk	20130507	60139.61351	1506.845519	20201	202	1506.845519	60139.61351
Buteo swainsoni	Swainson's hawk	20130226	40185.93227	1005.145421	20201	202	1005.145421	40185.93227
Buteo swainsoni	Swainson's hawk	20130325	40116.29209	1004.709224	20201	202	1004.709224	40116.29209
Buteo swainsoni	Swainson's hawk	20130507	40116.29079	1004.709118	20201	202	1004.709118	40116.29079
Buteo swainsoni	Swainson's hawk	20130507	40116.29027	1004.709135	20201	202	1004.709135	40116.29027
Buteo swainsoni	Swainson's hawk	20130226	33651.55346	672.231038	20201	202	672.231038	33651.55346
Buteo swainsoni	Swainson's hawk	20161221	20105.87803	502.652978	20101	201	502.652978	20105.87803
Buteo swainsoni	Swainson's hawk	19991026	20105.25902	502.649572	20101	201	502.649572	20105.25902
Buteo swainsoni	Swainson's hawk	20030327	20023.43499	502.137797	20101	201	502.137797	20023.43499
Buteo swainsoni	Swainson's hawk	20000425	20023.38353	502.13715	20101	201	502.13715	20023.38353
Buteo swainsoni	Swainson's hawk	20030818	20023.32466	502.136411	20101	201	502.136411	20023.32466
Buteo swainsoni	Swainson's hawk	20130326	20023.32434	502.136401	20101	201	502.136401	20023.32434
Buteo swainsoni	Swainson's hawk	20050928	20023.3242	502.136401	20101	201	502.136401	20023.3242
Buteo swainsoni	Swainson's hawk	20131204	20023.32399	502.136401	20101	201	502.136401	20023.32399
Buteo swainsoni	Swainson's hawk	20050929	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20130226	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20130315	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20130304	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20130315	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20130227	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20130227	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20130227	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20130315	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20130228	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20130228	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20130326	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20051018	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20060515	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20130228	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20050921	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20130510	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20051101	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20131029	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20051103	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20051103	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	Swainson's hawk	20130227	20023.32386	502.136401	20101	201	502.136401	20023.32386

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SNAME

CNAME	LASTUPDATE	AREA	PERIMETER	AVLCODE	Symbology	Shape_Length	Shape_Area
Buteo swainsoni	20130227	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	20051201	20023.32386	502.136401	20101	201	502.136401	20023.32386
Buteo swainsoni	20130227	20023.32354	502.136401	20101	201	502.136401	20023.32354
Buteo swainsoni	20050928	20023.32352	502.136401	20101	201	502.136401	20023.32352
Buteo swainsoni	20130524	20023.30135	502.136119	20101	201	502.136119	20023.30135
Buteo swainsoni	20030325	20023.29616	502.136054	20101	201	502.136054	20023.29616
Buteo swainsoni	20130503	20023.29251	502.136002	20101	201	502.136002	20023.29251
Buteo swainsoni	20030325	20023.28338	502.135894	20101	201	502.135894	20023.28338
Buteo swainsoni	20030325	20023.2826	502.135884	20101	201	502.135884	20023.2826
Buteo swainsoni	20030326	20023.23539	502.135292	20101	201	502.135292	20023.23539
Buteo swainsoni	20011003	20023.19389	502.136163	20101	201	502.136163	20023.19389
Buteo swainsoni	20050928	20023.02921	502.131714	20101	201	502.131714	20023.02921
Agelaius tricolor	20160201	8042068.816	10052.96885	20901	209	10052.96885	8042068.816
Agelaius tricolor	19960111	8005042.767	10042.44607	20901	209	10042.44607	8005042.767
Agelaius tricolor	20160201	8003568.771	10041.52062	20903	809	10041.52062	8003568.771
Agelaius tricolor	20161011	5309285.655	8168.143626	20801	208	8168.143626	5309285.655
Agelaius tricolor	20161021	3141429.246	6283.10542	20701	207	6283.10542	3141429.246
Agelaius tricolor	20161024	1130971.205	3769.914275	20601	206	3769.914275	1130971.205
Agelaius tricolor	20161011	282659.3655	1884.815631	20501	205	1884.815631	282659.3655
Agelaius tricolor	20160914	282628.9814	1884.76519	20501	205	1884.76519	282628.9814
Agelaius tricolor	20161104	157721.9134	2117.401352	20201	202	2117.401352	157721.9134
Agelaius tricolor	20181106	132420.0009	2358.473494	20201	202	2358.473494	132420.0009
Agelaius tricolor	20160201	70602.60062	942.200263	20401	204	942.200263	70602.60062
Agelaius tricolor	20160201	70602.6002	942.200263	20401	204	942.200263	70602.6002
Agelaius tricolor	20160201	70602.6002	942.200263	20401	204	942.200263	70602.6002
Agelaius tricolor	20160201	70602.6002	942.200263	20401	204	942.200263	70602.6002
Agelaius tricolor	20150720	70602.6002	942.200263	20401	204	942.200263	70602.6002
Agelaius tricolor	20151217	70602.6002	942.200263	20401	204	942.200263	70602.6002
Agelaius tricolor	20160829	70281.49826	1129.29626	20201	202	1129.29626	70281.49826
Agelaius tricolor	20161115	45555.15712	801.651101	20201	202	801.651101	45555.15712
Agelaius tricolor	20170125	20105.81085	502.653842	20101	201	502.653842	20105.81085
Agelaius tricolor	20160201	20023.32386	502.136401	20101	201	502.136401	20023.32386
Agelaius tricolor	20160201	20023.32336	502.136401	20101	201	502.136401	20023.32336
Desmocerus californicus dimorphus	20150311	953098.885	5567.446148	20201	202	5567.446148	953098.885
Desmocerus californicus dimorphus	20141211	170279.9549	3324.524713	20201	202	3324.524713	170279.9549
Desmocerus californicus dimorphus	20150209	58240.85295	978.815948	20201	202	978.815948	58240.85295
Branchinecta lynchi	20140819	10323729.69	17793.99649	20301	203	17793.99649	10323729.69
Branchinecta lynchi	20150508	5203041.351	12857.48193	20301	203	12857.48193	5203041.351
Branchinecta lynchi	20140821	2618355.134	6500.561773	20301	203	6500.561773	2618355.134
Branchinecta lynchi	20020712	1318446.141	4863.255325	20302	803	4863.255325	1318446.141
Branchinecta lynchi	19970320	1215027.851	4730.810927	20301	203	4730.810927	1215027.851
Branchinecta lynchi	20140811	1130890.887	3769.842465	20601	206	3769.842465	1130890.887
Branchinecta lynchi	20141114	580535.662	12183.10491	20201	202	12183.10491	580535.662
Branchinecta lynchi	20170301	475739.9329	9520.213116	20201	202	9520.213116	475739.9329
Branchinecta lynchi	20141113	391626.817	5688.169874	20201	202	5688.169874	391626.817
Branchinecta lynchi	20140815	388942.5316	3507.720359	20201	202	3507.720359	388942.5316
Branchinecta lynchi	20200522	366821.3628	2423.282894	20201	202	2423.282894	366821.3628
Branchinecta lynchi	20141114	319536.664	4880.159567	20201	202	4880.159567	319536.664
Branchinecta lynchi	20140821	316516.6431	3183.6342	20301	203	3183.6342	316516.6431
Branchinecta lynchi	20140818	291254.3863	3598.881054	20201	202	3598.881054	291254.3863
Branchinecta lynchi	19960904	281406.0484	1882.887743	20501	205	1882.887743	281406.0484
Branchinecta lynchi	20140924	279766.9627	5392.343845	20201	202	5392.343845	279766.9627
Branchinecta lynchi	20170301	264029.3999	3796.897169	20201	202	3796.897169	264029.3999
Branchinecta lynchi	20110708	242141.1631	2253.356046	20201	202	2253.356046	242141.1631
Branchinecta lynchi	20141229	240041.1391	3421.327407	20201	202	3421.327407	240041.1391
Branchinecta lynchi	20141113	186627.0686	2933.327547	20201	202	2933.327547	186627.0686
Branchinecta lynchi	20141218	185796.4615	2926.445398	20201	202	2926.445398	185796.4615
Branchinecta lynchi	20160526	181479.0081	3722.596726	20201	202	3722.596726	181479.0081
Branchinecta lynchi	20170301	176961.5261	3353.728875	20301	203	3353.728875	176961.5261
Branchinecta lynchi	20140822	162517.8572	2959.75013	20201	202	2959.75013	162517.8572
Branchinecta lynchi	20141120	150923.2986	2848.615587	20201	202	2848.615587	150923.2986
Branchinecta lynchi	20160801	134062.5917	1957.202591	20201	202	1957.202591	134062.5917
Branchinecta lynchi	20141229	94866.14821	2056.351395	20201	202	2056.351395	94866.14821
Branchinecta lynchi	20080429	76920.51773	1190.642247	20201	202	1190.642247	76920.51773
Branchinecta lynchi	20141119	70602.60242	942.200277	20401	204	942.200277	70602.60242
Branchinecta lynchi	20150107	70602.6002	942.200263	20401	204	942.200263	70602.6002
Branchinecta lynchi	20140826	67620.01019	1151.17232	20201	202	1151.17232	67620.01019
Branchinecta lynchi	20140822	62378.71998	1039.781495	20302	803	1039.781495	62378.71998
Branchinecta lynchi	20150304	60487.78683	1302.906415	20201	202	1302.906415	60487.78683
Branchinecta lynchi	20140822	60278.86727	1507.717812	20201	202	1507.717812	60278.86727
Branchinecta lynchi	20141216	59907.39098	1393.814993	20201	202	1393.814993	59907.39098
Branchinecta lynchi	20140825	59175.51098	994.000103	20201	202	994.000103	59175.51098
Branchinecta lynchi	20141113	56229.96712	1246.882601	20201	202	1246.882601	56229.96712
Branchinecta lynchi	20140909	56168.8727	1103.648761	20201	202	1103.648761	56168.8727
Branchinecta lynchi	20150105	52226.77481	904.790551	20201	202	904.790551	52226.77481
Branchinecta lynchi	20140924	40185.93063	1005.145455	20201	202	1005.145455	40185.93063
Branchinecta lynchi	19930324	33666.47352	689.617671	20301	203	689.617671	33666.47352
Branchinecta lynchi	20140814	26836.52734	584.475788	20201	202	584.475788	26836.52734
Branchinecta lynchi	20200518	20105.86009	502.652754	20101	201	502.652754	20105.86009
Branchinecta lynchi	19980420	20105.14767	502.648138	20101	201	502.648138	20105.14767
Branchinecta lynchi	19970715	20105.12148	502.647897	20101	201	502.647897	20105.12148
Branchinecta lynchi	20141113	20023.46183	502.133994	20101	201	502.133994	20023.46183
Branchinecta lynchi	20140818	20023.37268	502.137014	20101	201	502.137014	20023.37268
Branchinecta lynchi	19991222	20023.3701	502.13698	20101	201	502.13698	20023.3701
Branchinecta lynchi	20140822	20023.33032	502.136482	20101	201	502.136482	20023.33032
Branchinecta lynchi	20040622	20023.32597	502.136428	20101	201	502.136428	20023.32597
Branchinecta lynchi	20141216	20023.3244	502.136401	20101	201	502.136401	20023.3244
Branchinecta lynchi	20150302	20023.32386	502.136401	20101	201	502.136401	20023.32386
Branchinecta lynchi	20140811	20023.32386	502.136401	20101	201	502.136401	20023.32386
Branchinecta lynchi	20141031	20023.32386	502.136401	20101	201	502.136401	20023.32386
Branchinecta lynchi	20170228	20023.32386	502.136401	20101	201	502.136401	20023.32386
Branchinecta lynchi	20150107	20023.32386	502.136401	20101	201	502.136401	20023.32386
Branchinecta lynchi	20140822	20023.32386	502.136401	20101	201	502.136401	20023.32386
Branchinecta lynchi	20140825	20023.32386	502.136401	20101	201	502.136401	20023.32386
Branchinecta lynchi	20141119	20023.32386	502.136401	20101	201	502.136401	20023.32386
Branchinecta lynchi	20140826	20023.32386	502.136401	20101	201	502.136401	20023.32386
Branchinecta lynchi	20140924	20023.32386	502.136401	20101	201	502.136401	20023.32386
Branchinecta lynchi	20140826	20023.32342	502.136401	20101	201	502.136401	20023.32342





CNPS Results

ScientificName	CommonName	Family	Lifeform	CRPR	GRank	SRank	CESA	FESA	BloomingPeriod	Habitat	MicroHabitat	ElevationLow_m	ElevationLow_ft	ElevationHigh_m	ElevationHigh_ft	CAEndemic	States
<i>Chloropyron molle</i> ssp. <i>hispidum</i>	hispid salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	18.1	G2T1	S1	None	None	Jun-Sep	Meadows and seeps, Playas, Valley and foothill grassland	Alkaline	1	5	155	510	TRUE	CA
<i>Balsamorhiza macrolepis</i>	big-scale balsamroot	Asteraceae	perennial herb	18.2	G2	S2	None	None	Mar-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland	Serpentinite (sometimes)	45	150	1555	5100	TRUE	CA
<i>Downingia pusilla</i>	dwarf downingia	Campanulaceae	annual herb	28.2	GU	S2	None	None	Mar-May	Valley and foothill grassland, Vernal pools		1	5	445	1460	FALSE	CA, SA
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	18.2	G3	S3	None	None	May-Oct(Nov)	Marshes and swamps		0	0	650	2135	TRUE	CA
<i>Fritillaria agrestis</i>	stinkbells	Liliaceae	perennial bulbiferous herb	4.2	G3	S3	None	None	Mar-Jun	Chaparral, Cismontane woodland, Pinyon and juniper woodland, Valley and foothill grassland	Clay, Serpentinite (sometimes)	10	35	1555	5100	TRUE	CA
<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	18.2	G2	S2	CE	None	Apr-Aug	Marshes and swamps, Vernal pools	Clay	10	35	2375	7790	FALSE	CA, OR
<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	18.2	G5T3	S3	None	None	Jun-Sep	Marshes and swamps		0	0	120	395	TRUE	CA
<i>Juncus leiospermus</i> var. <i>ahartii</i>	Ahart's dwarf rush	Juncaceae	annual herb	18.2	G2T1	S1	None	None	Mar-May	Valley and foothill grassland		30	100	229	750	TRUE	CA
<i>Juncus leiospermus</i> var. <i>leiospermus</i>	Red Bluff dwarf rush	Juncaceae	annual herb	18.1	G2T2	S2	None	None	Mar-Jun	Chaparral, Cismontane woodland, Meadows and seeps, Valley and foothill grassland, Vernal pools	Vernally Mesic	35	115	1250	4100	TRUE	CA
<i>Legenere limosa</i>	legenere	Campanulaceae	annual herb	18.1	G2	S2	None	None	Apr-Jun	Vernal pools		1	5	880	2885	TRUE	CA
<i>Navarretia myersii</i> ssp. <i>myersii</i>	pincushion navarretia	Polemoniaceae	annual herb	18.1	G2T2	S2	None	None	Apr-May	Vernal pools		20	65	330	1085	TRUE	CA
<i>Centromadia parryi</i> ssp. <i>rudis</i>	Parry's rough tarplant	Asteraceae	annual herb	4.2	G3T3	S3	None	None	May-Oct	Valley and foothill grassland, Vernal pools	Alkaline, Roadsides (sometimes), Seeps, Vernally Mesic	0	0	100	330	TRUE	CA
<i>Brodiaea rosea</i> ssp. <i>vallicola</i>	valley brodiaea	Themidaceae	perennial bulbiferous herb	4.2	G5T3	S3	None	None	Apr-May(Jun)	Valley and foothill grassland, Vernal pools	Alluvial Terraces, Gravelly, Sandy, Silt	10	35	335	1100	TRUE	CA

CNPS Results

ScientificName	CommonName	Counties
<i>Chloropyron molle</i> ssp. <i>hispidum</i>	hispid salty bird's-beak	ALA, KRN, MER, PLA, SOL
<i>Balsamorhiza macrolepis</i>	big-scale balsamroot	ALA, AMA, BUT, COL, ELD, LAK, MPA, NAP, PLA, SCL, SHA, SOL, SON, TEH, TUO
<i>Downingia pusilla</i>	dwarf downingia	FRE, MER, NAP, PLA, SAC, SJQ, SOL, SON, STA, TEH, YUB
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	BUT, DNT, ELD, FRE, MAD, MER, MPA, MRN, NAP, SAC, SBD, SHA, SIQ, SOL, SUT, TEH, TUL, VEN, YUB
<i>Fritillaria agrestis</i>	stinkbells	ALA, CCA, COL, FRE, KNG, KRN, MEN, MER, MNT, MPA, PLA, SAC, SBA, SBT, SCL, SLO, SMT, SOL, STA, TUL, TUO, VEN, YOL, YUB
<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	FRE, LAK, LAS, MAD, MEN, MER, MOD, PLA, SAC, SHA, SIS, SJQ, SOL, SON, TEH
<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	woolly rose-mallow	BUT, CCA, COL, GLE, SAC, SJQ, SOL, SUT, YOL
<i>Juncus leiospermus</i> var. <i>ahartii</i>	Ahart's dwarf rush	BUT, CAL, PLA, SAC, TEH, YUB
<i>Juncus leiospermus</i> var. <i>leiospermus</i>	Red Bluff dwarf rush	BUT, PLA, SHA, TEH
<i>Legenere limosa</i>	legenere	ALA, LAK, MNT, NAP, PLA, SAC, SCL, SHA, SIQ, SMT, SOL, SON, STA, TEH, YUB
<i>Navarretia myersii</i> ssp. <i>myersii</i>	pincushion navarretia	AMA, CAL, MAD, MER, PLA, SAC
<i>Centromadia parryi</i> ssp. <i>rudis</i>	Parry's rough tarplant	BUT, COL, GLE, LAK, MER, MOD, SAC, SJQ, SOL, STA, YOL
<i>Brodiaea rosea</i> ssp. <i>vallicola</i>	valley brodiaea	BUT, CAL, NEV, PLA, SAC, SJQ, SUT, YUB

## CNPS Results

[illegible]

CNPS Results

ScientificName	CommonName	EOPossiblyExtirpated	EOExtirpated	EOTreatList	Notes
<i>Chloropyron molle</i> ssp. <i>hispidum</i>	hispid salty bird's-beak	0	1	23	Apparently extirpated from much of the lower San Joaquin Valley. Threatened by agricultural conversion, development, and grazing. See Brittonia 25:135-158 (1973) for revised nomenclature.
<i>Balsamorhiza macrolepis</i>	big-scale balsamroot	1	1	29	Threatened by grazing. Potentially threatened by residential or recreational development. Possibly threatened by energy development and non-native plants. See Annals of the Missouri Botanical Garden 22:132 (1935) for original description.
<i>Downingia pusilla</i>	dwarf downingia	2	5	81	Threatened by urbanization, development, agriculture, grazing, non-native plants, vehicles, and industrial forestry.
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	8	1	65	Extirpated from southern California, and mostly extirpated from the Central Valley. Several SAC Co. occurrences not relocated during fieldwork in 2005. Threatened by grazing, development, recreational activities, non-native plants, road widening, and channel alteration and maintenance. See Pittonia 2:158 (1890) for original description.
<i>Fritillaria agrestis</i>	stinkbells	2	0	24	Most populations small. Threatened by development, grazing, and vehicles. Possibly threatened by non-native plants.
<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	1	4	70	Threatened by agriculture, development, grazing, trampling, and vehicles. Known from one occurrence in OR, where state listed as Threatened. Lassen NF has adopted species management guidelines. See Madroño 12(5):150-152 (1954) for original description.
<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	woolly rose-mallow	0	1	91	Most occurrences are very small. Seriously threatened by habitat disturbance, development, agriculture, recreational activities, and channelization of the Sacramento River and its tributaries. Also threatened by weed control measures and erosion. Possibly threatened by trail maintenance. See Madroño 56(2):104-111 (1956) for original description.
<i>Juncus leiospermus</i> var. <i>ahartii</i>	Ahart's dwarf rush	1	0	8	Known from approximately 10 occurrences. Threatened by development. See Memoirs of the New York Botanical Garden 39:49 (1986) for original description.
<i>Juncus leiospermus</i> var. <i>leiospermus</i>	Red Bluff dwarf rush	3	1	38	Threatened by development, grazing, vehicles, industrial forestry, and agriculture. See Leaflets of Western Botany 5:113 (1948) for original description, and Memoirs of the New York Botanical Garden 39:46-51 (1986) for revised treatment.
<i>Legenere limosa</i>	legenere	1	8	59	Many historical occurrences extirpated. Threatened by grazing, road widening, non-native plants, and development. See Pittonia 2:81 (1890) for original description, North American Flora 32(1):13-14 (1943) for revised nomenclature, and Wasmann Journal of Biology 33(1-2):91 (1975) for distributional information.
<i>Navarretia myersii</i> ssp. <i>myersii</i>	pincushion navarretia	0	0	3	Threatened by development. Possibly threatened by non-native plants. See Novon 3(4):337 (1993) for original description.
<i>Centromadia parryi</i> ssp. <i>rudis</i>	Parry's rough tarplant	0	0		Threatened by development, habitat alteration and habitat disturbance. Possibly threatened by grazing and road maintenance. Protected on several refuges including Sacramento NWR, Colusa NWR, the Llano Seco Unit of the North Valley Wildlife Management Area, the Llano Seco Ranch, and the Vic Fazio Yolo Wetland.
<i>Brodiaea rosea</i> ssp. <i>vallicola</i>	valley brodiaea	0	0		Threatened by urbanization. Previously assigned to B. coronaria; differentiated by staminodes strongly inrolled, tapering to an apex vs. staminodes flat to incurved, uniformly wide from base to obtuse apex in B. coronaria. Similar to B. rosea ssp. rosea, but with perianth always violet, most floral characters longer, and with

CNPS Results

ScientificName	CommonName	FullScientificName	Synonyms	ElementCode	USDAPlantsSymbol	CBRRReason	DateAdded	LastUpdate
<i>Chloropyron molle</i> ssp. <i>hispidum</i>	hispid salty bird's-beak	Chloropyron molle ssp. hispidum (Pennell) Tank & J.M. Egger	Cordylanthus mollis ssp. hispidus	PDSCR0J0D1			1/1/1974 0:00	10/4/2021 0:00
<i>Balsamorhiza macrolepis</i>	big-scale balsamroot	Balsamorhiza macrolepis	Balsamorhiza macrolepis var. macrolepis	PDAST11061	BAMA3		1/1/1974 0:00	8/25/2021 0:00
<i>Downingia pusilla</i>	dwarf downingia	Downingia pusilla	Downingia humilis	PDCAM060C0	DOPU3		1/1/1980 0:00	5/26/2021 0:00
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	Sagittaria sanfordii		PMALI040Q0	SASA2		1/1/1984 0:00	5/26/2021 0:00
<i>Fritillaria agrestis</i>	stinkbells	Fritillaria agrestis		PMLIL0V010	FRAG		1/1/1980 0:00	1/5/2022 0:00
<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	Gratiola heterosepala		PDSCR0R060	GRHE		1/1/1974 0:00	1/5/2022 0:00
<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	woolly rose-mallow	Hibiscus lasiocarpus var. occidentalis (Torr.) A. Gray	Hibiscus californicus, Hibiscus lasiocarpus, Hibiscus lasiocarpus	PDMAL0H0R3			1/1/1974 0:00	1/5/2022 0:00
<i>Juncus leiospermus</i> var. <i>ahartii</i>	Ahart's dwarf rush	Juncus leiospermus var. ahartii B. Ertter		PMJUN011L1	JULEA		1/1/1984 0:00	1/5/2022 0:00
<i>Juncus leiospermus</i> var. <i>leiospermus</i>	Red Bluff dwarf rush	Juncus leiospermus var. leiospermus		PMJUN011L2	JULEL		1/1/1974 0:00	1/5/2022 0:00
<i>Legenere limosa</i>	legenere	Legenere limosa		PDCAM0C010	LELI		1/1/1974 0:00	5/26/2021 0:00
<i>Navarretia myersii</i> ssp. <i>myersii</i>	pincushion navarretia	Navarretia myersii ssp. myersii	Navarretia myersii	PDPLM0C0X1	NAMYM		1/1/1994 0:00	5/26/2021 0:00
<i>Centromadia parryi</i> ssp. <i>rudis</i>	Parry's rough tarplant	Centromadia parryi ssp. rudis (Greene) B.G. Baldwin		PDAST4R0P3	CEPAR4		5/22/2007 0:00	9/27/2021 0:00
<i>Brodiaea rosea</i> ssp. <i>vallicola</i>	valley brodiaea	Brodiaea rosea ssp. vallicola R.E. Preston		PMLIL0C0K2			1/7/2019 0:00	6/3/2021 0:00

BIOS Element_Type	Scientific_Name	Common_Name	Element_Code	Federal_Status	State_Status	CDFW_Status	CA_Rare_Plant_Rank	Quad_Code	Quad_Name	Data_Status	Taxonomic_Sort
Animals - Amphibians	Spea hammondi	western spadefoot	AAABF02020	None	None	SSC	-	3812184	SHERIDAN	Mapped	Animals - Amphibians - Scaphiopodidae - Spea hammondi
Animals - Amphibians	Spea hammondi	western spadefoot	AAABF02020	None	None	SSC	-	3812174	PLEASANT GROVE	Mapped	Animals - Amphibians - Scaphiopodidae - Spea hammondi
Animals - Amphibians	Spea hammondi	western spadefoot	AAABF02020	None	None	SSC	-	3812173	ROSEVILLE	Mapped	Animals - Amphibians - Scaphiopodidae - Spea hammondi
Animals - Birds	Accipiter cooperii	Cooper's hawk	ABNKC12040	None	None	WL	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	Accipiter cooperii	Cooper's hawk	ABNKC12040	None	None	WL	-	3812163	CITRUS HEIGHTS	Unprocessed	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	Aquila chrysaetos	golden eagle	ABNKC22010	None	None	FP ; WL	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Accipitridae - Aquila chrysaetos
Animals - Birds	Aquila chrysaetos	golden eagle	ABNKC22010	None	None	FP ; WL	-	3812173	ROSEVILLE	Unprocessed	Animals - Birds - Accipitridae - Aquila chrysaetos
Animals - Birds	Buteo regalis	ferruginous hawk	ABNKC19120	None	None	WL	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Accipitridae - Buteo regalis
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812175	VERONA	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812174	PLEASANT GROVE	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812173	ROSEVILLE	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812183	LINCOLN	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812184	SHERIDAN	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812185	NICOLAUS	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812163	CITRUS HEIGHTS	Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812164	RIO LINDA	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Circus hudsonius	northern harrier	ABNKC11011	None	None	SSC	-	3812164	RIO LINDA	Unprocessed	Animals - Birds - Accipitridae - Circus hudsonius
Animals - Birds	Circus hudsonius	northern harrier	ABNKC11011	None	None	SSC	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Accipitridae - Circus hudsonius
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812173	ROSEVILLE	Mapped	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812163	CITRUS HEIGHTS	Mapped	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812164	RIO LINDA	Mapped and Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Haliaeetus leucocephalus	bald eagle	ABNKC10010	Delisted	Endangered	FP	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Accipitridae - Haliaeetus leucocephalus
Animals - Birds	Eremophila alpestris actia	California horned lark	ABPAT02011	None	None	WL	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Alaudidae - Eremophila alpestris actia
Animals - Birds	Aythya americana	redhead	ABNJB11030	None	None	SSC	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Anatidae - Aythya americana
Animals - Birds	Chaetura vauxi	Vaux's swift	ABNUA03020	None	None	SSC	-	3812163	CITRUS HEIGHTS	Unprocessed	Animals - Birds - Apodidae - Chaetura vauxi
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812164	RIO LINDA	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812185	NICOLAUS	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812184	SHERIDAN	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812174	PLEASANT GROVE	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812174	PLEASANT GROVE	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812184	SHERIDAN	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812185	NICOLAUS	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812183	LINCOLN	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812164	RIO LINDA	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812163	CITRUS HEIGHTS	Mapped	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Botaurus lentiginosus	American bittern	ABNGA01020	None	None	-	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Ardeidae - Botaurus lentiginosus
Animals - Birds	Botaurus lentiginosus	American bittern	ABNGA01020	None	None	-	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Birds - Ardeidae - Botaurus lentiginosus
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812164	RIO LINDA	Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812164	RIO LINDA	Unprocessed	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812175	VERONA	Mapped	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Coccyzus americanus occidentalis	western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	-	-	3812185	NICOLAUS	Mapped	Animals - Birds - Cuculidae - Coccyzus americanus occidentalis
Animals - Birds	Coccyzus americanus occidentalis	western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	-	-	3812164	RIO LINDA	Mapped	Animals - Birds - Cuculidae - Coccyzus americanus occidentalis
Animals - Birds	Coccyzus americanus occidentalis	western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	-	-	3812165	TAYLOR MONUMENT	Mapped	Animals - Birds - Cuculidae - Coccyzus americanus occidentalis
Animals - Birds	Falco mexicanus	prairie falcon	ABNKD06090	None	None	WL	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Falconidae - Falco mexicanus
Animals - Birds	Falco peregrinus anatum	American peregrine falcon	ABNKD06071	Delisted	Delisted	FP	-	3812163	CITRUS HEIGHTS	Unprocessed	Animals - Birds - Falconidae - Falco peregrinus anatum
Animals - Birds	Progne subis	purple martin	ABPAU01010	None	None	SSC	-	3812164	RIO LINDA	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Progne subis
Animals - Birds	Progne subis	purple martin	ABPAU01010	None	None	SSC	-	3812173	ROSEVILLE	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Progne subis
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812175	VERONA	Mapped	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812185	NICOLAUS	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812163	CITRUS HEIGHTS	Mapped	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3812165	TAYLOR MONUMENT	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3812164	RIO LINDA	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3812185	NICOLAUS	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3812184	SHERIDAN	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3812183	LINCOLN	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3812175	VERONA	Mapped and Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3812173	ROSEVILLE	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3812174	PLEASANT GROVE	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Xanthocephalus xanthocephalus	yellow-headed blackbird	ABPBXB3010	None	None	SSC	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Icteridae - Xanthocephalus xanthocephalus
Animals - Birds	Icteria virens	yellow-breasted chat	ABPBX24010	None	None	SSC	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Icteriidae - Icteria virens
Animals - Birds	Icteria virens	yellow-breasted chat	ABPBX24010	None	None	SSC	-	3812185	NICOLAUS	Unprocessed	Animals - Birds - Icteriidae - Icteria virens
Animals - Birds	Lanius ludovicianus	loggerhead shrike	ABPBR01030	None	None	SSC	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Laniidae - Lanius ludovicianus
Animals - Birds	Lanius ludovicianus	loggerhead shrike	ABPBR01030	None	None	SSC	-	3812175	VERONA	Unprocessed	Animals - Birds - Laniidae - Lanius ludovicianus
Animals - Birds	Lanius ludovicianus	loggerhead shrike	ABPBR01030	None	None	SSC	-	3812164	RIO LINDA	Unprocessed	Animals - Birds - Laniidae - Lanius ludovicianus
Animals - Birds	Chlidonias niger	black tern	ABNNM10020	None	None	SSC	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Laridae - Chlidonias niger
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Pandionidae - Pandion haliaetus
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	3812163	CITRUS HEIGHTS	Unprocessed	Animals - Birds - Pandionidae - Pandion haliaetus
Animals - Birds	Setophaga petechia	yellow warbler	ABPBX03010	None	None	SSC	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Parulidae - Setophaga petechia

BIOS Element_Type	Scientific_Name	Common_Name	Element_Code	Federal_Status	State_Status	CDFW_Status	CA_Rare_Plant_Rank	Quad_Code	Quad_Name	Data_Status	Taxonomic_Sort
Animals - Birds	Setophaga petechia	yellow warbler	ABPBX03010	None	None	SSC	-	3812185	NICOLAUS	Unprocessed	Animals - Birds - Parulidae - Setophaga petechia
Animals - Birds	Ammodramus savannarum	grasshopper sparrow	ABPBXA0020	None	None	SSC	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Passerellidae - Ammodramus savannarum
Animals - Birds	Ammodramus savannarum	grasshopper sparrow	ABPBXA0020	None	None	SSC	-	3812173	ROSEVILLE	Mapped	Animals - Birds - Passerellidae - Ammodramus savannarum
Animals - Birds	Melospiza melodia	song sparrow (-inModesto-in population)	ABPBXA3010	None	None	SSC	-	3812183	LINCOLN	Mapped	Animals - Birds - Passerellidae - Melospiza melodia
Animals - Birds	Melospiza melodia	song sparrow (-inModesto-in population)	ABPBXA3010	None	None	SSC	-	3812164	RIO LINDA	Mapped	Animals - Birds - Passerellidae - Melospiza melodia
Animals - Birds	Melospiza melodia	song sparrow (-inModesto-in population)	ABPBXA3010	None	None	SSC	-	3812165	TAYLOR MONUMENT	Mapped	Animals - Birds - Passerellidae - Melospiza melodia
Animals - Birds	Pelecanus erythrorhynchos	American white pelican	ABNFC01010	None	None	SSC	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Pelecanidae - Pelecanus erythrorhynchos
Animals - Birds	Melanerpes lewis	Lewis' woodpecker	ABNYF04010	None	None	-	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Picidae - Melanerpes lewis
Animals - Birds	Laterallus jamaicensis coturniculus	California black rail	ABNME03041	None	Threatened	FP	-	3812183	LINCOLN	Mapped	Animals - Birds - Rallidae - Laterallus jamaicensis coturniculus
Animals - Birds	Asio otus	long-eared owl	ABNSB13010	None	None	SSC	-	3812174	PLEASANT GROVE	Unprocessed	Animals - Birds - Strigidae - Asio otus
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812174	PLEASANT GROVE	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812175	VERONA	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812173	ROSEVILLE	Mapped	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812183	LINCOLN	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812164	RIO LINDA	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Plegadis chihi	white-faced ibis	ABNGE02020	None	None	WL	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Birds - Threskiornithidae - Plegadis chihi
Animals - Birds	Contopus cooperi	olive-sided flycatcher	ABPAE32010	None	None	SSC	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Tyrannidae - Contopus cooperi
Animals - Birds	Empidonax traillii	willow flycatcher	ABPAE33040	None	Endangered	-	-	3812183	LINCOLN	Unprocessed	Animals - Birds - Tyrannidae - Empidonax traillii
Animals - Birds	Empidonax traillii	willow flycatcher	ABPAE33040	None	Endangered	-	-	3812175	VERONA	Unprocessed	Animals - Birds - Tyrannidae - Empidonax traillii
Animals - Crustaceans	Branchinecta conservatio	Conservancy fairy shrimp	ICBRA03010	Endangered	None	-	-	3812173	ROSEVILLE	Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta conservatio
Animals - Crustaceans	Branchinecta conservatio	Conservancy fairy shrimp	ICBRA03010	Endangered	None	-	-	3812184	SHERIDAN	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta conservatio
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812184	SHERIDAN	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812183	LINCOLN	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812173	ROSEVILLE	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812174	PLEASANT GROVE	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812175	VERONA	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812164	RIO LINDA	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812163	CITRUS HEIGHTS	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3812184	SHERIDAN	Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812184	SHERIDAN	Mapped and Unprocessed	Animals - Crustaceans - Chirocephalidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812185	NICOLAUS	Mapped	Animals - Crustaceans - Chirocephalidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812183	LINCOLN	Mapped and Unprocessed	Animals - Crustaceans - Chirocephalidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812175	VERONA	Mapped	Animals - Crustaceans - Chirocephalidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812174	PLEASANT GROVE	Mapped and Unprocessed	Animals - Crustaceans - Chirocephalidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812173	ROSEVILLE	Mapped and Unprocessed	Animals - Crustaceans - Chirocephalidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812163	CITRUS HEIGHTS	Mapped and Unprocessed	Animals - Crustaceans - Chirocephalidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812164	RIO LINDA	Mapped and Unprocessed	Animals - Crustaceans - Chirocephalidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812165	TAYLOR MONUMENT	Mapped	Animals - Crustaceans - Chirocephalidae - Linderiella occidentalis
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812164	RIO LINDA	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812173	ROSEVILLE	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812174	PLEASANT GROVE	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812175	VERONA	Mapped	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812185	NICOLAUS	Mapped	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812184	SHERIDAN	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Fish	Acipenser medirostris	green sturgeon	AFCAA01030	None	None	SSC	-	3812185	NICOLAUS	Unprocessed	Animals - Fish - Acipenseridae - Acipenser medirostris
Animals - Fish	Acipenser medirostris	green sturgeon	AFCAA01030	None	None	SSC	-	3812175	VERONA	Unprocessed	Animals - Fish - Acipenseridae - Acipenser medirostris
Animals - Fish	Acipenser medirostris pop. 1	green sturgeon - southern DPS	AFCAA01031	Threatened	None	-	-	3812175	VERONA	Unprocessed	Animals - Fish - Acipenseridae - Acipenser medirostris pop. 1
Animals - Fish	Acipenser medirostris pop. 1	green sturgeon - southern DPS	AFCAA01031	Threatened	None	-	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Fish - Acipenseridae - Acipenser medirostris pop. 1
Animals - Fish	Cottus gulosus	rifle sculpin	AFCAE02140	None	None	SSC	-	3812185	NICOLAUS	Unprocessed	Animals - Fish - Cottidae - Cottus gulosus
Animals - Fish	Lavinia exilicauda exilicauda	Sacramento hitch	AFCJB19012	None	None	SSC	-	3812175	VERONA	Unprocessed	Animals - Fish - Cyprinidae - Lavinia exilicauda exilicauda
Animals - Fish	Lavinia exilicauda exilicauda	Sacramento hitch	AFCJB19012	None	None	SSC	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Fish - Cyprinidae - Lavinia exilicauda exilicauda
Animals - Fish	Mylopharodon conocephalus	hardhead	AFCJB25010	None	None	SSC	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Fish - Cyprinidae - Mylopharodon conocephalus
Animals - Fish	Mylopharodon conocephalus	hardhead	AFCJB25010	None	None	SSC	-	3812175	VERONA	Unprocessed	Animals - Fish - Cyprinidae - Mylopharodon conocephalus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812175	VERONA	Mapped and Unprocessed	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812185	NICOLAUS	Mapped	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Hysterocarpus traskii traskii	Sacramento-San Joaquin tule perch	AFCQK02012	None	None	-	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Fish - Embiotocidae - Hysterocarpus traskii traskii
Animals - Fish	Hysterocarpus traskii traskii	Sacramento-San Joaquin tule perch	AFCQK02012	None	None	-	-	3812175	VERONA	Unprocessed	Animals - Fish - Embiotocidae - Hysterocarpus traskii traskii
Animals - Fish	Hypomesus transpacificus	Delta smelt	AFCHB01040	Threatened	Endangered	-	-	3812175	VERONA	Unprocessed	Animals - Fish - Osmeridae - Hypomesus transpacificus
Animals - Fish	Hypomesus transpacificus	Delta smelt	AFCHB01040	Threatened	Endangered	-	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Fish - Osmeridae - Hypomesus transpacificus
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	-	-	3812165	TAYLOR MONUMENT	Mapped	Animals - Fish - Osmeridae - Spirinchus thaleichthys
Animals - Fish	Entosphenus tridentatus	Pacific lamprey	AFBAA02100	None	None	SSC	-	3812163	CITRUS HEIGHTS	Unprocessed	Animals - Fish - Petromyzontidae - Entosphenus tridentatus
Animals - Fish	Lampetra ayresii	western river lamprey	AFBAA02030	None	None	SSC	-	3812183	LINCOLN	Unprocessed	Animals - Fish - Petromyzontidae - Lampetra ayresii
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812183	LINCOLN	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812185	NICOLAUS	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812175	VERONA	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812174	PLEASANT GROVE	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812173	ROSEVILLE	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812163	CITRUS HEIGHTS	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812164	RIO LINDA	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus tshawytscha pop. 11	chinook salmon - Central Valley spring-run ESU	AFCHA0205L	Threatened	Threatened	-	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 11
Animals - Fish	Oncorhynchus tshawytscha pop. 11	chinook salmon - Central Valley spring-run ESU	AFCHA0205L	Threatened	Threatened	-	-	3812175	VERONA	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 11
Animals - Fish	Oncorhynchus tshawytscha pop. 11	chinook salmon - Central Valley spring-run ESU	AFCHA0205L	Threatened	Threatened	-	-	3812185	NICOLAUS	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 11
Animals - Fish	Oncorhynchus tshawytscha pop. 13	chinook salmon - Central Valley fall / late fall-run ESU	AFCHA0205N	None	None	SSC	-	3812175	VERONA	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 13
Animals - Fish	Oncorhynchus tshawytscha pop. 13	chinook salmon - Central Valley fall / late fall-run ESU	AFCHA0205N	None	None	SSC	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 13



BIOS Element_Type	Scientific_Name	Common_Name	Element_Code	Federal_Status	State_Status	CDFW_Status	CA_Rare_Plant_Rank	Quad_Code	Quad_Name	Data_Status	Taxonomic_Sort
Animals - Fish	Oncorhynchus tshawytscha pop. 7	chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	-	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 7
Animals - Fish	Oncorhynchus tshawytscha pop. 7	chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	-	-	3812175	VERONA	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 7
Animals - Insects	Andrena subapasta	An andrenid bee	IIHYM35210	None	None	-	-	3812173	ROSEVILLE	Mapped	Animals - Insects - Andrenidae - Andrena subapasta
Animals - Insects	Andrena subapasta	An andrenid bee	IIHYM35210	None	None	-	-	3812163	CITRUS HEIGHTS	Mapped	Animals - Insects - Andrenidae - Andrena subapasta
Animals - Insects	Anthicus antiochensis	Antioch Dunes anthicid beetle	IICOL49020	None	None	-	-	3812185	NICOLAUS	Mapped	Animals - Insects - Anthicidae - Anthicus antiochensis
Animals - Insects	Anthicus sacramento	Sacramento anthicid beetle	IICOL49010	None	None	-	-	3812185	NICOLAUS	Mapped	Animals - Insects - Anthicidae - Anthicus sacramento
Animals - Insects	Cicindela hirticollis abrupta	Sacramento Valley tiger beetle	IICOL02106	None	None	-	-	3812185	NICOLAUS	Mapped	Animals - Insects - Carabidae - Cicindela hirticollis abrupta
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812185	NICOLAUS	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812184	SHERIDAN	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812175	VERONA	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812163	CITRUS HEIGHTS	Mapped and Unprocessed	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812165	TAYLOR MONUMENT	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Hydrochara rickseckeri	Ricksecker's water scavenger beetle	IICOL5V010	None	None	-	-	3812173	ROSEVILLE	Mapped	Animals - Insects - Hydrophilidae - Hydrochara rickseckeri
Animals - Mammals	Vulpes vulpes patwin	Sacramento Valley red fox	AMAJA03015	None	None	-	-	3812184	SHERIDAN	Unprocessed	Animals - Mammals - Canidae - Vulpes vulpes patwin
Animals - Mammals	Vulpes vulpes patwin	Sacramento Valley red fox	AMAJA03015	None	None	-	-	3812164	RIO LINDA	Unprocessed	Animals - Mammals - Canidae - Vulpes vulpes patwin
Animals - Mammals	Vulpes vulpes patwin	Sacramento Valley red fox	AMAJA03015	None	None	-	-	3812163	CITRUS HEIGHTS	Unprocessed	Animals - Mammals - Canidae - Vulpes vulpes patwin
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	3812183	LINCOLN	Unprocessed	Animals - Mammals - Mustelidae - Taxidea taxus
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	3812173	ROSEVILLE	Unprocessed	Animals - Mammals - Mustelidae - Taxidea taxus
Animals - Mammals	Antrozous pallidus	pallid bat	AMACC10010	None	None	SSC	-	3812184	SHERIDAN	Mapped	Animals - Mammals - Vespertilionidae - Antrozous pallidus
Animals - Mollusks	Gonidea angulata	western ridged mussel	IMBIV19010	None	None	-	-	3812164	RIO LINDA	Mapped	Animals - Mollusks - Unionidae - Gonidea angulata
Animals - Mollusks	Gonidea angulata	western ridged mussel	IMBIV19010	None	None	-	-	3812165	TAYLOR MONUMENT	Mapped	Animals - Mollusks - Unionidae - Gonidea angulata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812164	RIO LINDA	Mapped and Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812163	CITRUS HEIGHTS	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812185	NICOLAUS	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812183	LINCOLN	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812184	SHERIDAN	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812173	ROSEVILLE	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812174	PLEASANT GROVE	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812175	VERONA	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812175	VERONA	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812185	NICOLAUS	Mapped	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812164	RIO LINDA	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Phrynosoma blainvillii	coast horned lizard	ARACF12100	None	None	SSC	-	3812163	CITRUS HEIGHTS	Unprocessed	Animals - Reptiles - Phrynosomatidae - Phrynosoma blainvillii
Community - Terrestrial	Alkali Meadow	Alkali Meadow	CTT45310CA	None	None	-	-	3812173	ROSEVILLE	Mapped	Community - Terrestrial - Alkali Meadow
Community - Terrestrial	Alkali Seep	Alkali Seep	CTT45320CA	None	None	-	-	3812173	ROSEVILLE	Mapped	Community - Terrestrial - Alkali Seep
Community - Terrestrial	Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	CTT61420CA	None	None	-	-	3812185	NICOLAUS	Mapped	Community - Terrestrial - Great Valley Mixed Riparian Forest
Community - Terrestrial	Northern Claypan Vernal Pool	Northern Claypan Vernal Pool	CTT44120CA	None	None	-	-	3812164	RIO LINDA	Mapped	Community - Terrestrial - Northern Claypan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812164	RIO LINDA	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812183	LINCOLN	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812173	ROSEVILLE	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Volcanic Mud Flow Vernal Pool	Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	None	None	-	-	3812173	ROSEVILLE	Mapped	Community - Terrestrial - Northern Volcanic Mud Flow Vernal Pool
Community - Terrestrial	Northern Volcanic Mud Flow Vernal Pool	Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	None	None	-	-	3812163	CITRUS HEIGHTS	Mapped	Community - Terrestrial - Northern Volcanic Mud Flow Vernal Pool
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812163	CITRUS HEIGHTS	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812164	RIO LINDA	Mapped and Unprocessed	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812185	NICOLAUS	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Balsamorhiza macrolepis	big-scale balsamroot	PDAST11061	None	None	-	1B.2	3812183	LINCOLN	Mapped	Plants - Vascular - Asteraceae - Balsamorhiza macrolepis
Plants - Vascular	Balsamorhiza macrolepis	big-scale balsamroot	PDAST11061	None	None	-	1B.2	3812173	ROSEVILLE	Mapped	Plants - Vascular - Asteraceae - Balsamorhiza macrolepis
Plants - Vascular	Centromadia parryi ssp. rudis	Parry's rough tarplant	PDAST4ROP3	None	None	-	-	3812165	TAYLOR MONUMENT	Unprocessed	Plants - Vascular - Asteraceae - Centromadia parryi ssp. rudis
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812164	RIO LINDA	Mapped and Unprocessed	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812173	ROSEVILLE	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812174	PLEASANT GROVE	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812183	LINCOLN	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812184	SHERIDAN	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812173	ROSEVILLE	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812164	RIO LINDA	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Juncus leiospermus var. ahartii	Ahart's dwarf rush	PMJUN0111L	None	None	-	1B.2	3812183	LINCOLN	Mapped	Plants - Vascular - Juncaceae - Juncus leiospermus var. ahartii
Plants - Vascular	Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	PMJUN0111L2	None	None	-	1B.1	3812173	ROSEVILLE	Mapped	Plants - Vascular - Juncaceae - Juncus leiospermus var. leiospermus
Plants - Vascular	Fritillaria agrestis	stinkbells	PMLILOV010	None	None	-	-	3812173	ROSEVILLE	Unprocessed	Plants - Vascular - Liliaceae - Fritillaria agrestis
Plants - Vascular	Fritillaria agrestis	stinkbells	PMLILOV010	None	None	-	-	3812183	LINCOLN	Unprocessed	Plants - Vascular - Liliaceae - Fritillaria agrestis
Plants - Vascular	Fritillaria agrestis	stinkbells	PMLILOV010	None	None	-	-	3812164	RIO LINDA	Mapped and Unprocessed	Plants - Vascular - Liliaceae - Fritillaria agrestis
Plants - Vascular	Fritillaria agrestis	stinkbells	PMLILOV010	None	None	-	-	3812163	CITRUS HEIGHTS	Mapped and Unprocessed	Plants - Vascular - Liliaceae - Fritillaria agrestis
Plants - Vascular	Hibiscus lasiocarpus var. occidentalis	woolly rose-mallow	PDMALOH0R3	None	None	-	1B.2	3812175	VERONA	Mapped	Plants - Vascular - Malvaceae - Hibiscus lasiocarpus var. occidentalis
Plants - Vascular	Chloropyrron molle ssp. hispidum	hispid salty bird's-beak	PDSCROJ0D1	None	None	-	1B.1	3812173	ROSEVILLE	Mapped and Unprocessed	Plants - Vascular - Orobanchaceae - Chloropyrron molle ssp. hispidum
Plants - Vascular	Gratiola heterosepala	Boggs Lake hedge-hyssop	PDSCROR060	None	Endangered	-	1B.2	3812173	ROSEVILLE	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Gratiola heterosepala	Boggs Lake hedge-hyssop	PDSCROR060	None	Endangered	-	1B.2	3812174	PLEASANT GROVE	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Gratiola heterosepala	Boggs Lake hedge-hyssop	PDSCROR060	None	Endangered	-	1B.2	3812183	LINCOLN	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Gratiola heterosepala	Boggs Lake hedge-hyssop	PDSCROR060	None	Endangered	-	1B.2	3812164	RIO LINDA	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Navarretia myersii ssp. myersii	pincushion navarretia	PDPLM0C0X1	None	None	-	1B.1	3812183	LINCOLN	Mapped	Plants - Vascular - Polemoniaceae - Navarretia myersii ssp. myersii
Plants - Vascular	Brodiaea rosea ssp. vallicola	valley brodiaea	PMLILOC0K2	None	None	-	-	3812183	LINCOLN	Unprocessed	Plants - Vascular - Themidaceae - Brodiaea rosea ssp. vallicola
Plants - Vascular	Brodiaea rosea ssp. vallicola	valley brodiaea	PMLILOC0K2	None	None	-	-	3812174	PLEASANT GROVE	Unprocessed	Plants - Vascular - Themidaceae - Brodiaea rosea ssp. vallicola
Plants - Vascular	Brodiaea rosea ssp. vallicola	valley brodiaea	PMLILOC0K2	None	None	-	-	3812173	ROSEVILLE	Unprocessed	Plants - Vascular - Themidaceae - Brodiaea rosea ssp. vallicola
Plants - Vascular	Brodiaea rosea ssp. vallicola	valley brodiaea	PMLILOC0K2	None	None	-	-	3812164	RIO LINDA	Unprocessed	Plants - Vascular - Themidaceae - Brodiaea rosea ssp. vallicola
Plants - Vascular	Brodiaea rosea ssp. vallicola	valley brodiaea	PMLILOC0K2	None	None	-	-	3812163	CITRUS HEIGHTS	Unprocessed	Plants - Vascular - Themidaceae - Brodiaea rosea ssp. vallicola



## 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:

January 10, 2022

Consultation Code: 08ESMF00-2022-SLI-0777

Event Code: 08ESMF00-2022-E-02353

Project Name: SMUD Country Acres

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, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) 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 Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

[http://www.nwr.noaa.gov/protected\\_species/species\\_list/species\\_lists.html](http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html)

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 ECOS-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 ECOS-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:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>;

<http://www.towerkill.com>; and

[www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html](http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html).

[http://](http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html)

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 Tracking Number 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

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## Project Summary

Consultation Code: 08ESMF00-2022-SLI-0777

Event Code: Some(08ESMF00-2022-E-02353)

Project Name: SMUD Country Acres

Project Type: \*\* OTHER \*\*

Project Description: Proposed solar facility on leased agricultural land in placer county  
California

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.7929725,-121.4236496,1290221,14z>



Counties: Placer County, California

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## Endangered Species Act Species

There is a total of 8 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<sup>1</sup>, 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
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/4482">https://ecos.fws.gov/ecp/species/4482</a>	Threatened

## Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/2891">https://ecos.fws.gov/ecp/species/2891</a>	Threatened

## Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/321">https://ecos.fws.gov/ecp/species/321</a>	Threatened

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## Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Candidate
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/7850">https://ecos.fws.gov/ecp/species/7850</a>	Threatened

## Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/8246">https://ecos.fws.gov/ecp/species/8246</a>	Endangered
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/498">https://ecos.fws.gov/ecp/species/498</a>	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/2246">https://ecos.fws.gov/ecp/species/2246</a>	Endangered

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

**Table BR-1a. Special Status Plant Species with Potential for Occurrence in the SMUD Country Acres Region and their Potential to Occur in the Study Area**

Scientific Name	Common Name	Regulatory Status			Habitat Requirements	Elevation Range (feet above msl)	Blooming Period	Potential for Occurrence*
		Fed	State	CRPR				
<i>Balsamorhiza macrolepis</i>	big-scale balsamroot	–	–	1B.2	Occurs on slopes in foothill woodlands and valley grasslands.	92 – 6,594	March – June	<b>Unlikely to occur.</b> Habitat for this species is present on the project site but there are no CNDDDB occurrences within a 2-mile buffer. Most recent observation within a 10-mile buffer of the project area is a 1957 collection from 3.2 miles north of Roseville along HWY 99E.
<i>Brodiaea rosea</i> spp. <i>vallicola</i>	valley brodiaea	–	–	4.2	Valley and foothill grasslands, vernal pools.	35 – 1,100	April – June	<b>Unlikely to occur.</b> Habitat for this species is present on the project site (marginal vernal pool habitat and disturbed annual grassland) but there are no CNDDDB occurrences within a 10-mile buffer of the project area.
<i>Centromadia parryi</i> ssp. <i>rudis</i>	Parry's rough tarplant	–	–	4.2	Valley and foothill grassland, vernal pools. Alkaline soils, roadsides, seeps, and vernal mesic habitat.	0 – 330	May – October	<b>Unlikely to occur.</b> Habitat for this species is present on the project site but there are no CNDDDB occurrences within a 10-mile buffer of the project area. The presence of disturbed grassland, vernal pools, and valley seeps onsite and adjacent to the project area provide marginally suitable habitat.
<i>Chloropyron molle</i> ssp. <i>hispidum</i>	hispid salty bird's beak	–	–	1B.1	Meadows and seeps, playas, valley and foothill grasslands, alkaline soils.	5 – 510	June – Sep.	<b>Unlikely to occur.</b> Habitat for this species is present on the project site but there are no CNDDDB occurrences within a 10-mile buffer of the project area. The presence of disturbed grassland, vernal pools, and valley seeps onsite and adjacent to the project area provide suitable habitat.
<i>Downingia pusilla</i>	dwarf downingia	–	–	2B.2	Valley and foothill grassland (mesic), vernal pools.	5 – 1,460	March – May	<b>Potential to occur.</b> Habitat for this species is present on the project site. There were eight occurrences identified by CNDDDB within a 2-mile buffer of the project area. The closest occurrences were recorded just over a mile east of the project area.



Scientific Name	Common Name	Regulatory Status			Habitat Requirements	Elevation Range (feet above msl)	Blooming Period	Potential for Occurrence*
		Fed	State	CRPR				
<i>Fritillaria agrestis</i>	stinkbells	–	–	4.2	Chaparral, cismontane woodland, pinyon and juniper woodland, valley and foothill grassland. Clay and serpentine soils.	35 – 5,100	March – June	<b>Unlikely to occur.</b> There is some habitat for this species present on the project site; however, the clay soils in the site are highly disturbed and developed for rice production. CNDDDB shows four occurrences within a 10-mile buffer of the project site, however, no occurrences were within or adjacent to the project (no occurrences within a 2-mile buffer of the project site). No occurrences observed since 1997 within a 10-mile buffer of the project site.
<i>Gratiola heterosepala</i>	Boggs lake hedge-hyssop	–	–	1B.2	Marshes and swamps (lake margins), vernal pools, mud and shallow water. Clay soils.	35 – 7,790	April – August	<b>Potential to occur.</b> There is suitable habitat for this species within and adjacent to the project site. CNDDDB showed a single occurrence of this species near the project area, approximately 1.5 miles due east of the easternmost boundary of the project site.
<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	woolly rose-mallow	–	–	1B.2	Freshwater marshes and swamps.	0 – 395	June – September	<b>Unlikely to occur.</b> There is marginal habitat for this species present onsite. CNDDDB did not identify any occurrences within 10 miles of the project site. Amount of habitat present onsite is not significant to support an ongoing population of this species.
<i>Juncus leiospermus</i> var. <i>ahartii</i>	Ahart's dwarf rush	–	–	1B.2	Valley and foothill grasslands (mesic).	100 – 750	March – May	<b>Potential to occur.</b> There is some suitable habitat present onsite but no occurrences within proximity to the project area. CNDDDB identified one occurrence within a 10-mile buffer of the project area in the Lincoln 7.5-minute quadrangle. CNPS shows the closest occurrence within the Lincoln 7.5-minute quadrangle.

Scientific Name	Common Name	Regulatory Status			Habitat Requirements	Elevation Range (feet above msl)	Blooming Period	Potential for Occurrence*
		Fed	State	CRPR				
<i>Juncus leiospermus</i> var. <i>leiospermus</i>	Red Bluff dwarf rush	–	–	1B.1	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grasslands, vernal pools. Vernal mesic habitat.	115 – 4,100	March – June	<b>Unlikely to occur.</b> There is marginal vernal pool habitat on the project site, the species was not observed by AECOM biologists during field surveys. No CNDDDB occurrences identified within a 10-mile buffer of the project site. The closest occurrence is within the Roseville 7.5-minute quadrangle. Marginal habitat for this species is present within and adjacent to the project area but no historic occurrences.
<i>Legenere limosa</i>	legenere	–	–	1B.1	Vernal pools.	5 – 2,885	April – June	<b>Potential to occur.</b> There is marginal vernal pool habitat on the project site. CNDDDB identified six occurrences of this species within a 10-mile buffer of the project site; however, no occurrences were in proximity to the project site.
<i>Navarretia myersii</i> spp. <i>myersii</i>	Pincushion navarretia	–	–	1B.1	Vernal pools.	65 – 1,085	April – May	<b>Potential to occur.</b> There is marginal vernal pool habitat on the project site. CNDDDB identified one occurrence of this species within a 10-mile buffer of the project site; however, no occurrences were in proximity to the project site.
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	–	–	1B.2	Marshes and swamps (shallow freshwater)	0 – 2,135	May – October	<b>Low potential to occur.</b> There is marsh and seasonal wetland habitat that may be suitable for this species. CNDDDB identified six occurrences within a 10-mile buffer of the project area. No occurrences within proximity to the project site.

## Notes for Table BR-1

Notes: CNDDDB = California Natural Diversity Database; CRPR = California Rare Plant Rank; Delta = Sacramento–San Joaquin Delta; msl = mean sea level

### \* **Potential for Occurrence:**

No Potential to Occur: No suitable habitat is present within or near the project site, the species' range does not include the project site, or the species is presumed extinct in California (CRPR 1A).

Unlikely to Occur: Project site is within the species' range; however, the species has not been recorded within the project site or vicinity, and habitat present is marginal for the species or habitat is reasonably suitable, but other factors, such as competition with nonnative plants or heavy disturbance (i.e., grazing, soil disking) indicate that presence of the species is not expected.

Low Potential to Occur: The species was identified during literature review as potentially occurring near the project site and habitat for the species is marginal or potentially suitable habitat may occur, but there are no records of species occurrence within the project site or its vicinity.

Potential to Occur: Project site is within the species' range and suitable habitat for the species is present; however, the species has not been recorded within the project site or existing records are historical and/or locational information is problematic/inaccurate, and species occurrence records may or may not occur in the project vicinity.

Known to Occur: The project site is within the species' range, suitable habitat for the species is present, and the species has been recorded within the project site and current conditions appear to approximate those at the time of the recorded occurrence.

### **California Rare Plant Rank (CRPR) Categories:**

1B = Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under the federal Endangered Species Act or California Endangered Species Act)

2B = Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under the federal Endangered Species Act or California Endangered Species Act)

3 = Plants about which more information is needed (a review list); and

4 = Plants of limited distribution (a watch list).

### **California Rare Plant Rank (CRPR) Threat Rank Extensions:**

.1 = Seriously endangered in California (>80% of occurrences are threatened and/or high degree and immediacy of threat)

.2 = Fairly endangered in California (20% to 80% of occurrences are threatened)

Sources: CDFW 2021; USFWS 2022; Baldwin et al. 2012

**Table BR-1b. Special Status Wildlife Species with Potential for Occurrence in the SMUD Country Acres Region and their Potential to Occur in the Study Area**

Species	Regulatory Status <sup>1</sup>		Habitat	Potential for Occurrence <sup>2</sup>
	Federal	State/ CDFW/ PCCP		
<b><i>Invertebrates</i></b>				
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	E	—/ PCCP covered species	Vernal pools and seasonal wetlands with moderately turbid water. Tulare County to Shasta County.	<b>No potential to occur.</b> There is suitable vernal pool habitat is present on the project site, however, the nearest observation is not within proximity to the project site. There was one CNDDDB occurrence identified within the Sheridan 7.5-minute quadrangle (CDFW 2021).
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	T	—/ PCCP covered species	Vernal pools and other seasonal wetlands in valley and foothill grasslands. Tends to occur in smaller wetland features (less than 0.05 acre in size).	<b>Potential to occur.</b> There is suitable vernal pool habitat is present on the project site. The nearest CNDDDB observation is less than a mile from the northwestern portion of the project area. CNDDDB identified 10 occurrences within a 2-mile buffer of the project site.
Vernal pool tadpole shrimp <i>Lepidurus packardi</i>	E	—/ PCCP covered species	Vernal pools and other seasonal wetlands in valley and foothill grasslands that pond for sufficient duration to allow the species to complete its life cycle. Typically found in ponds ranging in size from 0.1 acre to 80 acres.	<b>Potential to occur.</b> Very little suitable (deep) vernal pool habitat is present on the project site. The nearest observations are within the Pleasant Grove 7.5 minute quadrangle (CDFW 2021). Eight occurrences were identified by CNDDDB within a 10-mile buffer of the project area. The closest occurrence is at the southwest of the intersection of Pleasant Grove Rd and Sankey Road.
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T	—/ PCCP covered species	Requires elderberry shrubs; typically occur in riparian woodlands and upland habitats of the Central Valley.	<b><u>No potential to occur.</u></b> No elderberry shrubs present on the project site.

Species	Regulatory Status <sup>1</sup>		Habitat	Potential for Occurrence <sup>2</sup>
	Federal	State/ CDFW/ PCCP		
<b><i>Fish</i></b>				
Delta Smelt <i>Hypomesus transpacificus</i>	T	E/–	Inhabits open waters of bays, tidal rivers, channels, and sloughs; rarely occurs in water with salinity of more than 10–12 ppt; when not spawning, found where salt water and freshwater mix; typically spawns upstream, but some spawning events have been documented in estuaries.	<b>No potential to occur.</b> No suitable aquatic habitat in the project site. Critical habitat for the species occurs in the Delta. The project site is outside of the species known range.
Steelhead—Central Valley DPS <i>Oncorhynchus mykiss irideus</i> pop. 11	T	–/– PCCP covered species	Cool, clear streams with abundant cover and well-vegetated banks, with relatively stable flows. Pool and riffle complexes and cold gravelly streambeds for spawning.	<b>Unlikely to occur.</b> No suitable aquatic habitat in the project site. This species is known to occur in the Delta from Chipps Island to the San Joaquin River at Dos Reis and Sacramento River at Garcia Bend. CNDDDB identified a single occurrence within a 2-mile buffer of the project site in Roseville at Dry Creek and its tributaries, Secret Ravine and Miners Ravine.
Longfin Smelt <i>Spirinchus thaleichthys</i>	C	T/–	Uses estuaries, nearshore waters, and the lower portions of freshwater streams. Found in the San Francisco estuary and Delta, Humboldt Bay, and the estuaries of the Eel River and Klamath River.	<b>No potential to occur.</b> No suitable aquatic habitat in the project site. The species' main spawning grounds are in the Sacramento River, south of Rio Vista.
<b><i>Amphibians and Reptiles</i></b>				
California tiger salamander – Central California DPS <i>Ambystoma californiense</i> pop. 1	T	T/WL	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy.	<b>No potential to occur.</b> Only marginal suitable habitat present (ponds, lakes or vernal pools) in the project site. No CNDDDB occurrences within a 10-mile buffer of the project site. Species was not observed by AECOM biologists during field surveys.

Species	Regulatory Status <sup>1</sup>		Habitat	Potential for Occurrence <sup>2</sup>
	Federal	State/ CDFW/ PCCP		
Western pond turtle <i>Emys marmorata</i>	–	–/SSC PCCP covered species	Forages in ponds, marshes, slow-moving streams, sloughs, and irrigation/drainage ditches; nests in nearby uplands with low, sparse vegetation.	<b>Low potential to occur.</b> Pond turtles could potentially move through the project site during wet periods to disperse between aquatic sites and to nest within annual grassland habitats. CNDDDB showed a single occurrence for this species within a 10-mile buffer of the project site. The closest occurrence is within the Rio Linda 7.5-minute quadrangle on McClellan Air Force Base (approximately 8 miles).
Foothill yellow-legged frog <i>Rana boylei</i>	–	E/SSC PCCP covered species	Found in most major Pacific-slope Sierra Nevada watersheds between upper Sacramento River and the Tehachapi Mountains. Streams and rivers with rocky substrate and open, sunny banks, in forests, chaparral, and woodlands from sea level to 6,700 feet. Sometimes found in isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools	<b>No potential to occur.</b> No suitable habitat in the project site, and no CNDDDB records within 10 miles of the project site (CDFW 2021).
California red-legged frog <i>Rana draytonii</i>	T	–/SSC PCCP covered species	Occurs throughout California and northern Baja California. Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation. Requires 11–20 weeks of permanent water for larval development and must have access to aestivation habitat. Endemic to California and Baja California, at elevations ranging from sea level to 1,524 meters (5,000 feet). Has a distinct aquatic and upland habitat requirement that includes pools of slow-moving streams, perennial or ephemeral ponds, and upland sheltering habitats.	<b>No potential to occur.</b> No CNDDDB records within 10 miles of the project site. The project site is outside the species' range, and physical barriers prevent dispersal into the project site from the nearest occurrence.

Species	Regulatory Status <sup>1</sup>		Habitat	Potential for Occurrence <sup>2</sup>
	Federal	State/ CDFW/ PCCP		
Giant garter snake <i>Thamnophis gigas</i>	T	T/– PCCP covered species	Slow-moving streams, sloughs, ponds, marshes, inundated floodplains, rice fields, and irrigation/drainage ditches on the Central Valley floor with mud bottoms, earthen banks, emergent vegetation, abundant small aquatic prey, and absence or low numbers of large predatory fish. Requires permanent water during the active season. Also requires upland refugia not subject to flooding during the snake's inactive season.	<b>Unlikely to occur.</b> Marginally suitable habitat present in the project site. However, the site does not connect to any existing populations or records of the species, and large predatory fish in the Sacramento River likely preclude the species from migrating to the site. CNDDDB did not identify any occurrences within 2 miles of the project site, however, a database search identified 75 occurrences within 10 miles of the project site – predominantly occurring within the Taylor Monument and Verona 7.5-minute quadrangles (CDFW 2021). The closest occurrence is approximately 5 miles due east of the project site.
Western spadefoot <i>Spea Hammondi</i>	–	–/SSC	Open areas with gravelly, friable, or sandy soils in washes and vernal pools in the vicinity of grasslands, oak woodlands, coastal sage scrub, and chaparral. Breeds in ephemeral wetlands such as vernal pools and stock tanks, but occasionally breed in intermittent streams where larvae develop in isolated areas of the stream as it dries. Water temperatures in breeding pools must be between 9° C (48° F) and 30° Celsius (86° F) for reproduction and not contain exotic species such as American bullfrogs ( <i>Rana catesbeianus</i> ) and crayfish (Order Decapoda).	<b>Low potential to occur.</b> There is suitable habitat for this species within and adjacent to the project site. CNDDDB identified a single occurrence within 2 miles of the project site and 12 occurrences within 10 miles of the project site. This species was not observed by AECOM biologists during field surveys, however, this species spends a significant amount of time below ground and is most active during seasonal flooding.

Species	Regulatory Status <sup>1</sup>		Habitat	Potential for Occurrence <sup>2</sup>
	Federal	State/ CDFW/ PCCP		
<b>Birds</b>				
Tricolored blackbird <i>Agelaius tricolor</i> (nesting colony)	–	T/ SSC PCCP covered species	Forages in agricultural lands and grasslands; nests in marshes, riparian scrub, and other areas that support cattails or dense thickets of shrubs or herbs. Requires open water and protected nesting substrate, such as flooded, spiny, or thorny vegetation.	<b>Potential to occur.</b> Suitable nesting and foraging habitat in the project site. However, no nesting colonies recorded on-site; species was not observed by AECOM biologists during field surveys. CNDDDB identified 20 occurrences within 10 miles of the project site with the closest located approximately 1 mile northeast of the project site boundary (CDFW 2021).
Grasshopper sparrow <i>Ammodramus savannarum</i> (nesting)	–	–/SSC	Nests and forages in dense grasslands; favors a mix of native grasses, forbs, and scattered shrubs.	<b>Unlikely to occur.</b> Ruderal areas throughout the project site provide suitable nesting and foraging habitat; however, there is only one occurrence identified by CNDDDB within 10 miles of the project site (CDFW 2021).
Golden eagle <i>Aquila chrysaetos</i> (nesting and wintering)	–	–/FP, WL	Prefers open terrain for hunting, such as grasslands, meadows, deserts, savannas, and early successional stages of forest and shrub habitats. Nests in rugged, open habitats with canyons and escarpments, typically on cliffs and rock outcroppings; however, will also nest in large trees in open areas, including oaks, sycamores, redwoods, pines, and eucalyptus, overlooking open hunting habitat.	<b>No potential to occur.</b> No cliffs, large trees, or other structures for nesting are present on the project site. No nesting habitat. Golden eagles migrate through and winter in the Central Valley, but the valley floor is not within the core breeding range, and typical habitat is present in rolling foothills, mountains, and deserts. Species could perch in trees in the project site and could forage in ruderal habitat on the project site. No CNDDDB occurrences within 10 miles of the project site.



Species	Regulatory Status <sup>1</sup>		Habitat	Potential for Occurrence <sup>2</sup>
	Federal	State/ CDFW/ PCCP		
Burrowing owl <i>Athene cunicularia</i> (year-round)	–	–/SSC PCCP covered species	Nests and forages in grasslands, agricultural lands, open shrublands, and open woodlands with existing ground squirrel burrows or friable soils. Suitable burrow sites consist of short, herbaceous vegetation with only sparse cover of shrubs or taller herbs.	<b>Potential to occur.</b> Ruderal grassland throughout the project site, particularly where there are ground squirrel burrows, represents suitable nesting and foraging habitat. The project site is within the year-round range of the species. The study area contains suitable burrow sites and nesting habitat for this species. No breeding activity has been documented in the project area (CDFW 2021). CNDDDB identified one occurrence within 2 miles of the project site however, the species was not observed by AECOM biologists during field surveys.
Swainson's hawk <i>Buteo swainsoni</i> (nesting)	–	T/– PCCP covered species	Forages in grasslands, irrigated pastures, and agricultural lands; nests in riparian and isolated trees.	<b>Known to occur.</b> There is suitable nesting and foraging habitat present on the project site. CNDDDB identified 6 occurrences within 2 miles of the project site. AECOM Biologists observed this species on three separate occasions during field surveys. It is possible that this species may nest or occur within or adjacent to the project site.
Mountain plover <i>Charadrius montanus</i>	–	–/SSC	Forages on grasslands and plowed fields. Will roost in depressions of ungulate hoof prints and plowed furrows.	<b>No potential to occur.</b> No CNDDDB occurrences within 10 miles of the project site. Seasonal flooding of agricultural fields may reduce habitat suitability for this species. Species was not observed by AECOM biologists during field surveys.
Yellow rail <i>Coturnicops noveboracensis</i>	–	–/SSC	Requires sedge marshes and meadows with moist soil and shallow standing water.	<b>No potential to occur.</b> No suitable habitat (sedge marsh or meadow) in the project site.
Northern harrier <i>Circus hudsonius</i> (nesting)	–	–/SSC	Uses a variety of open grassland, wetland, and agricultural habitats. Breeding habitats include marshy meadows, wet and lightly grazed pastures, and freshwater and brackish marshes; and dry upland habitats, such as grassland, cropland, drained marshland, and shrub-steppe in cold deserts.	<b>Known to occur.</b> There is suitable foraging and nesting habitat for this species within and adjacent to the project site. This species was observed by AECOM biologists within the study area during field surveys.

Species	Regulatory Status <sup>1</sup>		Habitat	Potential for Occurrence <sup>2</sup>
	Federal	State/ CDFW/ PCCP		
White-tailed kite <i>Elanus leucurus</i> (nesting)	–	–/FP	Individuals prefer open grasslands with dispersed trees for nesting and perching. Frequently found along tree-lined river valleys with contiguous open areas.	<b>Known to occur.</b> The species is known to occur within the study area and was observed by AECOM Biologists on April 26 <sup>th</sup> , 2021. Ruderal vegetation and agricultural land-use throughout the project site provides suitable foraging habitat. There is potential nesting habitat within the few riparian/forested areas onsite. CNDDDB identified 10 occurrences within 10 miles of the project site.
American peregrine falcon <i>Falco peregrinus anatum</i>	D	D/FP	Distributed throughout the United States. The habitat of the peregrine falcon includes many terrestrial biomes in North America. Most often, breeding peregrine falcons use habitats containing cliffs and almost always nest near water (Wheeler 2003; White et al. 2002). Peregrine falcons generally use open habitats for foraging. Nonbreeding peregrine falcons may also occur in open areas without cliffs. Many artificial habitats like towers, bridges, and buildings are also used by peregrine falcons (White et al. 2002).	<b>Unlikely to occur.</b> Occurs seasonally throughout the central valley. Suitable foraging habitat is found within the project site. CNDDDB did not show any occurrences of the species within 10 miles of the project site (CNDDDB data suppressed).
Long-eared owl <i>Asio otus</i>	–	–/FP	Forests and shrub lands that are near to open areas, such as grasslands. They can be found from sea level up to 2000 m elevation. They are common in tree belts along streams in dry habitats. This species is commonly found nesting in cliffs and riparian areas (in old tree nests; chiefly magpie nests). Suitable foraging habitat includes forested and riparian areas as well as forested fringes bordering agricultural and ruderal areas.	<b>Unlikely to occur.</b> A CNDDDB search showed one occurrence within the Pleasant Grove 7.5-minute quadrangle. Long-eared owl was not observed by AECOM biologists during field surveys. There is low potential to occur within the project area.
Bald eagle <i>Haliaeetus leucocephalus</i> (nesting and wintering)	D	E/FP	Individuals forage primarily in large inland fish-bearing waters with adjacent large trees or snags; occasionally in uplands with abundant rabbits, other small mammals, or carrion. They often roost communally in winter.	<b>Unlikely to occur.</b> The nearest possible breeding territory would be centered on Grizzly Island approximately 4–5 miles west of the MHWRA (Estep Environmental Consulting 2018). The species could forage in the project site.

Species	Regulatory Status <sup>1</sup>		Habitat	Potential for Occurrence <sup>2</sup>
	Federal	State/ CDFW/ PCCP		
Loggerhead shrike <i>Lanius ludovicianus</i> (nesting)	–	–/SSC	Forages in grasslands and agricultural fields, and nests in scattered shrubs and trees.	<b>Known to occur.</b> The species was observed foraging in the project site during field surveys in April 2021. The species is known to occur within the study area (AECOM 2021). The ruderal vegetation in the project site represents suitable foraging habitat. Nesting habitat is limited to scattered trees and shrubs. Agricultural fencing or sharp-leaved plants are part of a foraging requirement for this species, this requirement is present on and adjacent to the project site.
California black rail <i>Laterallus jamaicensis coturniculus</i>	–	T/FP	Inhabits freshwater marshes, wet meadows, and shallow margins of saltwater marshes bordering larger bays.	<b>Unlikely to occur.</b> No naturally occurring suitable habitat is present in the within or adjacent to the project site. The only potential nearby habitat exists along vegetated channels and tributaries of the Sacramento River. Some studies show that black rails may utilize/depend on flooded agricultural land to act as shallow-freshwater habitat. The closest CNDDDB occurrence was recorded within the Lincoln 7.5 minute quadrangle (CDFW 2021).
Song sparrow ("Modesto population") <i>Melospiza melodia mailliardi</i>	–	–/SSC	Prefers riparian willow thickets, valley oak riparian with understory of blackberry, ruderal areas along levees and irrigation canals, and cattail and tule marshes.	<b>Low potential to occur.</b> Suitable habitat is present in the project site. CNDDDB identified three occurrences within 10 miles of the project site. No occurrences were recorded within 2 miles of the project site (CDFW 2021). This species was not observed by AECOM biologists during field surveys.
California Ridgway's rail <i>Rallus obsoletus obsoletus</i>	E	E/FP	Lives in brackish water marshes in dense pickleweed and cordgrass.	<b>No potential to occur.</b> No brackish marshes in the project site. No known occurrences have been documented within 10 miles of the project site (CDFW 2021).

Species	Regulatory Status <sup>1</sup>		Habitat	Potential for Occurrence <sup>2</sup>
	Federal	State/ CDFW/ PCCP		
Bank swallow <i>Riparia riparia</i>	–	T/–	Forages in open riparian areas, grassland, wetlands, water, and cropland and nests in vertical banks and cliffs with fine-textured or sandy soils near streams, rivers, ponds, and lakes.	<b>Unlikely to occur.</b> Two CNDDDB occurrence documented approximately 13 miles east of the project (CDFW 2021). There is marginal habitat for this species within and adjacent to the project site. This species was not observed by AECOM Biologists during field surveys.
<b>Mammals</b>				
American badger <i>Taxidea taxus</i>	–	–/SSC	Most abundant in the drier open stages of most shrub, forest, and herbaceous habitats with friable soils; generally associated with treeless regions, prairies, parklands, and desert areas. Needs open, uncultivated land.	<b>Potential to occur.</b> Ruderal and grassland areas in the project site represent suitable habitat; however, land disturbance from seasonal flooding for rice production may preclude establishment of burrows or den. No large dens were found, but badger sign in the form of claw marks and half-dug holes (likely from foraging for prey) were found in the grasslands in the northwestern portion of the project site during the field survey. CNDDDB did not identify any occurrences within 10 miles of the project site (CDFW 2021).
Pallid bat <i>Antrozous pallidus</i>	–	–/SSC	Grasslands, shrublands, oak woodlands, forests; most common in open, dry habitats; individuals roost in rock crevices, cliffs, caves, mines, and hollows of oaks and redwoods, and under sloughing bark, and human structures (e.g., bridges, buildings).	<b>Low potential to occur.</b> There is marginally suitable roost habitat (sloughing bark) present onsite. CNDDDB identified one occurrence of this species within 10 miles of the project site (CDFW 2021).
Western red bat <i>Lasiurus blossevillei</i>	–	–/SSC	Solitary foliage-roosting bat associated with riparian habitat (particularly willows, cottonwoods, sycamore, and eucalyptus), but individuals also use orchards, agricultural, and sometimes urban environments.	<b>Low potential to occur.</b> Marginally suitable roost trees are present on the project site in the form of young almond orchards and patchy willow and cottonwood canopy. CNDDDB did not identify any occurrences of this species within 10 miles of the project site (CDFW 2021).
Notes: CDFW = California Department of Fish and Wildlife; CNDDDB = California Natural Diversity Database; Delta = Sacramento–San Joaquin Delta; DPS = Distinct Population Segment; ppt = parts per thousand; SMUD = Sacramento Municipal Utility District				
<sup>1</sup> Legal Status Definitions:				

Species	Regulatory Status <sup>1</sup>		Habitat	Potential for Occurrence <sup>2</sup>
	Federal	State/ CDFW/ PCCP		
<b>Federal:</b> E Endangered (legally protected) T Threatened (legally protected) D Delisted (no Endangered Species Act protection) PT Proposed as threatened R Under review – No status			<b>State:</b> E Endangered (legally protected) T Threatened (legally protected) CE Candidate endangered  <b>CDFW:</b> FP Fully protected (legally protected) SSC Species of special concern (no formal protection other than CEQA consideration) WL Watch listed – No status	
<b><sup>2</sup> Potential for Occurrence:</b> <u>No Potential to Occur:</u> The project site is outside the species' range or suitable habitat for the species is absent from the project site and adjacent areas. <u>Unlikely to Occur:</u> No occurrences of the species have been recorded within or immediately adjacent to the project site, and either habitat for the species is marginal or potentially suitable habitat may occur, but the species' current known range is restricted to areas far from the project site. <u>Low Potential to Occur:</u> The species was identified during literature review as potentially occurring near the project site and habitat for the species is marginal or potentially suitable habitat may occur, but there are no records of species occurrence within the project site or its vicinity. <u>Potential to Occur:</u> The project site is within the species' range, and no occurrences of the species have been recorded within the project site; however, suitable habitat for the species is present and recorded occurrences of the species are generally present in the vicinity. <u>Known to Occur:</u> The project site is within the species' range, suitable habitat for the species is present, and the species has been recorded from within the project site. Sources: CDFW 2021; USFWS 2022; data compiled by AECOM in 2021.				

**Table BR-2. SMUD Country Acres Solar Project Consistency with PCCP Requirements**

PCCP Requirements for Covered Activities	Country Acres Solar Project Consistency
<b>General Conditions</b>	
<p><b>General Condition 1, Watershed Hydrology and Water Quality</b></p> <p>All Covered Activities shall comply with the State of California General Construction Permit—including requirements to develop a project-based Storm Water Pollution Prevention Plan (SWPPP)—and applicable NPDES program requirements as implemented by the County and the City of Lincoln.</p> <ul style="list-style-type: none"> <li>• State Water Board Construction General Permit</li> <li>• West Placer Storm Water Quality Design Manual</li> <li>• HCP/NCCP Watershed Hydrology and Water Quality BMPs</li> </ul>	<p>SMUD will develop a project-based SWPPP and will comply with the California General Construction Permit and applicable NPDES program requirements as implemented by the County. SMUD will also follow any applicable CUP requirements related to hydrology and water quality.</p>
<p><b>General Condition 2, Conservation Lands: Development Interface Design Requirements</b></p> <p>Covered Activities that occur in or adjacent to the Reserve System, or adjacent to existing reserves, mitigation sites, and conservation banks, will incorporate design requirements to minimize the indirect effects of development on these types of conservation lands in the permit area.</p> <ul style="list-style-type: none"> <li>• Conservation Lands: Development Interface Design Requirements</li> </ul>	<p>The project has been designed to avoid and minimize direct and indirect effects, such as stormwater runoff. All necessary BMPs will be implemented and conditions of the CUP applied, and the entire project area will be fenced.</p>
<p><b>General Condition 3, Land Conversion</b></p> <p>Covered Activities that would result in permanent conversion of natural land cover must pay fees or otherwise contribute to establishing the Reserve System and are subject to the maximum extent of take proposed under the Plan.</p> <p>Covered Activities will be assessed fees based on the parameters described in Chapter 9, Costs and Funding, and summarized in Table 9-6. In the Valley the fees will be applied when projects affect natural, semi-natural, and other agricultural communities. These communities include the following land-cover types:</p> <ol style="list-style-type: none"> <li>Grassland</li> <li>Vernal Pool Complex</li> <li>Aquatic/Wetland Complex</li> <li>Riverine/Riparian Complex</li> </ol>	<p>SMUD intends to pay fees or otherwise contribute to an established mitigation bank for impacts to natural land cover as well as agriculture. Please see DEIR Table 3.4-6 Impact Acres by Vegetation Community/Habitat Type Based on 10% Design.</p> <p>The following mitigation measure has been included in the DEIR to address impacts to agriculture:</p> <p><b>Mitigation Measure 3.2-1. Preserve Important Farmland</b></p> <p>SMUD shall implement one of the following methods to minimize the loss Farmland of Statewide Importance and Unique Farmland at a 1:1 ratio (i.e., 1 acre on which easements are acquired to 1 acre of Farmland of Statewide Importance and Unique Farmland removed from agricultural use):</p> <ul style="list-style-type: none"> <li>• Acquire agricultural conservation easement(s) that provide in-kind or similar resource value protection in the region, with a strong preference for locating the agricultural conservation easement(s) in Placer County. This can be achieved by the acquisition of conservation easements, farmland deed restriction, or other appropriate farmland conservation mechanism to ensure the preservation of the land in perpetuity.</li> </ul>

PCCP Requirements for Covered Activities	Country Acres Solar Project Consistency
<ul style="list-style-type: none"> <li>e. Oak Woodland</li> <li>f. Valley Oak Woodland</li> <li>g. Rice Agriculture</li> <li>h. Field Agriculture</li> <li>i. Orchard and Vineyard Agriculture</li> <li>j. Rural Residential</li> </ul> <p>In the Valley, the land conversion fee will not apply to ground disturbance in urban (non-natural) communities except if a special habitat fee applies. Special habitat fees for restoration and enhancement will apply to any ground disturbance to a constituent habitat regardless of community type (see Chapter 3, Physical and Biological Setting, Table 3-6 for a list of constituent habitats). In urban (non-natural) communities, the land conversion fee would apply to the same area of ground disturbance as the special habitat fee.</p>	<ul style="list-style-type: none"> <li>Pay in-lieu fees to an established, agreed-upon (by County and SMUD) mitigation program with a presence in Placer County (e.g., Placer Land Trust) to fully fund the acquisition and maintenance of agricultural land or easements.</li> <li>Alternatively, this may occur through the payment of fees into the PCCP's in-lieu fee program under a Memorandum of Understanding (MOU) with the PCA prior to issuance of improvement plans. (In-lieu fee payments would also address impacts on special-status species through loss for foraging habitat for burrowing owl and Swainson's hawk, and impacts on sensitive natural communities and wetlands and other waters of the US and state/County, as detailed in Mitigation Measures 3.4-8., 3.4-10 and 3.4-16 in Section 3.4 "Biological Resources" of this EIR).</li> </ul> <p>Payments of in-lieu fees or acquisition of agricultural conservation easements may be spread out in alignment with construction phasing but must occur no later than the start of each new phase. The impact acreage requiring offset shall be based on the most current FMMP at the time of the County's issuance of the Conditional Use Permit.</p>
<p><b>General Condition 4, Temporary Effects</b></p> <p>Covered Activities that result in temporary effects [1 year] on natural land cover must pay fees and are subject to the maximum extent of take proposed under the Plan.</p>	<p>SMUD intends to pay fees or otherwise contribute to an established mitigation bank for temporary impacts to natural land cover. Please see DEIR Table 3.4-6 Impact Acres by Vegetation Community/Habitat Type Based on 10% Design.</p>
<p><b>General Condition 5, Conduct Worker Training</b></p> <p>If project-specific conditions for avoidance or minimization apply during construction, all project construction personnel will participate in a worker environmental training program that will educate workers regarding the Covered Species and their habitats, the need to avoid impacts, state and federal protection, and the legal implications of violating environmental laws and regulations.</p>	<p>The following mitigation measure from the DEIR addresses worker training:</p> <p><b>Mitigation Measure 3.4-1. Worker Environmental Awareness Program (WEAP) and Biological Monitor Inspection</b></p> <p>SMUD will prepare a Worker Environmental Awareness Program that will educate staff regarding the presence or potential presence of all special-status species, sensitive natural communities, and protected wetlands with potential to occur, or that are known to occur, within the project area. The program shall describe their identification, habitat requirements, and penalties for species impacts, as well as immediate steps to take should special-status species be observed by staff on site.</p> <p>This WEAP shall include biological resource avoidance and minimization measures/mitigation measures from the project's CEQA Mitigation Monitoring and Reporting Program, and any resource permits or agreements, as applicable. The WEAP will educate workers regarding sensitive species and their habitats, the need to avoid impacts, state and federal protection, and the legal implications of violating environmental laws and regulations. The WEAP can be provided in the form of a handout and/or video presentation. All staff working onsite shall</p>

PCCP Requirements for Covered Activities	Country Acres Solar Project Consistency
	<p>attend the WEAP training prior to commencing onsite work. Staff that attend the training shall fill out a sign-in sheet indicating that they completed the training.</p> <p>Prior to construction, a qualified biological monitor shall inspect all areas within the project site with the potential to support sensitive biological resources to ensure the proper implementation of all avoidance and minimization and mitigation measures, agency permit requirements, and environmentally sensitive area exclusion flagging and/or fencing have been properly implemented, and to deliver WEAP training as needed.</p> <p>The biological monitor shall remain available on an on-call basis for the duration of project construction to conduct inspections and follow up surveys, as needed, and to ensure compliance with permit conditions. The qualified biological monitor shall have the experience, education and training necessary to conduct special-status species surveys and monitoring as described in the mitigation measures below.</p> <p>During operation and maintenance, an annual Environmental Awareness Training shall be provided to onsite personnel, covering any sensitive biological resources that could be present onsite.</p>
Conditions to Avoid and Minimize Effects on Specific Natural Communities	
<p><b>Community Condition 1, Wetland Avoidance and Minimization (Vernal Pool and Aquatic/Wetland Complex)</b></p> <p>Vernal pool constituent habitat includes vernal pool wetlands, seasonal wetland in vernal pool complex, and seasonal swales. Aquatic/wetland constituent habitat (also called other wetlands in this condition) encompasses fresh emergent marsh, non-vernal pool seasonal wetland, and lacustrine and includes all Waters of Placer County where avoidance buffers are not otherwise applied.</p>	<p>The project has been designed to avoid wetlands including vernal pools, seasonal wetlands in vernal pool complex, seasonal swales, fresh emergent marsh, non-vernal pool seasonal wetlands, and lacustrine. Please see DEIR Table 3.4-6 Impact Acres by Vegetation Community/Habitat Type Based on 10% Design.</p> <p>Mitigation Measures from the DEIR include the following:</p> <p><b>Mitigation Measure 3.4-2. Establish Non-Disturbance Buffers around Vernal Pools and Seasonal Wetlands to protect Western Spadefoot during construction</b></p> <p>Based on the assumptions that all vernal pools and seasonal wetlands in the project areas could provide suitable habitat for western spadefoot, SMUD, in coordination with a qualified biologist, will establish a 250-foot no-disturbance buffer from the high-water mark of the vernal pool or seasonal wetland habitat prior to commencement of ground-disturbing activities. The perimeter of the no-disturbance buffer will be delineated with a wildlife-friendly fence that allows the movement of wildlife, including western spadefoot (and also wide-ranging wildlife, such as coyotes), through the area. The fence will be maintained for the duration of project construction and operation. Signage will be installed on the fence indicating the buffer is an environmentally sensitive area. The boundaries of vernal pools, seasonal wetlands and associated 250-foot buffers will also be clearly delineated on project plans and specifications boundaries. No construction or ground-disturbing activities shall occur within the 250-foot buffer.</p>



PCCP Requirements for Covered Activities	Country Acres Solar Project Consistency
	<p>The fencing shall be kept in place for the duration of project construction and operations and shall be kept in good condition to prevent any construction, operation and maintenance activities from disturbing the sensitive habitat areas.</p> <p><b>Mitigation Measure 3.4-12. Avoid Impacts on Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp During Construction</b></p> <p>Vernal pools and seasonal wetlands in the project area provide potentially suitable habitat for vernal pool fairy shrimp and tadpole shrimp. A 250-foot no-disturbance buffer area will be established from the high-water mark of the vernal pool or wetland habitat prior to construction and will be delineated by fencing as described in Mitigation Measure 3.4-2 and confirmed by a qualified biologist. The boundaries of vernal pools, seasonal wetlands and associated 250-foot buffers will also be clearly delineated on project plans and specifications boundaries. No construction or ground-disturbing activities shall occur within the 250-foot buffer. All construction activities are prohibited within this buffer area. With complete avoidance of ground-disturbing activities within vernal pools and seasonal wetlands and a 250-foot buffer beyond the boundaries of these aquatic features, no direct or indirect impacts will occur to vernal pool fairy shrimp or tadpole shrimp and no further avoidance or minimization measures are required.</p> <p>Information about avoidance and minimization measures for vernal pool fairy shrimp and vernal pool tadpole shrimp shall be included in the WEAP described above in Mitigation Measure 3.4-1.</p> <p><b>Mitigation Measure 3.4-16. Avoid, Minimize and Compensate for Impacts on Sensitive Natural Communities and Comply with Federal, State and Local Permits</b></p> <p>Prior to project implementation, SMUD shall refine potential impacts on sensitive natural communities based on advanced designs and obtain the necessary permits for impacts on any sensitive natural communities. These include the following permits:</p> <ul style="list-style-type: none"> <li>• Section 1600 Streambed Alteration Agreement from CDFW (for impact on riparian area and other sensitive natural communities not considered Waters of the U.S. (WUS) or State)</li> <li>• CWA Section 404 permit from USACE for impacts to WUS</li> <li>• CWA Section 401 Clean Water Certification from the Regional Water Quality Control Board for impacts to WUS</li> <li>• Waste Discharge Permit from Regional Water Quality Control board for impacts to water of the state</li> <li>• Floodplain encroachment permit from the County, if necessary based on advanced designs</li> </ul>

PCCP Requirements for Covered Activities	Country Acres Solar Project Consistency
	<ul style="list-style-type: none"> <li>As part of the permit applications, SMUD shall develop a habitat mitigation plan that will include mitigation for impacted sensitive natural communities on a no-net-loss basis. The plan may include onsite restoration, if feasible, offsite preservation, or purchasing mitigation credits from an agency-approved wetlands mitigation bank, paying an agency-approved in-lieu fee, and/or developing conservation lands to compensate for permanent loss of resources. Mitigation ratios shall be no less than 1:1 and shall be determined during the permitting process. This may also occur through the payment of fees into the PCCP's in-lieu fee program under a Memorandum of Understanding (MOU) with the PCA prior to issuance of improvement plans. In-lieu fee payments would address impacts to special-status species, sensitive natural communities, wetlands and other waters of the US and state/County, and impacts to agricultural lands resulting from the conversion of important farmland (see Mitigation Measure 3.2-1 in Section 3.2 "Agricultural Resources" of this Draft EIR). Payments may be spread out in alignment with construction phasing and will occur prior to the start of each new phase.</li> <li>SMUD shall implement all conditions of the permits, including any performance monitoring, if required for onsite restoration and report on the results of the monitoring to the appropriate agencies at the frequency and duration included in the permits.</li> <li>Sensitive natural communities shall be included in the WEAP described above in Mitigation Measure 3.4-1.</li> </ul> <p><b>Mitigation Measure 3.4-17. Avoid impacts to jurisdictional features and sensitive natural communities by use of horizontal directional drilling.</b></p> <p>The following avoidance and minimization measures shall be implemented to protect listed and other special-status plants and animals, and to avoid impacts to wetlands and riparian zones:</p> <ul style="list-style-type: none"> <li>Boring activities and set-up activities for boring operations shall be situated outside of wetlands and riparian areas. An earthen or sandbag berm shall be installed around all drilling fluid mixing and pumping areas to contain any inadvertently spilled material. Sediment control devices shall be installed between the drilling staging areas and any waterways. This includes any culverts or drainage ditches that lead to a waterway.</li> <li>HDD operations at the creek crossings and/or jurisdictional features shall be limited to daylight hours because of the difficulty in identifying the loss of bentonite or machine pressure without daylight. This shall be defined by the termination of drilling 30 minutes before dusk, and resumption of drilling at dawn. The contractor will make every effort to schedule drilling activities to be completed between dawn and 30 minutes to dusk. Should the drilling activities be within one hour of completion, 30 minutes before dusk, drilling</li> </ul>

PCCP Requirements for Covered Activities	Country Acres Solar Project Consistency
	<p>activities may be allowed to continue until completion if the Project environmental monitor and/or the CDFW or its agents determine that completing the drilling activities will result in less risk to the stream.</p> <ul style="list-style-type: none"> <li>• Visual inspection along the bore alignment for frac-outs shall take place at all times while the drill is in operation. The monitor shall be in radio contact with the boring machine operator at all times. A biologist/monitor's presence shall be required during all boring activities (i.e. boring, back reaming, etc.) within CDFW jurisdiction unless the drainage is dry.</li> <li>• The HDD Operator shall design, pre-plan, and direct the HDD operation in such a way as to minimize the risk of spills of all types. The HDD Operator shall prepare and implement a Frac-Out Contingency Plan and submit it to SMUD and CDFW for review and approval 30 days prior to construction, which includes the boring plans and frac-out and clean-up plans, in the event of the accidental release of drilling lubricants through fractures in the streambed or bank ("frac-outs"). In substrates where frac-outs are likely to occur, the HDD Operator shall operate in a manner that will reduce risk, such as using lower pressure and greater boring depths. The Contingency Plan shall be kept on site at all times.</li> <li>• A non-toxic fluorescent water-soluble dye shall be added to the drilling muds to allow for frac-outs to be seen in muddy waters. The dye shall be used in a concentration which allows the monitors to easily determine the source of the frac-out, and shall be a type of dye approved for use by the local Regional Water Quality Control Board.</li> <li>• All equipment required to contain and clean up a frac-out release shall be available at the work site.</li> <li>• Boring plans should include: <ul style="list-style-type: none"> <li>○ A sketch of the construction site, including equipment staging areas, approximate location of drill entry and exit points and the approximate location of access roads in relation to the surrounding area,</li> <li>○ Proposed depth of bore and statement of streambed or wetland condition (subsurface strata and percent of gravel and cobble) that support the depth of the bore,</li> <li>○ Approximate length of bores (50-foot increments),</li> <li>○ Type and size of boring equipment to be used (categorized as mini, mid or maxi),</li> <li>○ Estimated time to complete bore,</li> <li>○ List of lubricants and HDD additives to be used including Material Safety Data Sheets (MSDS), and</li> </ul> </li> </ul>

PCCP Requirements for Covered Activities	Country Acres Solar Project Consistency
	<ul style="list-style-type: none"> <li>○ Name of Operator's agents and cell phone numbers.</li> <li>● Frac-out prevention and clean-up plans should include: <ul style="list-style-type: none"> <li>○ Name(s) and phone numbers of biological monitor(s) and crew supervisor(s),</li> <li>○ Site specific resources of concern (if applicable, include factors such as possible presence of sensitive species),</li> <li>○ Monitoring protocols (include biological monitoring and frac-out monitoring), and</li> <li>○ Containment and clean-up plan (include staging location of vacuum trucks and equipment, equipment list, necessary hose lengths, special measures needed for steep topography, etc. at each location).</li> </ul> </li> <li>● If a frac-out or spill occurs in a sensitive resource, the Operator shall immediately notify the SMUD Environmental Monitor.</li> <li>● If a frac-out occurs, the SMUD Environmental Monitor, shall determine whether clean-up actions are warranted. If containment and clean-up is needed to prevent additional impacts, the Contractor shall begin the following containment and clean up measures immediately. Where water flows allow, the Contractor shall immediately construct a sandbag well around the frac-out or place a standing pipe (such as a 55-gallon drum with the top and bottom removed, heavy PVC pipe or CMP or culvert type material) around the frac-out to contain the drilling mud. A trailer-mounted vacuum or vacuum truck shall be deployed to vacuum out spilled drilling fluids that continue to leak. Removed drilling fluids shall not be placed where they are likely to re-enter the stream. All cleanup and containment efforts shall adhere to the Frac-out Contingency Plan approved by the SMUD for spill response.</li> </ul>
<p><b>Community Condition 1.1, Avoidance of Vernal Pool Complex Constituent Habitat</b></p> <p>Covered Activities are required to mitigate for impacts, generally through payment of fees if project activities encroach on a vernal pool constituent habitat wetland or its immediate watershed.</p> <p>Impact evaluation will consider whether ground disturbance from a Covered Activity encroaches on (1) the Delineated Wetland or (2) the Immediate Watershed of a vernal pool constituent habitat feature.</p>	<p>SMUD has conducted a wetland delineation and the project has been designed to avoid wetlands with appropriate buffers, to the extent feasible. Any impacts to wetlands will be mitigated per agency requirements, which may include paying fees or contributing to an existing mitigation bank. Please see DEIR Table 3.4-6 Impact Acres by Vegetation Community/Habitat Type Based on 10% Design and Mitigation Measures 3.4-2, 3.4-12, 3.4-16, and 3.4-17 of the DEIR.</p>
<p><b>Community Condition 1.2, Avoidance of Aquatic/Wetland Complex Constituent Habitat</b></p>	<p>SMUD has conducted a wetland delineation and the project has been designed to avoid wetlands with appropriate buffers, to the extent feasible. Any impacts to wetlands will be mitigated per agency requirements, which may include paying fees or contributing to an existing mitigation bank. Please see DEIR Table 3.4-6 Impact Acres by Vegetation</p>

PCCP Requirements for Covered Activities	Country Acres Solar Project Consistency
Covered Activities are required to mitigate for impacts, generally through payment of fees if project activities encroach on a non-vernal pool wetland (other wetlands) or its buffer.	Community/Habitat Type Based on 10% Design and Mitigation Measures 3.4-2, 3.4-12, 3.4-16, and 3.4-17 of the DEIR.
<b>Community Condition 1.3, Aquatic/Wetland Complex Impact Minimization Measures</b> Covered Activities that minimize effects on the Aquatic/Wetland Complex constituent habitat may qualify to count those effects as temporary rather than permanent. If activities associated with Covered Activities are proposed to occur within other wetlands and their associated buffers, the activities must comply with Wetland Impact Minimization Criteria (below) to have project effects count as temporary instead of permanent.	SMUD has conducted a wetland delineation and the project has been designed to avoid wetlands with appropriate buffers, to the extent feasible. Any impacts to wetlands will be mitigated per agency requirements, which may include paying fees or contributing to an existing mitigation bank. Please see DEIR Table 3.4-6 Impact Acres by Vegetation Community/Habitat Type Based on 10% Design and Mitigation Measures 3.4-2, 3.4-12, 3.4-16, and 3.4-17 of the DEIR.
<b>Community Condition 1.4, Salvage of Vernal Pool Constituent Habitat</b> Covered Activities that result in the conversion of vernal pool constituent habitat must grant adequate and timely access to allow for salvage as directed by the permitting jurisdiction or PCA.	N/A - The project has been designed to avoid wetlands including vernal pools and seasonal wetlands in vernal pool complex with appropriate buffers. Please see DEIR Table 3.4-6 Impact Acres by Vegetation Community/Habitat Type Based on 10% Design and Mitigation Measures 3.4-2, 3.4-12, 3.4-16, and 3.4-17 of the DEIR.
<b>Community Condition 1.5, Wetlands Restoration</b> Covered Activities that permanently or temporarily affect vernal pool constituent habitat and other wetlands, must contribute to restoration or creation of these resources as mitigation.	SMUD has conducted a wetland delineation and the project has been designed to avoid wetlands with appropriate buffers, to the extent feasible. Any impacts to wetlands will be mitigated per agency requirements, which may include paying fees or contributing to an existing mitigation bank. Please see DEIR Table 3.4-6 Impact Acres by Vegetation Community/Habitat Type Based on 10% Design and Mitigation Measures 3.4-2, 3.4-12, 3.4-16, and 3.4-17 of the DEIR.
<b>Community Condition 2, Riverine and Riparian Avoidance and Minimization</b> This condition, focusing specifically on the riverine and riparian constituent habitat components of the Riverine/Riparian Complex community, is supplemental to Stream System Condition 1, Stream System Avoidance and Minimization.	SMUD has conducted a wetland delineation and the project has been designed to avoid riverine, riparian, and wetlands with appropriate buffers, to the extent feasible. Any impacts to wetlands will be mitigated per agency requirements, which may include paying fees or contributing to an existing mitigation bank. Please see DEIR Table 3.4-6 Impact Acres by Vegetation Community/Habitat Type Based on 10% Design and Mitigation Measures 3.4-16 and 3.4-17 of the DEIR.
<b>Community Condition 2.1, Riverine and Riparian Avoidance</b> Covered Activities that avoid effects on the riparian constituent habitat by excluding construction or other ground disturbance from existing riparian vegetation are not subject to special habitat fees.	See response above.
<b>Community Condition 2.2, Minimize Riverine and Riparian Effects</b> Where riverine and riparian constituent habitat avoidance is not feasible, Covered Activities shall minimize effects on riverine and riparian constituent	SMUD has conducted a wetland delineation and the project has been designed to avoid riverine, riparian, and wetlands with appropriate buffers, to the extent feasible. Any impacts to wetlands will be mitigated per agency requirements, which may include paying fees or

PCCP Requirements for Covered Activities	Country Acres Solar Project Consistency
habitat by following design, construction, and operations minimization measures.	contributing to an existing mitigation bank. Please see DEIR Table 3.4-6 Impact Acres by Vegetation Community/Habitat Type Based on 10% Design and Mitigation Measures 3.4-16 and 3.4-17 of the DEIR. All CUP conditions and any necessary BMPs for construction and operations will be implemented.
<b>Community Condition 2.3, Riverine and Riparian Restoration</b> Covered Activities that affect riverine or riparian constituent habitat must contribute to restoration as mitigation to compensate for loss of riverine or riparian constituent habitat.	See response above.
<b>Community Condition 2.4, Placer County Water Agency Operations and Maintenance Best Management Practices</b> Placer County Water Agency will apply Operations and Maintenance Best Management Practices in addition to any other applicable community and species conditions.	All CUP conditions and any necessary BMPs for O&M will be implemented.
<b>Community Condition 3, Valley Oak Woodland Avoidance, Minimization, and Mitigation</b> This Community Condition addresses issues related to valley oak woodlands.	N/A. No oak trees or oak woodland will be impacted by the project.
<b>Community Condition 3.1, Valley Oak Woodland Avoidance</b> Covered Activities that avoid effects on valley oak woodland wherever it occurs by excluding construction or other ground disturbance from existing valley oak woodland will not be assessed the land conversion fee.	N/A. No oak trees or oak woodland will be impacted by the project.
<b>Community Condition 3.2, Valley Oak Woodland and Individual Valley Oak Trees Restoration</b> Covered Activities must compensate for loss of Valley Oak Woodland natural community, and individual valley oak trees.	N/A. No oak trees or oak woodland will be impacted by the project.
<b>Conditions to Avoid, Minimize, and Mitigate Effects on the Stream System</b>	
<b>Stream System Condition 1, Stream System Avoidance and Minimization</b> Design and implement Covered Activities in such a way as to avoid and minimize adverse effects on the Stream System.	SMUD has conducted a wetland delineation and the project has been designed to avoid riverine, riparian, and wetlands with appropriate buffers, to the extent feasible. Any impacts to the stream system will be mitigated per agency requirements, which may include paying fees or contributing to an existing mitigation bank. Please see DEIR Table 3.4-6 Impact Acres by Vegetation Community/Habitat Type Based on 10% Design and Mitigation Measures 3.4-16 and 3.4-17 of the DEIR.  Also, SMUD will implement Mitigation Measure 3.10-1 as described below.

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	<p><b>Mitigation Measure 3.10-1: Locate Construction Equipment and Material Storage Areas Outside of the 100-Year Floodplain During the Winter Rainy Season.</b></p> <p>In order to protect human life, water quality, and designated in-stream beneficial uses of waterbodies, the construction contractor shall implement the following:</p> <ul style="list-style-type: none"> <li>• The on-site construction trailer and its associated portable restrooms, fencing, power supply, and parking area, shall not be located within a 100-year floodplain.</li> <li>• During the winter rainy season (i.e., November 1 through April 1), construction materials and equipment shall not be stored in a 100-year floodplain.</li> </ul> <p>Additionally, CUP conditions and any necessary BMPs for construction and operations will be implemented.</p>
<p><b>Stream System Condition 2, Stream System Mitigation: Restoration</b></p> <p>Where Covered Activities result in the permanent or temporary impacts on the Stream System, regardless of the community or constituent habitat type affected, effects shall be mitigated by appropriate restoration or enhancement.</p>	<p>Any impacts to the stream system will be mitigated per agency requirements, which may include paying fees or contributing to an existing mitigation bank. Please see DEIR Table 3.4-6 Impact Acres by Vegetation Community/Habitat Type Based on 10% Design and Mitigation Measures 3.4-16 and 3.4-17 of the DEIR.</p>
<b>Regional Public Programs</b>	
<p><b>Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements</b></p> <p>Implement design requirements for applicable public transportation projects located in the RAA to reduce the effects of barriers in potential conservation lands and minimize effects on Covered Species, natural communities, and wildlife movement.</p>	N/A.
<p><b>Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs</b></p> <p>Implement construction BMPs for applicable transportation or other infrastructure projects located in the rural portion of the Plan Area where appropriate and feasible to reduce the effects of construction on natural communities and native species.</p>	N/A. However, SMUD will implement a SWPPP and all necessary BMPs required for the project including CUP requirements.
<p><b>Regional Public Projects Condition 3, Operation and Maintenance BMPs</b></p> <p>O&amp;M BMPs for applicable transportation or other infrastructure projects in the rural portion of the Plan Area will be implemented where appropriate and feasible to reduce the effects of construction on natural communities and native species.</p>	N/A. However, SMUD will implement all necessary O&M BMPs required for the project including CUP requirements.

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<b>Conditions to Minimize Effects on Covered Species</b>	
<p><b>Surveys for Select Covered Wildlife Species</b></p> <p>The timing of species habitat surveys, pre-construction surveys, and construction monitoring relative to impacts are described below. For projects that occur over multiple years, including projects that are phased, the frequency and timing of required surveys will be determined by the Permittee reviewing the application in consultation with the Wildlife Agencies. At a minimum, surveys and monitoring (if required) will be conducted prior to each construction phase if the entire project area is not continuously disturbed between phases.</p> <p>Surveys will be conducted by qualified biologists, as defined in Section 6.1.5, Qualified Biologist/Qualified Professional. If survey results indicate that a Covered Species that is subject to a Species Condition is present, then applicable avoidance and minimization measures and construction monitoring, as specified in the corresponding Species Condition, must be implemented.</p> <p>Surveys are required when certain land-cover types and other conditions are present on a project site. See Species Conditions and Table 6-3 for a description of the locations and land-cover types that trigger species surveys.</p>	<p>SMUD has conducted surveys for sensitive species habitat and will conduct additional surveys for specific species including western pond turtle, giant garter snake, California black rail, western burrowing owl, Swainson's hawk, tricolored blackbird, American badger, and nesting birds and raptors. Buffers will also be established around sensitive species habitat prior to the start of construction.</p>
<p><b>Survey Documentation</b></p> <p>If applicable community types, constituent habitat, or habitat features are present on site, the applicant must describe in the HCP/NCCP participation package which surveys were conducted, detail the results of those surveys, and provide a map that displays where the surveys were conducted and where Covered Species, if any, were detected.</p> <p>As described in Section 6.2.4, HCP/NCCP Participation Package, the HCP/NCCP participation package will be prepared and approved before project construction. To ensure compliance with pre-construction survey requirements, the Permittee will determine which surveys are required, when they will be performed, and how they will be applied to the project (Item 8 of the HCP/NCCP participation package). This description will follow the requirements in the Species Conditions and will be incorporated into the conditions of project approval.</p> <p>The survey report submitted to the local jurisdiction and PCA will also document the condition of all occurrences found on the project. Reports will include CNDDDB California Native Species Field Survey Form; copies of these</p>	<p>A Draft Biological Resources Report has been prepared and a Biological Assessment is in the process of being prepared. Also, an Aquatic Resources Delineation Report was prepared based on the wetland delineation conducted in the field in 2021. Additional survey reports will be prepared for any additional surveys.</p>



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forms will also be submitted to the CNDDDB and the Wildlife Agencies as part of the Annual Report.	
<b>Construction Monitoring for Certain Covered Wildlife</b> Occupied breeding habitat (or for giant garter snake, suitable aquatic habitat) will trigger the species surveys described in Table 6-3 and Species Conditions. Construction monitoring will be carried out by a qualified biologist to ensure that these avoidance and minimization requirements are being implemented properly and that they are adequately protecting the target species. Because the selected wildlife species are rare in the Plan Area, it is expected that few projects will require construction monitoring. If required, the construction monitoring frequency and protocols are described for the appropriate species in the Species Conditions.	Mitigation Measures 3.4-1 includes biological monitoring and other mitigation measures have been included in the DEIR for species specific biological monitoring where necessary.
<b>Exemptions from Species Surveys, Pre-construction Surveys, and Construction Monitoring</b>	N/A
<b>Exemptions from Setbacks from PCA Reserves</b>	N/A
<b>Species Condition 1, Swainson's Hawk</b> Conditions for the Swainson's hawk are based on avoidance, minimization, and mitigation guidelines from the <i>Draft Staff Report: Recommended Mitigation Strategies for the Swainson's Hawk (Buteo swainsoni) within the California Breeding Range</i> (California Department of Fish and Game 1994) and measures developed to avoid and minimize effects on Swainson's hawks by activities covered by the East Contra Costa County HCP/NCCP (2006).	<p>The following mitigation measures from the DEIR address Swainson's hawk:</p> <p><b>Mitigation Measure 3.4-9. Conduct Pre-Construction Surveys for Swainson's Hawk and Implement Protective Buffers.</b></p> <p><b>Preconstruction Surveys.</b> A qualified biologist will conduct preconstruction surveys for Swainson's hawks during the nesting season (March 1 through August 21) within the project footprint and of all suitable nesting habitat within line of sight of construction activities within a 0.25-mile radius of the project footprint. The surveys will be conducted no more than 15 days prior to ground disturbance and will be conducted using methods consistent with guidelines provided in Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in the Central Valley (SHTAC 2000) with the following exceptions:</p> <ul style="list-style-type: none"> <li>• Surveys will be required within a 0.25 miles (1,320-foot) radius around the project site. In instances where an adjacent parcel is not accessible to survey because the qualified biologist was not granted permission to enter, the qualified biologist will scan all potential nest tree(s) from the adjacent property, road sides, or other safe, publicly accessible viewpoints, without trespassing, using binoculars and/or a spotting scope to look for Swainson's hawk nesting activity;</li> <li>• Surveys will be required from February 1 to September 15 (or sooner if it is found that birds are nesting earlier in the year); and</li> </ul>

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	<ul style="list-style-type: none"> <li>If a Swainson's hawk nest is located and presence confirmed, only one follow-up visit is required (to avoid disturbance of the nest due to repeated visits).</li> </ul> <p><b>Nest Buffers.</b> If active Swainson's hawk nests are found, appropriate buffers shall be established around active nest sites, in coordination with CDFW, to provide adequate protection for nesting raptors and their young. No project activity shall commence during the nesting season within the buffer areas until the qualified biologist has determined that the young have fledged, the nest is no longer active, or reducing the buffer would not result in nest abandonment.</p> <p><b>Nest Monitoring.</b> Monitoring of the nest by a qualified biologist during construction activities may be required if the qualified biologist determines that the activity has potential to adversely affect the nest. If construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the no-disturbance buffer shall be increased until the agitated behavior ceases. The exclusionary buffer will remain in place until the qualified biologist has confirmed that the chicks have fledged.</p> <p>Information about avoidance and minimization measures for Swainson's hawk shall be included in the WEAP described above in Mitigation Measure 3.4-1.</p> <p><b>Mitigation Measure 3.4-10. Compensate for the Loss of Swainson's Hawk Foraging Habitat</b></p> <p>To offset net impacts on foraging habitat for breeding Swainson's hawks SMUD will mitigate the loss of Swainson's hawk foraging habitat in accordance with CDFW recommendations (DFG 1994) by providing mitigation lands or securing Swainson's hawk mitigation bank credits as follows:</p> <ul style="list-style-type: none"> <li>Foraging habitat permanently lost within 5 miles of an active Swainson's hawk nest tree but more than 1 mile from the nest tree will be replaced with 0.75 acre of mitigation land for each acre of foraging habitat permanently lost because of project construction (0.75:1 ratio). Foraging habitat for nests that are within 1 mile of the project site will be mitigated at a 1:1 ratio. All mitigation lands protected under this requirement shall be protected in a form acceptable to CDFW (e.g., through fee title acquisition or conservation easement) on agricultural lands or other suitable habitats that provide foraging habitat for Swainson's hawk. This may occur through the payment of fees into the PCCP's in-lieu fee program under a Memorandum of Understanding (MOU) with the PCA prior to issuance of improvement plans. In-lieu fee payments would address impacts to special-status species, sensitive natural communities, wetlands and other waters of the US and state/County, and impacts to agricultural lands resulting from the conversion of important farmland (see Mitigation Measure 3.2-1 in Section 3.2 "Agricultural Resources" of this Draft EIR). Payments may be spread out in alignment with construction phasing and will occur prior to</li> </ul>

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	the start of each new phase. Management authorization holders/project sponsors will provide for management of the mitigation lands in perpetuity by funding a management endowment.
<p><b>Survey Requirements</b></p> <p>Surveys for Swainson's hawk nests are required on the following communities in the Valley, within 0.25 mile (1,320 feet) of the project site:</p> <ul style="list-style-type: none"> <li>• Valley oak woodland</li> <li>• Grassland (if trees are present)</li> <li>• Riparian</li> <li>• Semi-natural (if trees are present)</li> <li>• Other agricultural (if trees are present)</li> <li>• Rural residential (if trees are present)</li> <li>• Urban (if trees are present)</li> </ul> <p>In addition, a CNDDDB record search is required to determine whether any active nests are present within 1,320 feet of the project site. A nest is assumed active if it has been used within the previous 5 years.</p> <p><b>Swainson's Hawk 1.</b> Swainson's hawk surveys and CNDDDB record searches are required well in advance of project construction to determine whether Swainson's hawk is nesting on or within 1,320 feet of the project site. If the project cannot be designed to avoid active Swainson's hawk nest trees and the construction must occur during the nesting season (approximately February 1 to September 15), a preconstruction survey must be conducted no more than 15 days prior to ground disturbance. Surveys will be conducted consistent with current guidelines (Swainson's Hawk Technical Advisory Committee 2000), with the following exceptions:</p> <ul style="list-style-type: none"> <li>• Surveys will be required within a 1,320-foot radius around the project site. In instances where an adjacent parcel is not accessible to survey because the qualified biologist was not granted permission to enter, the qualified biologist will scan all potential nest tree(s) from the adjacent property, road sides, or other safe, publicly accessible viewpoints, without trespassing, using binoculars and/or a spotting scope to look for Swainson's hawk nesting activity;</li> </ul>	<p>Swainson's hawk surveys will be conducted in 2022 and prior to construction. See Mitigation Measures 3.4-9 and 3.4-10 above.</p>

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<ul style="list-style-type: none"> <li>• Surveys will be required from February 1 to September 15 (or sooner if it is found that birds are nesting earlier in the year); and</li> <li>• If a Swainson's hawk nest is located and presence confirmed, only one follow-up visit is required (to avoid disturbance of the nest due to repeated visits).</li> </ul>	
<p><b>Applicable Measures</b></p> <p>If surveys determine that a Swainson's hawk nest is occupied, the project must adopt the minimization measure listed below:</p> <p><b>Swainson's Hawk 2.</b> During the nesting season (approximately February 1 to September 15 or sooner if it is found that birds are nesting earlier in the year), ground-disturbing activities within 1,320 feet of occupied nests or nests under construction will be prohibited to minimize the potential for nest abandonment. While the nest is occupied, activities outside the buffer can take place provided that they do not stress the breeding pair.</p> <p>If the active nest site is shielded from view and noise from the project site by other development, topography, or other features, the project applicant can apply to the PCA for a reduction in the buffer distance or waiver of this avoidance measure. A qualified biologist would be required to monitor the nest and determine that the reduced buffer does not cause nest abandonment. If a qualified biologist determines nestlings have fledged, Covered Activities can proceed normally.</p> <p><b>Swainson's Hawk 3.</b> Active (within the last 5 years) nest trees on a project site will not be removed during the nesting season. If a nest tree must be removed (as determined by the PCA), tree removal shall occur only between September 15 and February 1, after any young have fledged and are no longer dependent on the nest and before breeding activity begins.</p>	<p>See Mitigation Measures 3.4-9 and 3.4-10 above.</p>
<p><b>Construction Monitoring</b></p> <p><b>Swainson's Hawk 4.</b> Construction monitoring will be conducted by a qualified biologist and will focus on ensuring that activities do not occur within the buffer zone. The qualified biologist performing the construction monitoring will ensure that effects on Swainson's hawks are minimized. If monitoring indicates that construction outside of the buffer is affecting nesting, the buffer will be increased if space allows (e.g., move staging areas farther away). If</p>	<p>See Mitigation Measures 3.4-9 and 3.4-10 above.</p>

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<p>space does not allow, construction will cease until the young have fledged from the nest (as confirmed by a qualified biologist).</p> <p>The frequency of monitoring will be approved by the PCA and based on the frequency and intensity of construction activities and the likelihood of disturbance of the active nest. In most cases, monitoring will occur at least every other day, but in some cases, daily monitoring may be appropriate to ensure that direct effects on Swainson's hawks are minimized. The qualified biologist will train construction personnel on the avoidance procedures and buffer zones.</p>	
<b>Species Condition 2, California Black Rail</b>	
<p><b>Survey Requirements</b></p> <p>Take of black rail occurrences are limited by the Plan (see Section 5.3.1.6.2, California Black Rail). Therefore, surveys are critical for determining whether the wetland that may be affected is occupied, and for tracking take of California black rail. As such, surveys are required to determine the presence/absence of California black rails, if a Covered Activity is within 500 feet of the perimeter of a fresh emergent wetland greater than 0.2 acre in size.</p> <p><b>California Black Rail 1.</b> Surveys will be initiated sometime between March 15 and May 31, preferably before May 15. A minimum of four surveys will be conducted. The survey dates will be spaced at least 10 days apart and will cover the time period from the date of the first survey through the end of June to early July. This will allow the surveys to encompass the time period when the highest frequency of calls is likely to occur. Projects must conduct surveys during this time period, regardless of when the project is scheduled to begin, and shall be conducted the year in which ground disturbance activities commence.</p> <p>This survey requirement also applies to Covered Activities that will alter the supply of water feeding potential breeding habitat for California black rails (e.g., fixing a leak in an irrigation canal). Some wetlands supported by leaks from water conveyance structures such as irrigation canals may also be supported hydrologically by other sources of water. Fixing a leak in an irrigation canal may therefore not substantially alter the extent and/or quality of the wetland habitat for California black rail. In such cases, the project proponent may provide the results of a hydrological study of the affected wetland to the PCA and Wildlife Agencies to determine whether altering the</p>	<p>The following mitigation measure from the DEIR addresses California black rail:</p> <p><b>Mitigation Measure 3.4-6. Survey for California Black Rails and Implement Avoidance Measures</b></p> <ul style="list-style-type: none"> <li>• Preconstruction Call-Playback Surveys for California Black Rail. A qualified biologist will conduct a preconstruction survey in potentially suitable habitat for this species in the project footprint and a 500-foot buffer to the project footprint. Surveys will be initiated sometime between March 15 and May 31, preferably before May 15. A minimum of four surveys will be conducted. The survey dates will be spaced at least 10 days apart and will cover the time period from the date of the first survey through the end of June to early July. This will allow the surveys to encompass the time period when the highest frequency of calls is likely to occur. Projects must conduct surveys during this time period, regardless of when the project is scheduled to begin, and shall be conducted the year in which ground disturbance activities commence. Surveys will follow a standardized tape call-playback/response protocol similar to that of Evens et al. 1991 and Richmond et al. 2008 or other CDFW-approved method. The surveys will document the presence or absence of black rail. CDFW will be notified within 2 business days of any identified black rail detections.</li> <li>• If California black rails are detected during preconstruction surveys, the following additional measures will be implemented in association with occupied California black rail habitats:</li> <li>• SMUD will establish and maintain a non-disturbance buffer of up to 500 feet around all identified occupied wetland habitat, depending on site-specific conditions and at the discretion of a qualified biologist in consultation with CDFW. Where feasible, all construction-related activities will be excluded from the buffer for the duration of project implementation.</li> <li>• Where maintaining the non-disturbance buffer for the duration of the project is not feasible, at minimum, all construction-related activities will be excluded from the buffer for the</li> </ul>

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<p>source of water would result in take of a wetland occupied by California black rail.</p> <p>Surveys must be conducted using survey protocol based on the methods used in Richmond et al. (2008) or guidance agreed upon by the Permittees and Wildlife Agencies. Surveys will be conducted if a fresh emergent wetland greater than 0.2 acre in size occurs on an adjacent parcel that is within 500 feet of the project site (as determined by aerial photographs), using survey methods that rely on call playback to elicit response from California black rails (e.g., those used by Richmond et al. 2008). Calls will be played from edge of the adjacent parcel, or where most appropriate to elicit a response, without trespassing.</p> <p>If a California black rail is determined to be present, no project activities are permitted within 500 feet of the outside perimeter of the occupied wetland. Project proponents may conduct activities within 500 feet of an occupied wetland based on site-specific conditions (e.g., noise barriers) and if approved by the PCA and the Wildlife Agencies and an qualified biologist monitors construction activities within 500 feet to ensure that California black rail nests are not disturbed.</p>	<p>duration of the breeding season (March through September, or for lesser duration as approved by CDFW).</p> <ul style="list-style-type: none"> <li>• If project activities are necessary within the established non-disturbance buffer or within occupied habitat, including potential alterations to hydrological conditions that support black rail habitat, SMUD will consult with CDFW to identify a strategy that will avoid take of the year-round resident California black rail. This may or may not include work windows outside the breeding season, installation of wildlife exclusion fencing, and/or methods for passive exclusion of individuals out of the temporary and permanent impact area such as through the hand removal of vegetation before other project-related ground disturbances, as determined in consultation with CDFW. A qualified biologist will be present for any construction activities occurring within the non-disturbance buffer; the intensity and frequency of the monitoring will be established in consultation with CDFW.</li> <li>• Information about avoidance and minimization measures for California black rails shall be included in the WEAP described above in Mitigation Measure 3.4-1.</li> </ul>
<p><b>Applicable Measures</b></p> <p>Projects in occupied wetlands will not be permitted unless approval is granted by the PCA. When granting approval, the PCA will consider if take is available under the Plan.</p> <p><b>California Black Rail 2.</b> If the PCA does not grant take coverage, a buffer around the avoided wetland will be demarcated 500 feet from the outside perimeter of the occupied wetland with an exclusion fence to prevent construction activities from encroaching into the buffer zone and to identify the occupied wetland and buffer zone as a no-work area within the covered project. If the work would dewater occupied habitat and the PCA does not grant coverage, the activity could not take place under the Plan.</p> <p><b>California Black Rail 3.</b> If the PCA grants take coverage, clearing of the habitat (or dewatering) will occur between September 15 and February 1 (outside the breeding season). For ground disturbing activities, if the project will not convert all of the wetland habitat present, a buffer around the avoided wetland will be demarcated with exclusion fencing to prevent construction</p>	<p>See Mitigation Measure 3.4-6 above.</p>

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activities from encroaching into California black rail habitat and to identify the occupied wetland and buffer zone as a no-work area.	
<p><b>Construction Monitoring</b></p> <p><b>California Black Rail 4.</b> A qualified biologist will monitor on-site during construction to ensure that no Covered Activities occur within the buffer zone established around the occupied wetland, or if take allowance is granted outside of the breeding season, to ensure that adverse effects are minimized.</p> <p>The frequency of monitoring will be approved by the PCA based on the frequency and intensity of construction activities and the likelihood of disturbance of the active nest. In most cases, monitoring will occur at least every other day, but in some cases daily monitoring may be appropriate to ensure that direct effects on California black rail are minimized. The qualified biologist may increase the buffer size if s/he determines that activities are particularly disruptive (e.g., use of dynamite, or other explosives).</p> <p>Prior to the start of construction, the qualified biologist will train construction personnel on the avoidance procedures and buffer zones.</p>	See Mitigation Measure 3.4-6 above.
<p><b>Species Condition 3, Western Burrowing Owl</b></p> <p>The following measures will be implemented to avoid or minimize effects of Covered Activities on western burrowing owls. This condition is based on the <i>Staff Report on Burrowing Owl Mitigation</i> (California Department of Fish and Game 2012) and measures to avoid and minimize effects in the East Contra Costa County HCP/NCCP (2006).</p>	<p>The following mitigation measures from the DEIR address Western burrowing owl:</p> <p><b>Mitigation Measure 3.4-7 Avoid and Minimize Impacts on Burrowing Owl</b></p> <ul style="list-style-type: none"> <li>• SMUD will have preconstruction burrowing owl surveys conducted in all areas that may provide suitable nesting habitat according to CDFW (CDFG 2012) guidelines. A qualified wildlife biologist shall conduct take avoidance surveys, including documentation of burrows and burrowing owls, in all suitable burrowing owl habitat within 250 feet of proposed construction. Two surveys will be conducted within 15 days prior to ground disturbance to establish the presence or absence of burrowing owls. The surveys will be conducted at least 7 days apart (if burrowing owls are detected on the first survey, a second survey is not needed) for both breeding and non-breeding season surveys. All burrowing owls observed will be counted and mapped.</li> <li>• During the breeding season (February 1 to August 31), surveys will document whether burrowing owls are nesting in or within 250 feet of the project area.</li> <li>• During the non-breeding season (September 1 to January 31), surveys will document whether burrowing owls are using habitat in or directly adjacent to any area to be disturbed. Survey results will be valid only for the season (breeding or non-breeding) during which the survey was conducted.</li> </ul>

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	<ul style="list-style-type: none"> <li>• The qualified biologist will survey the proposed footprint of disturbance and a 250-foot radius from the perimeter of the proposed footprint to determine the presence or absence of burrowing owls. The site will be surveyed by walking line transects, spaced 20 to 60 feet apart, adjusting for vegetation height and density. At the start of each transect and, at least, every 300 feet, the surveyor, with use of binoculars, shall scan the entire visible project area for burrowing owls. During walking surveys, the surveyor will record all potential burrows used by burrowing owls, as determined by the presence of one or more burrowing owls, pellets, prey remains, whitewash, or decoration. Some burrowing owls may be detected by their calls; therefore, observers will also listen for burrowing owls while conducting the survey.</li> <li>• Adjacent parcels under different land ownership will be surveyed only if access is granted. If portions of the survey area are on adjacent sites for which access has not been granted, the qualified biologist will get as close to the non-accessible area as possible and use binoculars to look for burrowing owls.</li> <li>• The presence of burrowing owl or their sign anywhere on the site or within the 250-foot accessible radius around the site will be recorded and mapped. Surveys will map all burrows and occurrence of sign of burrowing owl on the project site. Surveys must begin 1 hour before sunrise and continue until 2 hours after sunrise (3 hours total) or begin 2 hours before sunset and continue until 1 hour after sunset. Additional time may be required for large project sites.</li> </ul> <p>If a burrowing owl or evidence of presence at or near a burrow entrance is found to occur within 250 feet of the project site, the following measures will be implemented:</p> <ul style="list-style-type: none"> <li>• <b>Burrowing Owl 2.</b> If burrowing owls are found during the breeding season (approximately February 1 to August 31), the project applicant will: <ul style="list-style-type: none"> <li>○ Avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups foraging on or near the site following fledging).</li> <li>○ Establish a 250-foot non-disturbance buffer zone around nests. The buffer zone will be flagged or otherwise clearly marked. Should construction activities cause the nesting bird to vocalize, make defensive flights at intruders, or otherwise display agitated behavior, then the exclusionary buffer will be increased such that activities are far enough from the nest so that the bird(s) no longer display this agitated behavior. The exclusionary buffer will remain in place until the chicks have fledged or as otherwise determined by a qualified biologist.</li> </ul> </li> </ul>



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	<ul style="list-style-type: none"> <li>○ Construction may only occur within the 250-foot buffer zone during the breeding season only if a qualified raptor biologist monitors the nest and determines that the activities do not disturb nesting behavior, or the birds have not begun egg-laying and incubation, or that the juveniles from the occupied burrows have fledged and moved off site. Measures such as visual screens may be used to further reduce the buffer with Wildlife Agency approval and provided a biological monitor confirms that such measures do not cause agitated behavior.</li> <li>● <b>Burrowing Owl 3.</b> If burrowing owls are found during the non-breeding season (approximately September 1 to January 31), the project applicant will establish a 160-foot buffer zone around active burrows. The buffer zone will be flagged or otherwise clearly marked. Measures such as visual screens may be used to further reduce the buffer with CDFW approval and provided a biological monitor confirms that such measures do not cause agitated behavior.</li> <li>● <b>Burrowing Owl 4.</b> During the non-breeding season only, if a project cannot avoid occupied burrows after all alternative avoidance and minimization measures are exhausted, as confirmed by CDFW, a qualified biologist may passively exclude birds from those burrows. A burrowing owl exclusion plan must be developed by a qualified biologist consistent with the most recent guidelines from CDFW (e.g., California Department of Fish and Game 2012) and submitted to and approved by CDFW. Burrow exclusion may be conducted for burrows located in the project footprint and within a 160-foot buffer zone as necessary.</li> <li>● Information about avoidance and minimization measures for western burrowing owl shall be included in the WEAP described above in Mitigation Measure 3.4.1.</li> </ul> <p><b>Mitigation Measure 3.4-8. Compensate for the Loss of Burrowing Owl Habitat</b></p> <p>If burrowing owls are documented as breeding in the project area, compensatory mitigation shall be provided for permanent impacts on (removal of) burrowing owl nesting and foraging habitat. Burrowing owl foraging and nesting habitat will still be available after installation of solar panels. However, if the project results in a net loss of nesting or grassland foraging habitat due to conversion of 57.2 acres of grassland habitat to project infrastructure the loss of habitat will be mitigated as described in CDFW guidelines (CDFG 2012) in consultation with CDFW. The performance standard for compensatory mitigation for nesting and foraging habitat will be to achieve no net loss of habitat value to the burrowing owl. Compensatory mitigation for habitat loss shall be consistent with guidance by CDFW (CDFG 2012) and may include development and implementation of a land management plan to address long-term ecological sustainability and maintenance of the site for burrowing owls on the project site, acquisition of credits in a burrowing owl mitigation bank, or another form of mitigation acceptable to CDFW, such as payment of fees into the PCCP's in-lieu fee program under a</p>

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	<p>Memorandum of Understanding (MOU) with the PCA prior to issuance of improvement plans. In-lieu fee payments would address impacts to special-status species, sensitive natural communities, wetlands and other waters of the US and state/County, and impacts to agricultural lands resulting from the conversion of important farmland (see Mitigation Measure 3.2-1 in Section 3.2 “Agricultural Resources” of this Draft EIR). Payments may be spread out in alignment with construction phasing and will occur prior to the start of each new phase. The compensatory mitigation will be consistent with the PCCP goal of maintaining or increasing the population size of overwintering western burrowing owl and promoting expansion of breeding populations of burrowing owls and will be approved by CDFW. Compensatory mitigation will include the following requirements as described in CDFG 2012:</p> <ul style="list-style-type: none"> <li>• Permanently protect mitigation land through a conservation easement deeded to a non-profit conservation organization or public agency with a conservation mission, for the purpose of conserving burrowing owl habitat and prohibiting activities incompatible with burrowing owl use. This may occur through the payment of fees into the PCCP’s in-lieu fee program under a Memorandum of Understanding (MOU) with the PCA prior to issuance of improvement plans. In-lieu fee payments would address impacts to special-status species, sensitive natural communities, wetlands and other waters of the US and state/County, and impacts to agricultural lands resulting from the conversion of important farmland (see Mitigation Measure 3.2-1 in Section 3.2 “Agricultural Resources” of this Draft EIR). Payments may be spread out in alignment with construction phasing and will occur prior to the start of each new phase. If the project is located within the service area of a CDFW-approved burrowing owl conservation bank, the project proponent may also purchase available burrowing owl conservation bank credits.</li> <li>• Develop and implement a mitigation land management plan to address long-term ecological sustainability and maintenance of the site for burrowing owls.</li> <li>• Fund the maintenance and management of mitigation land through the establishment of a long-term funding mechanism such as an endowment.</li> </ul>
<p><b>Survey Requirements</b></p> <p>Surveys for burrowing owl must be conducted for projects that occur on the following communities and features in the Valley, or as determined by a qualified biologist, to ensure that occupied burrowing owl nests are not taken:</p> <ul style="list-style-type: none"> <li>• Grassland</li> <li>• Vernal pool complex</li> <li>• Semi-natural (agriculture)</li> </ul>	<p>See DEIR Mitigation Measures 3.4-7 and 3.4-8 above.</p>

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<ul style="list-style-type: none"> <li>• Other agricultural</li> <li>• Rural residential and urban community if potential burrow sites are available</li> <li>• Man-made structures such as underground pipes, irrigation canal banks, ditches</li> <li>• Banks of intermittent drainages if potential burrow sites are available</li> </ul> <p><b>Burrowing Owl 1.</b> Two surveys will be conducted within 15 days prior to ground disturbance to establish the presence or absence of burrowing owls. The surveys will be conducted at least 7 days apart (if burrowing owls are detected on the first survey, a second survey is not needed) for both breeding and non-breeding season surveys. All burrowing owls observed will be counted and mapped.</p> <p>During the breeding season (February 1 to August 31), surveys will document whether burrowing owls are nesting in or within 250 feet of the project area.</p> <p>During the non-breeding season (September 1 to January 31), surveys will document whether burrowing owls are using habitat in or directly adjacent to any area to be disturbed. Survey results will be valid only for the season (breeding or non-breeding) during which the survey was conducted.</p> <p>The Qualified Biologist will survey the proposed footprint of disturbance and a 250-foot radius from the perimeter of the proposed footprint to determine the presence or absence of burrowing owls. The site will be surveyed by walking line transects, spaced 20 to 60 feet apart, adjusting for vegetation height and density. At the start of each transect and, at least, every 300 feet, the surveyor, with use of binoculars, shall scan the entire visible project area for burrowing owls. During walking surveys, the surveyor will record all potential burrows used by burrowing owls, as determined by the presence of one or more burrowing owls, pellets, prey remains, whitewash, or decoration. Some burrowing owls may be detected by their calls; therefore, observers will also listen for burrowing owls while conducting the survey. Adjacent parcels under different land ownership will be surveyed only if access is granted. If portions of the survey area are on adjacent sites for which access has not been granted, the qualified biologist will get as close to the non-accessible area as possible, and use binoculars to look for burrowing owls.</p> <p>The presence of burrowing owl or their sign anywhere on the site or within the 250-foot accessible radius around the site will be recorded and mapped.</p>	

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<p>Surveys will map all burrows and occurrence of sign of burrowing owl on the project site. Surveys must begin 1 hour before sunrise and continue until 2 hours after sunrise (3 hours total) or begin 2 hours before sunset and continue until 1 hour after sunset. Additional time may be required for large project sites.</p>	
<p><b>Applicable Measures</b></p> <p>If a burrowing owl or evidence of presence at or near a burrow entrance is found to occur within 250 feet of the project site, the following measures must be implemented:</p> <p><b>Burrowing Owl 2.</b> If burrowing owls are found during the breeding season (approximately February 1 to August 31), the project applicant will:</p> <ul style="list-style-type: none"> <li>• Avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups foraging on or near the site following fledging).</li> <li>• Establish a 250-foot non-disturbance buffer zone around nests. The buffer zone will be flagged or otherwise clearly marked. Should construction activities cause the nesting bird to vocalize, make defensive flights at intruders, or otherwise display agitated behavior, then the exclusionary buffer will be increased such that activities are far enough from the nest so that the bird(s) no longer display this agitated behavior. The exclusionary buffer will remain in place until the chicks have fledged or as otherwise determined by a qualified biologist. Construction may only occur within the 250-foot buffer zone during the breeding season only if a qualified raptor biologist monitors the nest and determines that the activities do not disturb nesting behavior, or the birds have not begun egg-laying and incubation, or that the juveniles from the occupied burrows have fledged and moved off site. Measures such as visual screens may be used to further reduce the buffer with Wildlife Agency approval and provided a biological monitor confirms that such measures do not cause agitated behavior.</li> </ul> <p><b>Burrowing Owl 3.</b> If burrowing owls are found during the non-breeding season (approximately September 1 to January 31), the project applicant will establish a 160-foot buffer zone around active burrows. The buffer zone will be flagged or otherwise clearly marked. Measures such as visual screens may be used to further reduce the buffer with Wildlife Agency approval and</p>	<p>See DEIR Mitigation Measures 3.4-7 and 3.4-8 above</p>

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<p>provided a biological monitor confirms that such measures do not cause agitated behavior.</p> <p><b>Burrowing Owl 4.</b> During the non-breeding season only, if a project cannot avoid occupied burrows after all alternative avoidance and minimization measures are exhausted, as confirmed by the Wildlife Agencies, a qualified biologist may passively exclude birds from those burrows. A burrowing owl exclusion plan must be developed by a qualified biologist consistent with the most recent guidelines from the Wildlife Agencies (e.g., California Department of Fish and Game 2012) and submitted to and approved by the PCA and the Wildlife Agencies. Burrow exclusion will be conducted for burrows located in the project footprint and within a 160-foot buffer zone as necessary.</p>	
<p><b>Construction Monitoring</b></p> <p><b>Burrowing Owl 5.</b> A biological monitor will be present on site daily to ensure that no Covered Activities occur within the buffer zone. The qualified biologist performing the construction monitoring will ensure that effects on burrowing owls are minimized. If monitoring indicates that construction outside of the buffer is affecting nesting, the buffer will be increased if space allows (e.g., move staging areas farther away). If space does not allow, construction will cease until the young have fledged from all the nests in the colony (as confirmed by a qualified biologist) or until the end of the breeding season, whichever occurs first.</p> <p>A biological monitor will conduct training of construction personnel on the avoidance procedures, buffer zones, and protocols in the event that a burrowing owl flies into an active construction zone (i.e., outside the buffer zone).</p>	<p>See DEIR Mitigation Measures 3.4-7 and 3.4-8 above</p>
<p><b>Species Condition 4, Tricolored Blackbird</b></p> <p>The following measures will be implemented to avoid or minimize effects of Covered Activities on tricolored blackbird nesting colonies and actively used foraging habitat.</p>	<p>The following DEIR mitigation measure will be implemented for tricolored blackbird:</p> <p><b>Mitigation Measure 3.4-11. Conduct Focused Pre-Construction Surveys for Nesting Tricolored Blackbird and Avoid Impacts During Construction</b></p> <ul style="list-style-type: none"> <li>• <b>Preconstruction Tricolored Blackbird Surveys.</b> Before any ground-disturbing activities or vegetation clearing that may result in effects on potential habitat for Tricolored Blackbird (TRBL), a qualified biologist will conduct a preconstruction survey in potentially suitable nesting habitat (i.e., blackberry thickets and cattail marsh) for this species in the project footprint and a 500-foot buffer to the project footprint. The biologist will conduct three separate surveys, one each in mid-April, mid-May, and mid-June (Beedy, pers. comm., 2022a), and will use methods consistent with survey protocol used by surveyors for the</li> </ul>

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	<p>Western Riverside County MSHCP 2018 <a href="https://www.wrc-rca.org/species/survey_protocols/2018_Tricolored_Blackbird_Survey_Protocol.pdf">https://www.wrc-rca.org/species/survey_protocols/2018_Tricolored_Blackbird_Survey_Protocol.pdf</a> ). If an active nesting colony is detected during the surveys CDFW will be consulted to provide any guidance on appropriate avoidance and minimization measures in addition to those described below.</p> <ul style="list-style-type: none"> <li>• <b>Avoidance and Minimization.</b> Project activities will avoid occupied TRBL nesting habitat. If TRBL colonies are identified during the breeding season, an approximate buffer of up to 500 feet will be established around the colony, depending on site-specific conditions and at the discretion of a qualified biologist in consultation with CDFW. Any construction-related activities will be excluded from the buffer until the end of the breeding season.</li> <li>• <b>Construction Monitoring.</b> If construction takes place during the breeding season when an active colony is present within 500 feet of construction activities, a qualified biologist will regularly monitor construction to ensure that the buffer zone is enforced and to verify that construction is not disrupting the colony. The intensity and frequency of the monitoring will be established in consultation with CDFW. If monitoring indicates that construction outside of the buffer is affecting a breeding colony, the buffer will be increased, as needed, in consultation with CDFW.</li> <li>• Information about avoidance and minimization measures for tricolored blackbird shall be included in the WEAP described above in Mitigation Measure 3.4-1.</li> </ul>
<p><b>Survey Requirements</b></p> <p>The PCA will provide a map of active colony sites to help determine where a survey for tricolored blackbird must occur. A colony site is considered active if it has been used for nesting in the prior 10 years. Surveys for nesting tricolored blackbird must occur if the PCA-provided map indicates an active colony site occurs on the project site or within 1,300 feet of a colony site. Surveys for nesting tricolored blackbird must also be conducted for project sites below 300 feet elevation, within the following communities.</p> <ul style="list-style-type: none"> <li>• Aquatic/Wetland complex</li> <li>• Field Agriculture when planted in wheat, grain, triticale, or similar crop</li> <li>• Patches of thorny or spiny vegetation such as blackberry, nettle, or thistle (blackberry is often associated with the riparian constituent habitat)</li> </ul> <p>If an active colony site is within 3 miles of the project site and construction will occur within the nesting season (March 15 to July 31), then a survey of</p>	<p>See DEIR Mitigation Measure 3.4-11 above.</p>

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<p>foraging habitat at and immediately surrounding the project site will be conducted within the following communities.</p> <ul style="list-style-type: none"> <li>• Grassland</li> <li>• Rice Agriculture</li> <li>• Field Agriculture</li> <li>• Aquatic/Wetland Complex</li> <li>• Vernal Pool Complex</li> </ul> <p><b>Tricolored Blackbird 1.</b> Preconstruction Surveys – Nest Colony Sites. Prior to initiation of Covered Activities in all project work areas and within 1,300 feet of project work areas, the qualified biologist(s) shall conduct preconstruction surveys to evaluate the presence of tricolored blackbird nesting colonies. In instances where an adjacent parcel is not accessible to survey because the qualified biologist was not granted permission to enter, the qualified biologist will scan all potential nest colony site(s) from the adjacent property, road sides, or other safe, publicly accessible viewpoints, without trespassing, using binoculars and/or a spotting scope to look for tricolored blackbird nesting activity.</p> <p>Surveys should be conducted at least twice with at least one month between surveys during the nesting season 1 year prior to initial ground disturbing for the Covered Activity if feasible, and the year of ground disturbing for the Covered Activity (required). If Covered Activities will occur in the project work area during the nesting season, three surveys shall be conducted within 15 days prior to the Covered Activity, with one of the surveys occurring within 5 days prior to the start of the Covered Activity. The survey methods will be based on Kelsey (2008) or a similar protocol approved by the PCA and the Wildlife Agencies based on site-specific conditions.</p> <p>If the first survey indicates that suitable nesting habitat is not present on the project site or within 1,300 feet of the project work area, additional surveys for nest colonies are not required. Preconstruction surveys are still required, however, as described below in Tricolored Blackbird 2.</p> <p><b>Tricolored Blackbird 2.</b> Preconstruction Surveys – Foraging Habitat. If an active colony is known to occur within 3 miles of the project site, a qualified biologist will conduct two surveys of foraging habitat within the project site and within a 1,300-foot radius around the project site to determine whether</p>	

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<p>foraging habitat is being actively used by foraging tricolored blackbirds. The qualified biologist will map foraging habitat, as defined by the land cover types listed above, within a 1,300-foot radius around the project site to delineate foraging habitat that will be surveyed. The surveys will be conducted approximately one week apart, with the second survey occurring no more than 5 calendar days prior to ground-disturbing activities. Two surveys are required because tricolored blackbirds may not visit a site during a single survey period, as they may be foraging elsewhere.</p> <p>Each survey shall last 4 hours, and begin no later than 8:00 a.m. The qualified biologist will survey the entire project site and a 1,300-foot radius around the project site by observing and listening from accessible vantage points that provide views of the entire survey area. If such vantage points are not available, the qualified biologist will survey from multiple vantage points to ensure that the entire survey area is surveyed. In instances where an adjacent parcel is not accessible to survey because the qualified biologist was not granted permission to enter, the qualified biologist will scan all foraging habitat from the adjacent property, road sides, or other safe, publicly accessible viewpoints, without trespassing, using binoculars and/or a spotting scope to look for tricolored blackbird foraging activity. The qualified biologist will map the locations on the site and within a 1,300-foot radius around the project site where tricolored blackbirds are observed and record an estimate of the numbers of tricolored blackbirds observed (estimated by 10s, 100s, or 1,000s), the frequency of visits (e.g., if individuals or a flock makes repeated foraging visits to the site during the survey period), whether tricolored blackbirds are leaving the site with food in their bills, and the direction they fly to/from.</p>	
<p><b>Applicable Measures</b></p> <p>If a tricolored blackbird nesting colony is found, the project applicant will abide by the following measures:</p> <p><b>Tricolored Blackbird 3. Nesting Colony – Avoidance and Minimization.</b> Construction activity or other covered activities that may disturb an occupied nest colony site, as determined by a qualified biologist, will be prohibited during the nesting season (March 15 through July 31 or until the chicks have fledged or the colony has been abandoned on its own) within a 1,300-foot buffer zone around the nest colony, to the extent practicable. The intent of this condition is to prevent disturbance to occupied nest colony sites on or near</p>	<p>See DEIR Mitigation Measure 3.4-11 above.</p>



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<p>project sites so they can complete their nesting cycle. This condition is not intended to preserve suitable breeding habitat on project sites but to ensure impacts to active colony sites only take place once the site is no longer occupied by the nesting colony. The buffer will be applied to extend beyond the nest colony site as follows.</p> <ul style="list-style-type: none"> <li>• If the colony is nesting in a wetland, the buffer must be established from the outer edge of all hydric vegetation associated with the colony.</li> <li>• If the colony is nesting in non-wetland vegetation (e.g., Himalayan blackberry), the buffer must be established from the edge of the colony substrate.</li> </ul> <p>This buffer may be modified to a minimum of 300 feet, with written approval from the Wildlife Agencies, in areas with dense forest, buildings, or other features between the Covered Activities and the occupied active nest colony; where there is sufficient topographic relief to protect the colony from excessive noise or visual disturbance; where sound curtains have been installed; or other methods developed in consultation with the Wildlife Agencies where conditions warrant reduction of the buffer distance. If tricolored blackbirds colonize habitat adjacent to Covered Activities after the activities have been initiated, the project applicant shall reduce disturbance through establishment of buffers or noise reduction techniques or visual screens, as determined in consultation with the Wildlife Agencies and PCA. The buffer must be clearly marked to prevent project-related activities from occurring within the buffer zone.</p> <p><b>Tricolored Blackbird 4.</b> Actively used Foraging Habitat – Avoidance and Minimization. Construction activity or other covered activities that may disturb foraging tricolored blackbirds, as determined by a qualified biologist, will be prohibited within 1,300-feet of the foraging site to the extent feasible during the nesting season (March 15 through July 31 or until the chicks have fledged or the colony has been abandoned on its own) if the foraging habitat was found to be actively used by foraging tricolored blackbirds during at least one of the two foraging habitat surveys conducted under Tricolored Blackbird 2. If survey results indicate that the area provides marginal foraging habitat (e.g., tricolored blackbirds were observed foraging, but only briefly, and most were not successfully capturing prey), or site specific conditions may warrant a reduced buffer, the PCA technical staff will consult with the Wildlife Agencies to evaluate whether the project needs to avoid the foraging habitat or whether</p>	

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<p>a reduced buffer may be appropriate. In such cases, additional surveys may be needed to assess site conditions and the value of the foraging habitat.</p> <p>The buffer must be clearly marked to prevent project-related activities from occurring within the buffer zone. This buffer may be modified to a minimum of 300 feet, with written approval from the Wildlife Agencies, in areas with dense forest, buildings, or other features between the Covered Activities and the actively used foraging habitat; where there is sufficient topographic relief to protect foraging birds from excessive noise or visual disturbance; or in consultation with the Wildlife Agencies if other conditions warrant reduction of the buffer distance. If tricolored blackbird begins using foraging habitat adjacent to Covered Activities after the activities have been initiated, the project applicant shall reduce disturbance through establishment of buffers or noise reduction techniques or visual screens, as determined in consultation with the Wildlife Agencies and PCA.</p> <p>Similar to Tricolored Blackbird 3, the intent of this condition is to allow actively nesting colonies on or near project sites to complete their nesting cycle prior to the loss of the foraging habitat on site. Protecting actively used-foraging habitat during the nesting season will help to enable the tricolored blackbird nesting colony complete its nesting cycle, as loss of valuable foraging habitat could cause the nesting colony to fail. This condition is not intended to preserve suitable foraging habitat on project sites in the long term.)</p>	
<p><b>Construction Monitoring</b></p> <p><b>Tricolored Blackbird 5.</b> Nesting Colony – Construction Monitoring. Active nesting colonies that occur within the no-disturbance buffer shall be monitored by the qualified biologist(s) to verify the Covered Activity is not disrupting the nesting behavior of the colony. The frequency of monitoring will be approved by the PCA and based on the frequency and intensity of construction activities and the likelihood of disturbance of the active nest. In most cases, monitoring will occur at least every other day, but in some cases, daily monitoring may be appropriate to ensure that direct effects on tricolored blackbird are minimized. The biologist will train construction personnel on the avoidance procedures and buffer zones.</p> <p>If the qualified biologist(s) determines that the Covered Activity is disrupting nesting and/or foraging behavior, the qualified biologist(s) shall notify the project applicant immediately, and the project applicant shall notify the PCA within 24 hours to determine additional protective measures that can be</p>	<p>See DEIR Mitigation Measure 3.4-11 above.</p>

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<p>implemented. The qualified biologist(s) shall have the authority to stop Covered Activities until additional protective measures are implemented. Additional protective measures shall remain in place until the qualified biologist(s) determine(s) tricolored blackbird behavior has normalized. If additional protective measures are ineffective, the qualified biologist(s) shall have the authority to stop Covered Activities as needed until the additional protective measures are modified and nesting behavior of tricolored blackbird returns to normal.</p> <p>Additional protective measures may include increasing the size of the buffer (within the constraints of the project site), delaying Covered Activities (or the portion of Covered Activities causing the disruption) until the colony is finished breeding and chicks have left the nest site, temporarily relocating staging areas, or temporarily rerouting access to the project work area. The project proponent shall notify the PCA and Wildlife Agencies within 24 hours if nests or nestlings are abandoned. If the nestlings are still alive, the qualified biologist(s) shall work with the Wildlife Agencies to determine appropriate actions for salvaging the eggs or nestlings. Notification to PCA and Wildlife Agencies shall be via telephone or email, followed by a written incident report. Notification shall include the date, time, location, and circumstances of the incident.</p> <p><b>Tricolored Blackbird 6.</b> Actively used Foraging Habitat – Construction Monitoring. Foraging habitat within the buffer shall be monitored by the qualified biologist(s) to verify that the Covered Activity is not disrupting tricolored blackbird foraging behavior. The frequency of monitoring will be approved by the PCA and based on the frequency and intensity of construction activities and the likelihood of disturbance of foraging tricolored blackbirds. In most cases, monitoring will occur at least every other day, but in some cases, daily monitoring may be appropriate to ensure that effects on tricolored blackbird are minimized. The biologist will train construction personnel on the avoidance procedures and buffer zones.</p> <p>If the qualified biologist(s) determines that the Covered Activity is disrupting foraging behavior, the qualified biologist(s) shall notify project applicant immediately, and the project applicant shall notify the PCA within 24 hours to determine additional protective measures that can be implemented. The qualified biologist(s) shall have the authority to stop Covered Activities until additional protective measures are implemented. Additional protective measures shall remain in place until the qualified biologist(s) determine(s)</p>	

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<p>tricolored blackbird behavior has normalized. If additional protective measures are ineffective, the qualified biologist(s) shall have the authority to stop Covered Activities as needed until the additional protective measures are modified and foraging behavior of tricolored blackbird returns to normal. Additional protective measures may include increasing the size of the buffer (within the constraints of the project site), temporarily relocating staging areas, or temporarily rerouting access to the project work area.</p>	
<p><b>Species Condition 5, Giant Garter Snake</b></p> <p>The following measures will be implemented to avoid or minimize effects of Covered Activities on giant garter snakes. This condition is based on the USFWS's <i>Standard Avoidance and Minimization Measures during Construction Activities in Giant Garter Snake (Thamnophis gigas) Habitat</i> (U.S. Fish and Wildlife Service 1999a).</p>	<p>Although giant garter snake is not expected to be present in the project area, out of abundance of caution, the following mitigation measure was included in the DEIR:</p> <p><b>Mitigation Measure 3.4-5. Conduct Pre-Construction Surveys for Giant Garter Snake and Implement Avoidance and Minimization Measures</b></p> <ul style="list-style-type: none"> <li>• Project ground-disturbing activities in aquatic habitat and adjacent upland habitat within 200 feet of aquatic habitat will be conducted during the giant garter snake's active season (i.e., after May 1 and before October 1), to the extent feasible. During this period, the potential for direct mortality is reduced, because snakes are expected to actively move and avoid danger. If project activities in aquatic habitat and adjacent upland habitat within 200 feet of aquatic habitat must be implemented outside of the snake's active season, the following mitigation measures must be implemented: <ul style="list-style-type: none"> <li>○ Within 24-hours prior to commencement of construction activities within 200 feet of potential giant garter snake habitat, the site shall be inspected by a qualified biologist who is approved by the CDFW and USFWS. If construction activities stop for a period of 2 weeks or more, another preconstruction clearance survey will be conducted within 24 hours before resuming construction activity. If snakes, or evidence of snakes, are encountered during preconstruction surveys, a biological monitor shall be present during construction activities in aquatic habitat and adjacent upland habitat within 200 feet of aquatic habitat.</li> <li>○ The monitoring biologist shall be present during construction within 200 feet of potential aquatic habitat for giant garter snake (i.e., drainages that contain water) for the duration of the project. If a snake is encountered during construction activities, the monitoring biologist shall have the authority to stop construction activities until appropriate corrective measures have been completed or it is determined that the snake will not be harmed. The monitor will remain in the area for the remainder of the workday to ensure the snake is not harmed or, if it leaves the site, does not return. The qualified biologist will work with the PCA, USFWS, and CDFW to redirect the snake away from the disturbance area within 3 days of reporting the snake's presence at the construction site to USFWS and CDFW.</li> </ul> </li> </ul>

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	<ul style="list-style-type: none"> <li>• The project biologist shall report any observations of giant garter snake to CDFW and USFWS within 24 hours of detection.</li> <li>• Information about avoidance and minimization measures for giant garter snake shall be included in the WEAP described above in Mitigation Measure 3.4-1.</li> </ul>
<p><b>Survey Requirements</b></p> <p>If the communities listed below are present on or adjacent to a project site and within the geographic range of giant garter snake habitat in the Plan Area (see Appendix D, Species Accounts), a qualified biologist will conduct a survey to assess whether the communities provide suitable habitat for giant garter snake. Giant garter snake surveys will be conducted according to the USFWS's Standard Avoidance and Minimization Measures During Construction Activities in Giant Garter Snake (<i>Thamnophis gigas</i>) Habitat or the current Wildlife Agency–approved protocol. If there is any deviation in the written text below and the formal USFWS guidelines, then the USFWS guidelines or otherwise current Wildlife Agency–approved protocol takes precedence. Project-by-project mitigation requirements do not apply. Mitigation will be addressed through the requirements of the conservation strategy, as described in Section 5.4.5, <i>Giant Garter Snake</i>.</p> <ol style="list-style-type: none"> <li>Aquatic/Wetland Complex (Fresh Emergent Marsh, seasonal wetlands, and ponds)</li> <li>Rice Agriculture</li> <li>Riverine/Riparian in Low-gradient Streams</li> <li>Managed Open Water (sloughs, small lakes, irrigation and drainage canals)</li> </ol> <p>If there is any question about the suitability of the habitat to support giant garter snakes and/or potential for species occurrence, USFWS and CDFW may be consulted. If the surveyor cannot legally access neighboring land within 200 feet of a project site, the qualified biologist may survey the adjacent parcel with binoculars or a spotting scope.</p>	<p>See DEIR Mitigation Measure 3.4-5 above.</p>

#### Applicable Measures

**Giant Garter Snake 1.** To avoid effects on giant garter snake aquatic habitat, the project proponent will conduct no in-water/in-channel activity and will maintain a permanent 200-foot non-disturbance buffer from the outer edge of suitable habitat. If the project proponent cannot avoid effects of construction activities, the project proponent will implement the following measures to minimize effects of construction projects.

- Conduct preconstruction clearance surveys using USFWS and CDFW-approved methods within 24 hours prior to construction activities within identified giant garter snake aquatic and adjacent upland habitat. If construction activities stop for a period of 2 weeks or more, conduct another preconstruction clearance survey within 24 hours of resuming construction activity.
- Restrict all construction activity involving disturbance of giant garter snake habitat to the snake's active season, May 1 through October 1. During this period, the potential for direct mortality is reduced, because snakes are expected to actively move and avoid danger.
- In areas where construction is to take place, encourage giant garter snakes to leave the site on their own by dewatering all irrigation ditches, canals, or other aquatic habitat (i.e., removing giant garter snake aquatic habitat) between April 15 and September 30. Dewatered habitat must remain dry, with no water puddles remaining, for at least 15 consecutive days prior to excavating or filling of the habitat. If a site cannot be completely dewatered, netting and salvage of giant garter snake prey items may be necessary to discourage use by snakes.
- Provide environmental awareness training for construction personnel. Training may be implemented through the distribution of approved brochures and other materials that describe resources protected under the Plan and methods for avoiding effects. If a live giant garter snake is encountered during construction activities, immediately notify the project's biological monitor and USFWS and CDFW. The monitor will stop construction in the vicinity of the snake, monitor the snake, and allow the snake to leave on its own. The monitor will remain in the area for the remainder of the work day to ensure the snake is not harmed or, if it leaves the site, does not return. The qualified biologist will work with the PCA, USFWS, and CDFW to redirect the snake away from the disturbance area

See DEIR Mitigation Measure 3.4-5 above.

PCCP Requirements for Covered Activities	Country Acres Solar Project Consistency
<p>within 3 days of reporting the snake's presence at the construction site to USFWS and CDFW.</p> <ul style="list-style-type: none"> <li>Employ the following management practices to minimize disturbances to habitat. <ul style="list-style-type: none"> <li>Install temporary fencing to identify and protect adjacent marshes, wetlands, and ditches from encroachment from construction equipment and personnel.</li> <li>Maintain water quality and limit construction runoff into wetland areas through the use of hay bales, filter fences, vegetative buffer strips, or other accepted practices. No plastic, monofilament, jute, or similar erosion control matting that could entangle snakes or other wildlife will be permitted.</li> </ul> </li> </ul>	
<p><b>Species Condition 6, California Red-legged Frog, Foothill Yellow-legged Frog, and Western Pond Turtle</b></p> <p>California red-legged frog, foothill yellow-legged frog, and western pond turtle are all species that rely on aquatic habitats for a portion of their life cycles. Many of the avoidance measures in this chapter focus on the avoidance and minimization of impacts on these aquatic habitats, addressing minimizing converted land as well as degradation of habitat (water quality and other indirect effects). Conditions on Covered Activities that provide avoidance and minimization for California red-legged frog, foothill yellow-legged frog, and western pond turtle include:</p> <ul style="list-style-type: none"> <li>General Condition 1, Watershed Hydrology and Water Quality</li> <li>Community Condition 1.1, Avoidance of Vernal Pool Complex Constituent Habitat</li> <li>Community Condition 1.2, Avoidance of Aquatic/Wetland Complex Constituent Habitat</li> <li>Community Condition 2, Riverine and Riparian Avoidance and Minimization</li> <li>Community Condition 3, Valley Oak Woodland Avoidance, Minimization, and Mitigation</li> <li>Stream System Condition 1, Stream System Avoidance and Minimization</li> <li>Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements</li> </ul>	<p><b>CRLF</b> - No potential to occur. No CNDDDB records within 10 miles of the project site. The project site is outside the species' range, and physical barriers prevent dispersal into the project site from the nearest occurrence.</p> <p><b>FYLF</b> – No potential to occur. No suitable habitat in the project site, and no CNDDDB records within 10 miles of the project site (CDFW 2021).</p> <p>The DEIR includes the following mitigation measures to address <b>Western Pond Turtle</b>:</p> <p><b>Mitigation Measure 3.4-3. Conduct Pre-Construction Surveys for Western Pond Turtle</b></p> <ul style="list-style-type: none"> <li>Project ground-disturbing activities will be conducted outside of western pond turtle's active breeding and dispersal season (i.e., after May 1 and before September 15), to the extent feasible. If project activities must be implemented during the breeding and dispersal season, they will not start until 30 minutes after sunrise and must be completed 30 minutes prior to sunset.</li> <li>A qualified biologist shall conduct a pre-construction survey for western pond turtle within 48 hours prior to the start of construction activities within 300 feet of suitable habitat (e.g., any adjacent waterway, marsh, or emergent wetland). Concurrently with the pre-construction survey, searches for nesting sites shall be conducted and any identified sites shall be delineated with high-visibility flagging or fencing and avoided during construction activities. If avoidance is not possible, the nest and/or turtle shall be removed by a qualified biologist and relocated to an appropriate location in consultation with CDFW.</li> </ul> <p><b>Mitigation Measure 3.4-4. Avoid Impacts on Western Pond Turtle during Construction</b></p> <p>If turtles and/or nests are encountered during the pre-construction survey, a qualified biologist shall be present during grubbing and clearing activities in suitable habitat (aquatic) to monitor</p>

PCCP Requirements for Covered Activities	Country Acres Solar Project Consistency
<ul style="list-style-type: none"> <li>Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs</li> <li>Regional Public Projects Condition 3, Operation and Maintenance BMPs</li> <li>Species Condition 4, Tricolored Blackbird</li> <li>Species Condition 7, Central Valley Steelhead and Central Valley Fall-/Late Fall-Run Chinook Salmon (Salmonids)</li> </ul> <p>In addition to these avoidance and minimization measures, General Condition 3, Land Conversion, provides a process for accounting for loss of natural and semi-natural that is more encompassing than standard practice. This approach better addresses the piecemeal loss of high-quality, contiguous habitat that would occur without a plan such as that HCP/NCCP.</p> <p>Finally, Chapter 5, Conservation Strategy, provides guidance on how impacts that cannot be avoided and minimized are mitigated. Mitigation not only includes addressing loss of aquatic resources, but surrounding uplands and loss of habitat connectivity as well. Because the effects on California red-legged frog, foothill yellow-legged frog, and western pond turtle are addressed through the approach to assessing impact and applying extensive avoidance and minimization measures, no additional avoidance and minimization measures specific to these species are required.</p>	<p>for western pond turtle. If a turtle is observed in the active construction zone, construction shall cease within a 100-foot buffer. Construction may resume when the biologist has, in consultation with CDFW, either hand-captured and relocated the turtle to nearby suitable habitat outside the construction zone, or, after thorough inspection, determined that the turtle has moved away from the construction zone.</p> <p>On-site personnel will observe a 20-mile-per-hour speed limit at all times.</p> <p>Information about avoidance and minimization measures for western pond turtles shall be included in the WEAP described above in Mitigation Measure 3.4-1.</p>
<p><b>Species Condition 7, Central Valley Steelhead and Central Valley Fall-/Late Fall-Run Chinook Salmon (Salmonids)</b></p>	<p>N/A. Steelhead–Central Valley DPS <i>Oncorhynchus mykiss irideus</i> pop. 11</p> <p>Unlikely to occur. No suitable aquatic habitat in the project site. This species is known to occur in the Delta from Chipps Island to the San Joaquin River at Dos Reis and Sacramento River at Garcia Bend. CNDDDB identified a single occurrence within a 2-mile buffer of the project site in Roseville at Dry Creek and its tributaries, Secret Ravine and Miners Ravine.</p>
<p><b>Species Condition 8, Valley Elderberry Longhorn Beetle</b></p> <p>The following measures will be implemented to avoid or minimize effects of Covered Activities on valley elderberry longhorn beetle.</p> <p>Surveys for valley elderberry longhorn beetle are required for Covered Activities within the following habitat features when below 650 feet elevation (above mean sea level):</p> <ol style="list-style-type: none"> <li>Riparian constituent habitat</li> <li>Valley oak woodland community</li> </ol>	<p>Surveys for elderberry shrubs and trees was conducted by AECOM in 2021. No elderberry shrubs or trees were found within the project site.</p>



PCCP Requirements for Covered Activities	Country Acres Solar Project Consistency
<p>c. Stream System (excluding frequently disked or flooded agricultural lands such as rice that would not likely support elderberry shrubs)</p> <p>The project applicant will apply avoidance and minimization measures as specified in the USFWS's <i>Conservation Guidelines for the Valley Elderberry Longhorn Beetle</i> (U.S. Fish and Wildlife Service 1999b) or the current Wildlife Agency-approved avoidance and minimization protocol. When take is authorized the project applicant must coordinate with the PCA to provide transplants and seedlings/cuttings for planting in suitable habitat on the Reserve System consistent with the USFWS Guidelines/Framework. Project-by-project mitigation requirements for valley elderberry longhorn beetle cannot be applied to the restoration requirements of 6.3.2.2.3 (Community Condition 2.3, Riverine and Riparian Restoration) for a project's associated riparian native trees/shrubs impacts to be planted as replacement habitat (i.e., mitigation for impacts to valley elderberry longhorn beetle [transplants and plantings of seedlings/cuttings] does not count as mitigation for impacts to riverine and riparian [restoration of riverine and riparian]). The distinction between valley elderberry longhorn beetle impacts and riverine/riparian impacts will be addressed through project-specific mitigation requirements that provide for restoration of natural communities, including riverine/riparian complex (i.e., restoration dependent on effects; see Table 5-4).</p>	
<b>Species Condition 9, Conservancy Fairy Shrimp</b>	N/A – No potential to occur. There is suitable vernal pool habitat is present on the project site, however, the nearest observation is not within proximity to the project site. There was one CNDDDB occurrence identified within the Sheridan 7.5-minute quadrangle (CDFW 2021). Avoidance of all vernal pools and seasonal wetlands.
<b>Species Condition 10, Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp</b>	N/A – Avoidance of all vernal pools and seasonal wetlands. See Mitigation Measures 3.4-2, 3.4-12, 3.4-16, and 3.4-17.
<b>Reserve Management Conditions</b>	N/A – Not within the Reserve Management Area.

## **BR-2 – DRAFT AQUATIC RESOURCES DELINEATION REPORT**

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# Draft Aquatic Resources Delineation Report

## Country Acres Solar Project



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April 2022

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## ACRONYMS AND ABBREVIATIONS

2020 Final Rule	Navigable Waters Protection Rule: Definition of “Waters of the United States”
AC	agricultural canal
AD	agricultural ditch
APNs	Assessor Parcel Numbers
CFR	Code of Federal Regulation
CNPS	California Native Plant Society
CWA	Clean Water Act
D	Ditch
EPA	U.S. Environmental Protection Agency
FAC	Facultative
FACU	Facultative upland
FACW	Facultative wetland
FR	Federal Register
GPS	Global Positioning System
ID	intermittent drainages
LRR-C	Land Resource Region Subregion C aka “Mediterranean California”
MW	megawatt
msl	mean sea level
MCV	Manual of California Vegetation
NL	Not listed
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate
OHW	Ordinary High Water Mark
PEM	perennial emergent marsh
PEM1A	palustrine emergent persistent temporarily flooded
PEMC1	palustrine, emergent, persistent, seasonally flooded
PEM1Cx	palustrine, emergent, persistent, seasonally flooded, excavated
PSSA	palustrine, scrub-shrub, temporary flooded
PSSC	palustrine, scrub-shrub, seasonally flooded
PV	photovoltaic
R4SBA	riverine, intermittent, streambed, temporarily flooded
R4SBC	riverine, intermittent, streambed, seasonally flooded
SM	seasonal marsh
SMUD	Sacramento Municipal Utility District
SW	seasonal wetland
SWANCC	Solid Waste Agency of Northern Cook County
SWS	seasonal wetland swale

TNW	Traditional Navigable Water
U.S.	United States
UPL	Obligate upland
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VP	vernal pool
W	wetland
WGS 84	World Geodetic System datum
WOTUS	waters of the U.S.
WRCC	Western Regional Climate Center

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# INTRODUCTION

On behalf of the Sacramento Municipal Utility District (SMUD), AECOM has prepared this aquatic resource delineation report documenting potential wetlands and waters of the United States (U.S.) for the Country Acres Solar Project, located in Placer County, California (Exhibit 1, Appendix A). The purpose of this report is to provide an accurate quantification and delineation of potentially jurisdictional waters of the U.S., including wetlands, in accordance with 33 Code of Federal Regulations (CFR) §328 of the Clean Water Act (CWA) for the proposed project. The delineation of waters of the U.S. is considered draft until verified by the U.S. Army Corps of Engineers (USACE) Sacramento District Regulatory Division.

The project proposed by SMUD is to construct and operate a new photovoltaic (PV) facility located on leased lands in southwestern Placer County, CA. The conceptual project area (Source: Data compiled by AECOM in 2022

Exhibit 2, Appendix A) includes a PV solar power and battery storage facility and interconnection facilities, including a generation substation, switch station, and interconnection lines to the existing SMUD transmission system. The project design has not yet been finalized but will encompass up to 1,300 acres. The wetland delineation study area encompasses the entire conceptual project area plus additional survey buffer areas to the edge of parcel boundaries, where accessible, totaling approximately 1,170 acres of vacant grassland and agricultural (rice fields and almond orchards) parcels and channelized drainages, ditches, and seasonal wetlands. The site is expected to deliver up to 344 megawatt (MW) of solar energy at the point of interconnection. The facility size and design will be influenced by the findings of this report.

## DELINEATION METHODS

To evaluate all areas of possible aquatic resources, including potentially jurisdictional wetlands and waters of the U.S., within the study area prior to the field delineation, an AECOM wetland ecologist used Google Earth to review aerial imagery at various times of the year from 1985 to 2020 (Google Earth 2021), the USFWS National Wetlands Inventory (NWI) Wetlands Mapper to review areas and types of wetlands (USFWS 2021), the U.S. Geological Survey (USGS) National Map (USGS 2021a) to review drainage patterns and hydrology, and the Natural Resources Conservation Service's (NRCS) Online Soil Survey (NRCS 2021a) to check for the presence of hydric soils in the study area. In addition, previous delineation reports from within and adjacent to the study area were reviewed and later ground-truthed in the field (ECORP 2017). Three AECOM wetland ecologists, William Splittstoesser, Charles Battaglia, and Jasmine Wurlitzer, and two Bargas wetland ecologists, Owen Routt and Bekah Christianson, conducted field surveys April 7<sup>th</sup> – April 9<sup>th</sup>, April 16<sup>th</sup>, April 22<sup>nd</sup>, April 23<sup>rd</sup>, April 26<sup>th</sup>, April 27<sup>th</sup>, April 30<sup>th</sup>, July 14<sup>th</sup>, August 16<sup>th</sup>, August 18<sup>th</sup>, and August 31<sup>st</sup>, 2021.

The delineation of the study area was based on information and guidance in the USACE 1987 *Wetlands Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Environmental Laboratory 2010), *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, A Field Manual* (Lichvar and McColley 2008) and the USACE Regulatory Guidance Letter No. 05-05, which provides further guidance on OHWM identification (USACE 2005). The Regional Supplement and USACE Regulatory Guidance Letter No. 05-05 provide technical guidelines and methods for identifying waters that may be subject to USACE jurisdiction under Section 404 of the CWA.

The 1987 manual and 2010 Arid West Supplement provide technical guidelines and methods for the three-parameter approach to determining the location and boundaries of jurisdictional wetlands. This approach requires that an area supports positive indicators of hydrophytic vegetation, hydric soils, and wetland hydrology to be considered a jurisdictional wetland. Routine wetland determination data forms were completed for fifty-five (55) sample points and are provided in Appendix B.

Potentially jurisdictional areas (other waters) and the OHWM were identified and recorded digitally in the field using a Global Positioning System (GPS) data receiver (Trimble R1® and Arrow 100®) connected to an Apple® iPhone or iPad and imported onto an electronic version of an aerial photograph. GPS data were recorded using the World Geodetic System datum (WGS 84), which was established by the United States National Geospatial-Intelligence Agency in 1984 and last revised in 2004.

Soils were examined by digging soil test pits to determine whether hydric soils exist in a sampling location. Soils were described in terms of depth, matrix color, redoxymorphic color (when present), and moisture status at each sampling location. Other diagnostic features indicative of hydric soils, such as the presence of concretions and oxidized rhizospheres (a redoximorphic feature, according to Vepraskas [1992]), were also recorded on data forms. Hydric soil determinations were based on the indicators provided by the 1987 Wetlands Delineation Manual, 2008 Arid West Supplement, *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils* (NRCS 2018), and *Redoximorphic Features for Identifying Aquic Conditions* (Vepraskas 1992). Soil units mapped for the study area as part of the soil survey were cross-referenced with the National Hydric Soils List (NRCS 2021b) to determine whether the soils are listed as a hydric map unit.

Wetland hydrology was assessed by recording observations of drainage patterns, watermarks, flooded or saturated soil conditions, and other indicators. In addition, potentially jurisdictional areas were evaluated in terms of their status as navigable waterways or their adjacency or hydrologic connections to navigable waterways. Other waters were delineated based on the presence of an OHWM. A drainage feature's OHWM is typically defined by characteristics such as shelving, scour lines, and other natural linear features that define the bed-and-bank portion of the channel that floods under normal conditions (USACE 2005). The OHWM was recorded by walking along the slope break and shift in herbaceous cover, digitally recording lines.

Botanical nomenclature in this report follows *The Jepson eFlora: Vascular Plants of California* (Jepson Flora Project 2021). Plant community names follow *A Manual of California Vegetation: Second Edition* (CNPS 2021), where applicable. Plants observed in the study area during the field survey were identified to the species level whenever possible. To determine whether hydrophytic vegetation dominated an area, plant species at ditch cross-sections were listed on the OHWM data form, and the wetland indicator status was recorded for each dominant species using the National Wetland Plant List (USACE 2018). Hydrophytic species are those listed as obligate (OBL), facultative wetland (FACW), or facultative (FAC). A species' wetland indicator status designation corresponds to the probability that the species will occur in a wetland habitat. Observed plants are referenced in the text below along with their wetland indicator status (USACE 2018), which are defined using the following terms:

- ▶ Obligate wetland plant species (OBL) – Plants that almost always occur in wetlands under natural conditions (estimated probability >99 percent), but which rarely occur in non-wetlands.
- ▶ Facultative wetland plant species (FACW) – Plants that occur usually (estimated probability >67 percent to 99 percent) in wetlands, but also occur in non-wetlands.

- ▶ Facultative plant species (FAC) – Plants with a similar likelihood (estimated probability 33 percent to 67 percent) of occurring in both wetlands and non-wetlands.
- ▶ Facultative upland plant species (FACU) – Plants that occur sometimes (estimated probability 1 percent to <33 percent) in wetlands but occur more often in non-wetlands.
- ▶ Obligate upland plant species (UPL) – Plants that occur rarely (estimated probability <1 percent) in wetlands but occur almost always in non-wetlands.
- ▶ Not Listed (NL) – Plant species for which insufficient information was available to determine an indicator status and are treated as upland species because they do not occur on the wetland plant list. Plants not listed on the 2018 National Wetland Plant List are listed on the data forms as NL and assumed to be UPL consistent with standard protocol.

## REGULATORY SETTING

The *Navigable Waters Protection Rule: Definition of “Waters of the United States”* (2020 Final Rule) (85 Federal Register [FR] 22250) was published under the previous administration on April 21, 2020. However, on June 9, 2021, the U.S. Environmental Protection Agency (EPA) and USACE (the agencies), under the Biden administration, announced their intent to revise the definition of waters of the U.S. (WOTUS) as described under the 2020 Final Rule (EPA 2021). The agencies reviewed the 2020 Final Rule and determined that the rule significantly reduces clean water protections. On September 3, 2021, the EPA and USACE received the U.S. District Court for the District of Arizona’s August 30, 2021 order vacating and remanding the 2020 Final Rule in the case of *Pascua Yaqui Tribe v. U.S. Environmental Protection Agency*. Considering this order, the EPA and USACE halted implementation of the Navigable Waters Protection Rule and are interpreting “waters of the United States” consistent with the pre-2015 regulatory regime until further notice. The agencies continue to review the order and consider next steps, including moving forward with the rulemakings announced on June 9, 2021 (EPA 2021). On November 18, 2021, the agencies announced the signing of a proposed rule to revise the definition of “waters of the United States” and put back into place the pre-2015 definition of “waters of the United States,” updated to reflect consideration of Supreme Court decisions in order to support a stable implementation of “waters of the United States” while the agencies continue to consult with states, Tribes, local governments, and stakeholders in both the implementation of WOTUS and future regulatory actions (EPA 2021).

Pre-2015 regulations defining WOTUS include the 2001 and 2003 guidance developed by EPA and the USACE following the *Solid Waste Agency of Northern Cook County (SWANCC) v. United States* Supreme Court Decision, and the 2007 and 2008 guidance defining WOTUS under the CWA following the *Rapanos v. United States* and *Carabell v. United States* Supreme Court decisions. Under this pre-2015 regulatory regime, waters considered “waters of the United States” are defined in accordance with 40 CFR 230.3(s), copied and listed below, and agencies are interpreting WOTUS consistent with the pre-2015 regime until further notice (EPA 2015, 2021):

### *40 CFR 230.3(s)*

*The term “waters of the United States” means:*

1. *All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;*
2. *All interstate waters including interstate wetlands;*

3. *All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:*
  - a. *Which are or could be used by interstate or foreign travelers for recreational or other purposes; or*
  - b. *From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or*
  - c. *Which are used or could be used for industrial purposes by industries in interstate commerce;*
4. *All impoundments of waters otherwise defined as waters of the United States under this definition;*
5. *Tributaries of waters identified in paragraphs (s)(1) through (4) of this section;*
6. *The territorial sea;*
7. *Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.*

*Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA (EPA 2021).*

The conclusions of this report are consistent with the pre-2015 court decisions and are considered preliminary until verified by the Sacramento District of the USACE.

## STUDY AREA SETTING

The study area is located within the Pleasant Grove USGS 7.5-minute quadrangle (USGS 2018), and within Township 11N, Range 05E, Sections 16, 17, 20, 21, 22, 27, 28, 33, and 34. It consists of leased agricultural parcels used for rice and almond production in southwestern Placer County, California. The study area is generally bounded by Baseline Road to the South, S Brewer Street to the West, Phillip Road to the North, and the Westpark neighborhood of Roseville to the East (Exhibit 1, Appendix A). Surrounding land uses include additional rice fields and almond orchards, urban development, and open space areas with seasonal wetland, riparian, and annual grassland vegetation. The majority of the region is privately owned and developed for agricultural, industrial, residential, and transportation uses.

## CLIMATE AND TOPOGRAPHY

The study area is located within the Mediterranean California (LRR-C) sub-region of the Arid West Region, which is characterized by relatively warm, wet winters and dry summers, with most of the precipitation falling between November and April (Environmental Laboratory 2008). During the field delineation, weather conditions ranged from cool and breezy to sunny and hot with temperatures ranging from 60° to 85° Fahrenheit and winds of 0 to 15 miles per hour.

The nearest National Weather Service station to the study area with a complete climate summary, as reported by the Western Regional Climate Center, is in Sacramento California (WRCC 2021). Based on records from the Sacramento Station, the study area receives an average of 18.15 inches of rainfall each year, with most rainfall occurring from December to March (WRCC 2021).

Topography in the study area is generally flat (0–5%). The elevation varies between approximately 58 and 100 feet above mean sea level (msl).

## HYDROLOGY

The study area overlaps portions of the Curry Creek and Upper Steelhead Creek watersheds, and the Pleasant Grove Creek watershed is located immediately to the north (Exhibit 3, Appendix A). Each of the primary drainages within these watersheds flow east to west. Approximately 5 miles west of the study area, Curry Creek and Pleasant Grove Creek, which are both mapped as intermittent drainages at this point, enter the Pleasant Grove Creek Canal, which flows northwest and then abruptly turns southwest before draining into the Sacramento River (USGS 2021a). The Upper Steelhead Creek watershed contains several unnamed ephemeral and intermittent streams that flow west and drain into the Natomas East Main Drainage Canal (a.k.a. Steelhead Creek), which is a channelized waterway that flows south for approximately 11 miles before entering the Sacramento River upstream and almost immediately adjacent to the confluence of the American River (USGS 2021a).

Of the three primary drainages described above, Curry Creek and two of its tributaries are the only drainages that overlap with the study area. Due to rice and orchard agriculture development, the sections of Curry Creek and the two tributaries within the study area are primarily channelized and function like agricultural canals or ditches. Curry Creek originates approximately 3 miles southeast of the study area in grassland habitat and flows west towards the study area as a relatively natural ephemeral drainage. Where it meets the study area near the southeast corner, USGS (2021a) maps it as intermittent, and it follows the boundary north and then crosses west through the center of the lower half of the study area. On the west side of the study area, it then turns north again along the boundary for a short distance before exiting to the west (Exhibit 3, Appendix A; USGS 2021a; USFWS 2021). The two other unnamed drainages enter and cross through the study area to the north, and like Curry Creek, they both originate to the east as ephemeral drainages. One meets the study area approximately 1 mile north of where Curry Creek enters, and it also changes from ephemeral to intermittent at the entry point; the second is approximately 0.5 mile farther north and is mapped as ephemeral until it turns south before it drains into Curry Creek. The NWI maps Curry Creek as freshwater forested/shrub wetland for approximately two miles extending west from the study area, transitioning to a freshwater emergent wetland and then a riverine feature (USFWS 2021). Curry Creek is classified as both PEMC1 (palustrine, emergent, persistent, seasonally flooded) and R4SBC (riverine, intermittent, streambed, seasonally flooded) at different points of the channel, depending primarily on the dominance of emergent vegetation (USFWS 2021).

Hydrology in the study area is influenced by a combination of natural direct seasonal precipitation in the winter and early spring and agricultural irrigation practices during the late spring and summer, including deliberate flooding of fields for rice production and drip irrigation of almond orchards. Rice fields are also often flooded in late fall, after the harvest, to promote decomposition and provide habitat for migratory waterfowl and shorebirds that overwinter in the Central Valley. Water used to flood the rice fields and irrigate almond orchards within the study area is sourced from wells that utilize groundwater. A network of channelized drainages and interconnected

ditches traverse the study area and convey water through the site. Drainage gradients across the site flow from east to west.

The nearest weather station is a rain accumulation sensor at the Pleasant Grove Creek Pump Station just west of where Pleasant Grove Creek intersects the railroad (#1786), approximately 2.94 miles west of the study area (Sacramento County 2021). At the time of the field investigation, 4.92 inches of precipitation (below average) had been recorded for the 2021 water year, which began on October 1, 2020. The last precipitation recorded in 2021 prior to the field survey was 0.39 inches on March 18<sup>th</sup> (Sacramento County 2021).

## SOILS

According to NRCS Soil Survey of Sacramento County, California (NRCS 2021a), the soils within the study area belong to five soil series: Alamo-Fiddymment complex, 0 to 5 percent slopes; Cometa-Fiddymment complex, 1 to 5 percent slopes; Fiddymment loam, 1 to 8 percent slopes; Fiddymment-Kaseberg loams, 2 to 9 percent slopes; San Joaquin-Cometa sandy loams, 1 to 5 percent slopes; and Xerofluvents, hardpan substratum. The specific soil map units occurring within the study area and its hydric status, according to the National Hydric Soils List, (NRCS 2021b) are presented below in Table 1, and the location of each soil unit within the study area, as mapped by NRCS, is depicted on the soils map in Exhibit 4. in Appendix A.

**Table 1. Soil Units Present within the Study Area**

Soil Unit	Soil Unit Number	Hydric Soil
Alamo-Fiddymment complex, 0 to 5 percent slopes	104	Yes
Cometa-Fiddymment complex, 1 to 5 percent slopes	141	No
Fiddymment loam, 1 to 8 percent slopes	146	No
Fiddymment-Kaseberg loams, 2 to 9 percent slopes	147	No
San Joaquin-Cometa sandy loams, 1 to 5 percent slopes	182	No
Xerofluvents/Wunjey, hardpan substratum	195	No

### ALAMO-FIDDYMENT COMPLEX, 0 TO 5 PERCENT SLOPES

The Alamo-Fiddymment complex, 0 to 5 percent slopes map unit is composed of Alamo (50 percent) and Fiddymment (30 percent) major soil types and the San Joaquin (10 percent), Kaseburg (5 percent), and Cometa (5 percent) inclusions or minor components. One major soil type, Alamo, is rated as hydric (NRCS 2021b). Alamo soils are poorly drained, have very slow runoff and ponding from December to April when the water table is near the surface. Strongly cemented duripan results in very slow permeability. Alamo soils are in nearly level basins and drainageways on fan remnants and floodplains. The Alamo soils are used for irrigated pasture crops such as rice.

### COMETA-FIDDYMENT COMPLEX, 1 TO 5 PERCENT SLOPES

The Cometa-Fiddymment complex, 1 to 5 percent slopes map unit is composed of Cometa (40 percent) and Fiddymment (30 percent) major soil types and the San Joaquin (10 percent), Kaseberg (10 percent), Ramona (5 percent), and Alamo (5 percent) inclusions or minor components. One inclusion, Alamo, is rated as hydric (NRCS 2021b). Cometa soils are well to moderately well drained, have slow to medium runoff, and very slow permeability. Cometa soils are on gently sloping and undulating slightly dissected older stream terraces with



slopes of 0 to 15 percent. Cometa soils are used for cropland and grazing. Main crops include fruits, nuts, small grains, and irrigated pasture crops such as rice.

### **FIDDYMENT LOAM, 1 TO 8 PERCENT SLOPES**

Fiddymment soils are well drained, have slow to medium runoff, and very slow permeability due the presence of a hardpan or claypan layer. Fiddymment soils are on low terraces and hills with slopes of 0 to 15 percent. Fiddymment soils are used for rangeland, non-irrigated crops, urban development, and occasionally irrigated pasture.

### **FIDDYMENT-KASEBERG COMPLEX, 2 TO 9 PERCENT SLOPES**

The Fiddymment-Kaseberg loams, 2 to 9 percent slopes map unit is composed of Fiddymment (50 percent) and Kaseberg (30 percent) major soil types and the Alamo (10 percent) and unnamed (10 percent) inclusions or minor components. One inclusion, Alamo, is rated as hydric (NRCS 2021b). Fiddymment soils are described above. Kaseberg soils are well drained, have slow to medium runoff, and moderate permeability, and are found on low-lying terraces and hill slopes of dissected terraces with slopes of 0 to 30 percent. Kaseberg soils are used for dryland grain, dryland pasture, and dryland rangeland.

### **SAN JOAQUIN-COMETA SANDY LOAMS, 1 TO 5 PERCENT SLOPES**

The San Joaquin-Cometa sandy loams, 1 to 5 percent slopes map unit is composed of San Joaquin (40 percent) and Cometa (30 percent) major soil types and the Ramona (10 percent), Fiddymment (10 percent), Alamo (5 percent), and Kasenberg (5 percent) inclusions or minor components. One inclusion, Alamo, is rated as hydric (NRCS 2021b). San Joaquin soils are well- to moderately-well drained, have medium to high runoff, and very slow permeability. San Joaquin soils are on low terraces and valleys and are occasionally susceptible to flooding. Slopes are 0 to 9 percent. These soils are used for cropland and grazing. Main crops include fruits, nuts, small grains, and irrigated pasture crops such as rice.

### **XEROFLUENTS HARDPAN SUBSTRATE**

The Xerofluents, hardpan substratum map unit is composed of Xerofluents (85 percent) major soil types and the Alamo (10 percent), Unnamed A (3 percent), and Unnamed B (2 percent) inclusions or minor components. One minor inclusion, Alamo, is rated as hydric (NRCS 2021b). Xerofluent soils are moderately well to well drained, have slow runoff and moderate to rapid permeability. Xerofluent soils occur on nearly level to channeled floodplains and recent alluvial fans at elevations of 150 to 300 feet. Xerofluent soils are used mainly for dry pastures.

## **VEGETATION COMMUNITIES AND LAND COVER TYPES**

Vegetation communities and other land cover types in the study area were documented during the field survey efforts in April, July, and August 2021, are described below, and their location and extent in the study area are shown on Exhibit 5a. and 5b in Appendix A. The Manual of California Vegetation was used to describe vegetation communities to the alliance level when possible (CNPS 2021); however, some communities, such as rice fields and pasture do not conform to Manual of California Vegetation (MCV) alliance types. All vascular plant species observed during the field surveys, along with their wetland indicator status, are listed in Appendix B, and representative photographs of land cover in the study area are provided in Appendix C. Table 2 lists the

vegetation communities as well as several non-vegetated land cover types (e.g., open water and developed areas) that were mapped in the study area, with acreages.

**Table 2. Vegetation Communities and Land Cover Types Present within the Study Area**

<b>Vegetation Community/Land Cover Type</b>	<b>Acres</b>
Almond Orchard	131.451
Annual Grassland	117.374
Cattail Marsh	4.186
Developed	31.624
Fremont Cottonwood Riparian	0.071
Himalayan Blackberry Thicket	0.232
Irrigated Pasture	0.035
Polygonum Wetland	0.303
Rice Field	872.755
Ruderal	4.406
Seasonal Wetland	5.310
Vernal Pool	1.478
Willow Riparian	0.632
<b>Grand Total</b>	<b>1,169.587</b>

## ALMOND ORCHARD

After rice fields, almond orchard is the most prevalent land cover type in the study area. Portions of the northeastern and eastern boundaries and the entire southern extent of the study area consist entirely of and overlap with almond orchards, which are all newly planted. These orchards consist of rows of planted almond trees that are less than 10 feet in height and are highly disturbed by regular human disturbance, including pruning of trees, mowing of vegetation between rows, harvesting of fruit, application of drip irrigation throughout the summer growing season, and pesticide/herbicide application activities. Ruderal (i.e., weedy) vegetation is common throughout the almond orchards and is dominated by field bindweed (*Convolvulus arvensis*) (NL) intermixed with curly dock (*Rumex crispus*) (FAC).

## ANNUAL GRASSLAND

The annual grassland vegetation community can be best described as an *Avena (barbata, fatua)* Herbaceous Semi-Natural Alliance, according to the Manual of California Vegetation (CNPS 2021). This vegetation alliance typically is dominated by nonnative wild oats (*Avena barbata* and/or *Avena fatua*). Grasslands in the study area have been disturbed by past and ongoing human activities including grazing, hay production, and disking and grading. Small patches of highly disturbed annual grassland are present in the central and southern extents of the study area, surrounded by rice fields and almond orchards, that are regularly disturbed by vehicle traffic and shallow disking.

In the study area, grassland vegetation cover is dominated by nonnative annual grasses consisting of wild oats, medusahead (*Elymus caput-medusae*) (NL), ripgut brome (*Bromus diandrus*) (NL), softchess brome (*Bromus hordeaceus*) (FACU), and brome fescue (*Festuca bromoides*) (FACU), as well as a mixture of native and nonnative herbs, including miniature lupine (*Lupinus bicolor*) (NL), wild radish (*Raphanus sativus*) (NL), filaree (*Erodium botrys*) (FACU), and narrow tarplant (*Holocarpha virgata*) (NL). Other common species observed in



the grasslands included Italian rye grass (*Festuca perennis*) (FAC), wild geranium (*Geranium dissectum*) (NL), hawkbit (*Leontodon saxatilis*) (FACU), white clover (*Trifolium repens*) (FACU), bull thistle (*Cirsium vulgare*) (FACU), suckling clover (*Trifolium dubium*) (UPL), and prickly lettuce (*Lactuca serriola*) (FACU). Less common species include silver-hair grass (*Aira caryophyllea*) (FACU), red maids (*Calandrinia menziesii*) (FACU), narrow leaved soaproot (*Chlorogalum angustifolium*) (NL), and doveweed (*Croton setiger*) (NL).

## CATTAIL MARSH

Cattail marsh vegetation is present throughout the study area where shallow water is present for long periods of time, such as in the center of agricultural canals and channelized drainages that border rice fields, as well as in the floodplains of natural creek drainages. The cattail marsh vegetation community can be best described as a *Typha* (*angustifolia*, *domingensis*, *latifolia*) Herbaceous Alliance, according to the Manual of California Vegetation (CNPS 2021). This vegetation alliance is dominated by one or more species of cattails (i.e., narrow leaf cattail [*Typha angustifolia*], southern cattail [*Typha domingensis*], and/or broadleaf cattail [*Typha latifolia*]) in the herbaceous layer with common wetland plants, including sedges (*Cyperus* spp.) and rushes (*Juncus* spp.). Emergent trees may also be present at low cover, including willows (*Salix* spp.).

In the study area, the cattail marsh vegetation community is dominated by broadleaf cattail (OBL) with spikerush (*Eleocharis macrostachya*) (OBL), iris-leaved rush (*Juncus xiphioides*) (OBL), hyssop loosestrife (*Lythrum hyssopifolium*) (OBL), soft rush (*Juncus effusus*) (FACW), tall flatsedge (*Cyperus eragrostis*) (FACW), barnyard grass (*Echinochloa crus-galli*) (FACW), rabbitsfoot grass (*Polypogon monspeliensis*) (FACW), and smartweed (*Persicaria* sp.). A large break in an approximately 15-foot tall berm west of the rice fields connects an irrigation canal to a natural drainage/creek that is dominated by cattail marsh vegetation and flows westward outside of the study area to eventually connect with Curry Creek to the west and south. The floodplain of this creek appears to be inundated year-round and is densely vegetated by broadleaf cattail that is co-dominant with floating mosquito fern (*Azolla* sp.) (OBL) and tule (*Shoenoplectus* spp.) (OBL). Occasional sandbar (*Salix exigua*) (FACW) and black willow (*Salix gooddingii*) (FACW) trees are present along marsh edges, with Italian ryegrass, curly dock, jointed crown grass (*Paspalum distichum*) (FACW), yellow glandweed (*Parentucellia viscosa*) (FAC), willowherb (*Epilobium brachycarpum*) (FAC), spiny-leaf sow-thistle (*Sonchus asper*) (FAC), English plantain (*Plantago lanceolata*) (FAC), and bristly ox-tongue (*Helminthotheca echioides*) (FAC).

## DEVELOPED

Developed areas include graveled and compacted dirt roadways that border rice fields and orchards, as well as apiaries (bee boxes) situated along the edges of almond orchards. These developed areas are highly disturbed and devoid of vegetation.

## FREMONT COTTONWOOD RIPARIAN

Small, discontinuous patches of small- to medium-sized Fremont cottonwood (*Populus fremontii*) (NL) trees occur along the banks of agricultural canals and ditches in the study area, forming a patchy riparian tree canopy along canal and ditch banks with sandbar willow and an intermittent shrub layer of Himalayan blackberry and poison oak. This vegetation community best fits the Fremont Cottonwood Forest and Woodland Alliance in the Manual of California Vegetation, which is defined by Fremont cottonwood contributing 30 percent and greater relative cover in the tree layer where willows are co-dominant (CNPS 2021).

## HIMALAYAN BLACKBERRY THICKET

Dense thickets of Himalayan blackberry (*Rubus armeniacus*) (FAC) are present throughout the study area, typically along the banks of ditches, canals, and channelized streams with some thickets also occurring as isolated patches along fence lines in grassland habitat. This vegetation community is most like the Himalayan blackberry-rattle box-edible fig riparian scrub vegetation alliance (CNPS 2021). For the most part, the Himalayan blackberry thickets in the study area form large monoculture stands. However, in some areas, Himalayan blackberry is co-dominant with poison oak (*Toxicodendron diversilobum*) (FACU) and sweet brier (*Rosa rubiginosa*) (UPL).

## IRRIGATED PASTURE

Irrigated pastures border the north and west of the study area. These pastures are grazed by cattle herds year-round and, based on a review of aerial imagery, appear to receive supplemental irrigation during the dry season (typically May through September) to provide permanent green pasture forage for resident livestock. The pastures appear to be irrigated by overland surface flow, with water pumped from a network of surface canals and ditches and then allowed to sheet across the landscape from north to south toward annual grasslands in the study area, with excess field runoff captured in an agricultural ditch (AD-01) along the northwest side of the study area that connects to a perennial emergent marsh (26-PEM) that is adjacent to an intermittent drainage that flows off-site to the west and south. Vegetation in the irrigated pasture community is like that of the annual grassland, described above.

## POLYGONUM WETLAND

Continuous patches of smartweed (*Polygonum lapathifolium* [= *Persicaria lapathifolia*]) (FACW) were common throughout the study area in the centers of ditches, canals, and channelized creeks in open areas with no tree or shrub canopy. This vegetation community can be best described as the *Polygonum lapathifolium*-*Xanthium strumarium* Herbaceous Alliance – Smartweed-cocklebur patches (CNPS 2021). According to the Manual of California Vegetation, this vegetation alliance typically is dominated by smartweed and/or cocklebur or other knotweed species that are dominant or co-dominant in the herbaceous layer and are often associated with disturbed stream terraces on clay-rich or silty soils. In the study area, the polygonum wetlands consisted of monoculture patches of smartweed growing below the ordinary high water mark in the centers and along the lower banks of channelized ditches and streams.

## RICE FIELD

Most of the study area consists of active-production rice fields amidst a network of ditches and canals, all of which are surrounded by adjacent access roads. These rice fields have been certified as prior converted cropland (NRCS 2019).

California is the highest-yielding rice production area in the world, grown mostly on fine-textured (i.e., clay or silt), poorly drained soils that typically have an impervious hardpan or claypan (Shaffer 2001). Most of the irrigation water for California rice comes from reservoir (i.e., surface water) sources; water application rates average 4.3 acre-feet per acre, with about 3.0 to 3.5 acre-feet per acre consumed through crop evapotranspiration and the remainder percolating to groundwater or returned to surface waters (Shaffer 2001).

Fields in the eastern portions of the site are higher in elevation than those to the west, allowing gate-controlled passive flow of irrigation water from one field to the next from east to west. Several pumps are located across the site that are used by the farmers to convey water from several channelized drainages and associated network of connected canals that traverse the site to the fields. During the growing season, excess irrigation water flows through the site and into channelized drainages located in the west-central portion of the study area, which continue to flow to the west to return excess irrigation water to surface waters (i.e., Curry Creek) and out of the study area. Rice fields are drained at the end of the growing season and allowed to dry prior to fall harvest. Following the harvest, the fields are often deliberately flooded again in late fall to facilitate straw decomposition and provide habitat for migratory waterfowl and shorebirds that overwinter in the Central Valley (Shaffer 2001).

At the time of the wetland delineation surveys in early April 2021, the rice fields were being disked and leveled; by April 30, 2021, fields were being flooded in series from east to west. During field surveys conducted on July 14, 2021, all irrigation ditches and channelized drainages in the study area were full of water, which flowed from east to west through the study area through a series of culverts and eventually drained to natural drainages to the west of the site. Also at this time, delineators observed that these natural drainages and their associated floodplains outside of the study area were full of standing water resulting from agriculturally-influenced water inputs.

## RUDERAL

Ruderal vegetation is present throughout the study area in locations that have been previously filled and graded, such as along roads, parking areas, fence lines, and in equipment staging and storage areas; and in between rows of planted almond trees in orchards. This vegetation community can be best described as a *Brassica nigra*–*Raphanus* (spp.) Herbaceous Semi-Natural Alliance, (CNPS 2021). According to the Manual of California Vegetation this vegetation alliance typically is dominated by mustards (*Brassica*, *Hirschfeldia*) or other ruderal forbs. In the study area, ruderal areas consist of sparse herbaceous cover, dominated by yellow star thistle (*Centaurea solstitialis*) (NL), field mustard (*Hirschfeldia incana*) (NL), and field bindweed.

## SEASONAL WETLAND

Seasonal wetlands support annual and perennial native and nonnative wetland plant species. This habitat type typically resembles a wetland community during the wet season and for a few weeks following the end of the wet season, drying up rapidly with the onset of summer. Seasonal wetlands form in seasonally flooded or saturated soils in depressions in ruderal or grassland areas, and, in the western portion of the study area, at the edges of (i.e., adjacent to) ditches and drainages. The seasonal wetland vegetation community conforms to a combination of the *Eleocharis macrostachya* Herbaceous Alliance and the *Lolium perenne* [*Festuca perennis*] Herbaceous Semi-Natural Alliance, both of which are associated with areas that are flooded for part of the growing season with fresh water (CNPS 2021). In these vegetation communities, pale spikerush (*Eleocharis macrostachya*) and/or Italian rye grass (*Festuca perennis*) are dominant or co-dominant in the vegetative layer and contribute 30 percent or more relative cover.

Although the vegetation and hydrology of seasonal wetlands in the study area are primarily governed by seasonal precipitation, the hydrology of several seasonal wetlands in the western portion of the study area is influenced by neighboring irrigation practices. Based on site observations and a review of aerial imagery, rice field and irrigated pasture runoff is directed into a network of ditches and canals that coalesce along the western boundary of the rice fields; and although these ditches and canals are bermed for most of their length, several culverts as well as breaks

in berms were observed that allow for water to spill into adjacent seasonal wetlands. In addition, the natural creek drainage west and south of the study area intermittently floods its adjacent low-terrace floodplain to the north and south of its banks. In late April 2021, delineators observed that this drainage had swelled with inputs from rice irrigation runoff and had flooded adjacent marsh vegetation as well as the shallow grassland floodplain dotted with several seasonal wetlands in the study area that were mapped within 300 feet of its banks. Similarly, all ditches and canals in the study area were rapidly filling with water as the rice fields were flooded, with several spilling over to adjacent seasonal wetlands along the northwestern boundary of the rice fields. Based on a review of aerial imagery and site observations, this dry-season flooding does not persist long enough to alter the upland annual grassland or seasonal wetland vegetation mapped in the floodplain.

Dominant plant species in seasonal wetlands in the study area include Italian ryegrass, spikerush, tall flatsedge, willow herb, hyssop loosestrife, curly dock, prickly lettuce, hawkbit, seaside barley (*Hordeum marinum*) (FAC), Mediterranean beard grass (*Polypogon maritimus*) (OBL), and popcornflower (*Plagiobothrys stipitatus*) (FACW). Other common species observed in seasonal wetland habitats were Fremont cottonwood, black willow, wild geranium, spiny-leaf sow thistle, English plantain, soft rush, filaree, sixweeks rattail fescue (*Festuca myuros*) (FACU), gumweed (*Grindelia camporum*) (FACW), white hyacinth (*Triteleia hyacinthina*) (FAC), blow wives (*Achyrachaena mollis*) (FAC), California false semaphore grass (*Pleuropogon californicus*) (OBL), short-awn meadow foxtail (*Alopecurus aequilis*) (OBL), and harding grass (*Phalaris aquatica*) (FACU).

## VERNAL POOL

Vernal pools are a type of seasonal wetland that support low-growing, herbaceous plant communities dominated by annual plants, and are typically characterized by a high percentage of native plant species, many of which may be endemic (restricted) to vernal pools. The vernal pool vegetation communities in the study area conform to the *Lasthenia glaberrima* Herbaceous Alliance and the *Lasthenia fremontii*-*Downingia (bicornuta)* Herbaceous Alliance (CNPS 2021). The smooth goldfields (*Lasthenia glaberrima*) alliance is associated with vernal pool bottoms where soils have long periods of inundation, while the Fremont's goldfields (*Lasthenia fremontii*) alliance is associated with shallow vernal pool bottoms or edges (CNPS 2021). Both communities are found on hardpan geomorphic surfaces or volcanic substrates, and the smooth goldfields alliance is also associated with claypan vernal pool habitat (CNPS 2021).

Vernal pools in the study area were either dominated by smooth goldfields (OBL) or Fremont's goldfields (OBL), with deeper pools tending to be dominated by smooth goldfields. Other species commonly associated with vernal pools and observed in association with goldfields in vernal pools in the study area include coyote thistle (*Eryngium vaseyi*) (FACW), vernal pool buttercup (*Ranunculus bonariensis* var. *trisepalus*) (OBL), vernal-pool Indian-paintbrush (*Castilleja campestris*) (FACW), annual hairgrass (*Deschampsia danthanioides*) (FACW), dwarf woolly marbles (*Psilocarphus brevissimus*) (FACW), Oregon woolly marbles (*Psilocarphus oregonus*) (OBL), white-flower pincushion-plant (*Navarretia leucocephala*) (OBL), double-horn calico-flower (*Downingia bicornuta*) (OBL), bractless hedge-hyssop (*Gratiola ebracteata*) (OBL), water-starwort (*Callitriche* sp.) (OBL), toad rush (*Juncus bufonius*) (FACW), and water pygmyweed (*Crassula aquatica*) (OBL).

Other species commonly observed in vernal pools include spikerush, popcornflower, Italian ryegrass, prickly lettuce, seaside barley, rabbitsfoot grass, hyssop loosestrife, small lupine, white hyacinth, tarweed, blow wives, Fitch's spikeweed (*Centromadia fitchii*), Greene's popcornflower (*Plagiobothrys greenii*) (FACW), neckweed (*Veronica peregrina*) (FAC), leafy-bracted dwarf rush (*Juncus capitatus*) (FACU), small rattlesnake grass (*Briza*

minor) (FAC), waxy manna grass (*Glyceria declinata*) (FACW), and sticky sand spurrey (*Spergularia macrotheca*) (FAC).

All the vernal pools in the study area are associated with annual grasslands that are currently unmanaged and not grazed by livestock, but based on a review of historical aerial imagery, they have been used in the past to grow hay and graze cattle. The topography of the grasslands in the study area is characterized by an unnatural (built) series of low (i.e., less than 1 foot tall) berms at approximately 100 to 150-foot intervals in swirling patterns that may have served to level the site or control surface flow in the past for agricultural purposes; many vernal pools were mapped in low spots along these historic berms.

## WILLOW RIPARIAN

Small, discontinuous patches of willow riparian scrub are common throughout the study area along ditches, canals, and drainages. This vegetation community type is best described as the *Salix exigua* Shrubland Alliance, where sandbar willow is dominant or co-dominant in the shrub canopy with red willow (*Salix laevigata*) and Himalayan blackberry (CNPS 2021). Emergent trees, including black willow and Fremont cottonwood, are also present at low relative cover.

## DELINEATION RESULTS

This section presents the results of the delineation of waters of the U.S., as defined by the USACE and pursuant to Section 404 of the CWA, for the study area. All delineated wetlands and other waters are depicted on the wetland delineation map in Appendix A (Source: Data compiled by AECOM in 2022

Exhibit 6a – 6d).

Areas qualifying as waters of the United States are depicted on the wetland delineation maps provided in Appendix A (Source: Data compiled by AECOM in 2022

Exhibit 6a – 6d), and sampling points are depicted on the wetland delineation maps and cross-referenced to the wetland determination data forms in Appendix B. Habitat descriptions for waters of the United States and non-jurisdictional habitats are included below, and a habitat map is provided in Appendix A (Exhibit 5a – 5b). A list of plant species observed during the field survey is provided in Appendix C, and representative photographs of habitat types described below are provided in Appendix D.

## JURISDICTIONAL FEATURES

A total of 9.341 acres of potentially jurisdictional wetlands and waters of the United States occurs in the study area in the form of tributaries, seasonal wetlands, seasonal wetland swales, emergent wetlands, and vernal pools (Table 3).

**Table 3. Potentially Jurisdictional Features**

Wetlands and Other Waters of the United States	Acres
Tributaries (AC-01, AD-01, and ID-01 – ID-04)	0.739
Seasonal Wetlands (SW-1, SW-3, SW-4, SW-11 – SW-14, SW-24, SW-30 – SW-32, and SW-36)	3.641
Emergent Wetlands (W-20 and PEM-26)	4.123
Vernal Pool (VP-2)	0.838
Total Potential Section 404 Jurisdictional Features	9.341

Source: Data compiled by AECOM in 2022

**Note:** AC = agricultural canal, AD = agricultural ditch, ID = intermittent drainage, SW = seasonal wetland, W = wetland, PEM = perennial emergent marsh, VP = vernal pool

Four intermittent drainages (ID), one agricultural canal (AC), and one agricultural ditch (AD) delineated in the study area connect to downstream jurisdictional features that ultimately connect to the Sacramento River; of these six features, four (ID-01, ID-02, ID-03, and AC-01) were also delineated as part of a previous wetland delineation prepared for the site in March 2017 (ECORP 2017) and field verified by AECOM wetland specialists in April 2021. These six tributary drainages are presented in Table 4 and described in more detail below. Curry Creek (ID-01) flows east to west through the southern half of the study area, then drains into the Pleasant Grove Creek Canal, which in turn drains into the Sacramento River. The USACE Sacramento District identifies the Sacramento River as a traditional navigable waterway (TNW) of the United States. As such, the Sacramento River is subject to USACE jurisdiction pursuant to Section 404 of the CWA and Section 10 of the Rivers and Harbors Act, and all upstream intermittent and ephemeral drainages with a significant nexus have the potential to affect the chemical, physical, and biological integrity of the Sacramento River.

The tributary drainages and adjacent wetlands mapped in the study area are listed in Table 4 and Table 5, respectively, and are depicted in Appendix A (Source: Data compiled by AECOM in 2022)

Exhibit 6a – 6d). Tributaries consist of channelized drainage feature types that have connectivity to the primary tributary (Curry Creek). Adjacent wetlands include thirteen seasonal wetlands (SW), two emergent wetlands (perennial emergent marsh [PEM] and wetland [W]), one vernal pool (VP), and two seasonal wetland swales (SWS), all of which share a direct hydrological surface connection with tributary drainages.

## TRIBUTARIES

**Table 4. Tributary Drainages in the SMUD Country Acres Study Area**

Feature Name	Wetland Delineation Map No.	Acreage	Length (feet)
AC-01	6a	0.370	2,354.596
AD-01	6a	0.046	1,331.108
ID-01	6c	0.026	130.865
ID-02	6b	0.059	171.974
ID-03	6b	0.035	119.712
ID-04	6b	0.203	388.150
<b>Total</b>		<b>0.739</b>	<b>4,496.405</b>

Source: Data compiled by AECOM in 2022

All these features meet the definition of tributaries or adjacent waters, or connecting tributaries, and are connected by direct surface flow or adjacency to the primary tributary, which is connected by direct surface flow to the TNW Sacramento River; therefore, all tributaries and the adjacent waters delineated in the study area are considered potentially jurisdictional features pursuant to Section 404 of the CWA. These features are discussed in more detail in the sections below.

**AC-01** (0.370 acre and 2,354.596 linear feet) is an excavated agricultural irrigation canal mapped along the northwestern boundaries of the study area that receives excess water from the rice fields to the east via a series of culverts. It then conveys water from north to south until it connects to the tributary unnamed natural drainage (ID-04), which flows to the west across and out of the study area. AC-01 consists of several segments with continuous connectivity via a series of culverts through the study area. AC-01 is not mapped in the NWI; it is limited to the confines of the study area and functions wholly to convey excess agricultural irrigation water from east to west along the northern boundary of the study area and then from north to south along the northwestern study area boundary (Source: Data compiled by AECOM in 2022)



Exhibit 6a, Appendix A) to a wetland complex that joins with Curry Creek downstream along the southwestern boundary of Assessor Parcel Number (APN) 017-090-057 in the northwestern portion of the study area (Source: Data compiled by AECOM in 2022)

Exhibit 6b, Appendix A). A review of the USGS historical topographic map collection (USGS 2021b) shows that prior to development of rice fields, the area that now contains this agricultural canal consisted of gently sloped grassland topography. The excavated canal feature has a defined bed and bank and an unconsolidated bottom, and ranges in width from 5 to 10 feet. Vegetation communities include cattail marsh and small discontinuous patches of Fremont cottonwood riparian vegetation and Himalayan blackberry thickets along canal banks. This agricultural irrigation canal is a tributary with direct surface connection to Curry Creek, which is a tributary to the Pleasant Grove Creek Canal and TNW Sacramento River.

**AD-01** (0.046 acre and 1,331.108 linear feet) is an excavated ditch parallel to the northern boundary of APN 017-090-048, in the northwestern portion of the study area in an annual grassland immediately west of rice fields (Source: Data compiled by AECOM in 2022)

Exhibit 6a, Appendix A), that flows from east to west from SW-13 (an adjacent wetland to AC-01) and connects to PEM-26. PEM-26 is a perennial emergent marsh that corresponds to an NWI mapped PEM1C feature that is part of a large wetland complex in the northern floodplain of the tributary ID-04, located in the northwestern portion of the study area (Source: Data compiled by AECOM in 2022)

Exhibit 6a, Appendix A) AD-01 appears to convey surface water runoff from adjacent irrigated pasture and carry overflow from SW-13 directly to the natural drainage to the south via PEM-26 and is thus part of a wetland complex that is continuously connected between the tributary features AC-01 and ID-04. The excavated ditch feature has a defined bed and bank and an unconsolidated bottom and is 5 feet wide. It is vegetated by annual grassland species. This agricultural ditch contributes direct surface connection to Curry Creek, which is a tributary to the Pleasant Grove Creek Canal and TNW Sacramento River.

**ID-01** (0.026 acre and 130.865 linear feet) is a channelized portion of Curry Creek that flows from southeast to northwest along the eastern edge and through the center of the study area, eventually draining into the natural section of Curry Creek along the western edge of APN 017-130-015 along the western boundary of the study area (Source: Data compiled by AECOM in 2022)

Exhibit 6b-d, Appendix A). Outside of the study area, the upstream portion of the feature is mapped by USGS (2021a) as ephemeral, but the NWI shows it as a riverine, intermittent, streambed, temporarily flooded (R4SBA) channel where it originates approximately 3 miles to the southeast of the study area in the City of Roseville; and downstream, to the west of the study area, it is classified as a palustrine, scrub-shrub, temporary flooded (PSSA) channel (USFWS 2021). Based on field observations, the natural portion of Curry Creek downstream from the study area is densely vegetated with valley oak riparian vegetation, while the channelized portion through the study area (i.e., ID-01) is an altered canal with steep banks and little remaining natural vegetation. A review of the USGS historical topographic map collection (USGS 2021b) shows on the Pleasant Grove 1910 map that the channelized ID-01 feature generally follows the historic natural path of Curry Creek, and the entire extent of the channelized seasonal creek feature through the study area is labeled as Curry Creek in the Pleasant Grove 2018 map (USGS 2018). The feature is approximately 10 feet deep and has a defined bed and bank, a clear OHWM, and primarily unconsolidated bottom although portions are culverted. The channel bottom ranges from 20 to 30 feet in width, flanked by steep engineered earthen banks, and retains enough water in depressional stretches to support discontinuous patches of tule, cattails, and smartweed. Channel banks are primarily vegetated by willow riparian scrub and Himalayan blackberry thickets. This drainage is part of Curry Creek, which is a tributary to the Pleasant Grove Creek Canal and TNW Sacramento River.

**ID-02** (0.059 acre and 171.974 linear feet) is an unnamed, channelized tributary to Curry Creek that flows from east to west through the study area to its confluence with ID-01 and the natural drainage of Curry Creek along the western edge of APN 017-130-015 and the study area (Source: Data compiled by AECOM in 2022)

Exhibit 6b, Appendix A). Outside of the study area, the upstream portion of the feature is mapped by USGS (2021a) as ephemeral, but the NWI shows it as a palustrine emergent persistent temporarily flooded (PEM1A) channel where it originates approximately 1.2 miles to the east of the study area in gently sloping grassland on the

edge of the Westpark development (USFWS 2021). A review of the USGS historical topographic map collection (USGS 2021b) shows on the Pleasant Grove 1910 map that the channelized ID-02 feature generally follows the historic path of a seasonal tributary drainage of Curry Creek. The feature is approximately 6 feet deep and has a defined bed and bank, a clear OHWM, and primarily unconsolidated bottom although portions are culverted. The channel bottom ranges from 20 to 30 feet in width, flanked by very steep engineered earthen banks, and retains enough water in depressional stretches to support discontinuous patches of cattails and smartweed. Other vegetation communities mapped in this feature include intermittent annual grassland/ruderal herbaceous vegetation, willow riparian scrub, valley oak riparian, and Himalayan blackberry thickets along steep banks. This drainage flows directly to Curry Creek, which is a tributary to the Pleasant Grove Creek Canal and TNW Sacramento River.

**ID-03** (0.035 acre and 119.712 linear feet) is an unnamed channelized tributary feature that originates approximately 1.5 miles to the east of the study area as a relatively small reach of natural drainage in grassland habitat that has been reduced in size by residential development. The natural channel quickly transitions to a channelized feature as it travels between rice fields towards and eventually through the study area. The USGS (2021a) maps this feature as ephemeral upstream and through the study area and then as intermittent downstream and outside the study area (Exhibit 3, Appendix A). The NWI maps it as a PEM1Cx (palustrine, emergent, persistent, seasonally flooded, excavated) freshwater emergent wetland (USFWS 2021), which matches the patches of vegetation observed during field investigations and that likely occur due to presence of regular surface water inputs to the rice fields. Within the study area, ID-03 passes through a large control gate and terminates at W-20, which then joins with a natural drainage (ID-04, discussed below) along the southwestern boundary of APN 017-090-057 in the northwestern portion of the study area (Source: Data compiled by AECOM in 2022)

Exhibit 6b, Appendix A). A review of the USGS historical topographic map collection (USGS 2021b) shows on the Pleasant Grove 1910 map that this drainage feature corresponds to the same small tributary drainage associated with ID-04 prior to conversion of the site to rice fields and channelization. In the study area, this feature has steep earthen banks, a defined bed and bank, and a primarily unconsolidated bottom, although some portions outside of the study area are culverted and appear to be concrete-lined. In the study area, it is 25 feet wide, unlined, and retains enough water to support dense patches of smartweed. In the west portion of the study area, this feature is connected to a floodplain wetland complex (W-20) that then drains passively through a break in a berm to ID-04 to the west. As discussed below, ID-04 flows west and south as a tributary with direct surface connection to the Curry Creek, which is a tributary to the Pleasant Grove Creek Canal and TNW Sacramento River.

**ID-04** (0.203 acre and 388.150 linear feet) is an unnamed intermittent drainage feature that is fed by AC-01 and ID-03, which convey water coming off the rice fields (Source: Data compiled by AECOM in 2022)

Exhibit 6b, Appendix A). After exiting the study area, it meanders west through annual grassland that was previously cultivated for hay but is no longer farmed. Outside of the study area, it continues a meandering path flowing west and south for approximately 1.2 miles until it flows under Country Acres Lane, then is channelized from north to south along the western boundary of the roadside for approximately 0.25 mile until it reaches its confluence with Curry Creek. A review of the USGS historical topographic map collection (USGS 2021b) shows on the Pleasant Grove 1910 map that this drainage feature was historically one of many small tributary drainages to Curry Creek that originated in low rolling lands to the east of the study area. In the study area, much of this natural drainage is now channelized through the site (ID-03) (USGS 2021a), but the portion that flows through the annual grassland in the northwestern portion of the study area (Source: Data compiled by AECOM in 2022)

Exhibit 6b, Appendix A) generally follows its historic drainage path (USGS 2021a, USGS 2021b, USFWS 2021). In the study area, ID-04 has a defined bed and bank, a clear OHWM, and unconsolidated bottom. At the time of the wetland delineation, ID-04 consisted of open water and banks vegetated by small, narrow patches of cattail, tule and Himalayan blackberry thickets at or below the OHWM; vegetated banks represented less than 5% of total width of the feature. ID-04 has direct surface connection to Curry Creek, which is a tributary to the Pleasant Grove Creek Canal and TNW Sacramento River.



## ADJACENT WETLANDS

**Table 5. Adjacent Wetlands in the SMUD Country Acres Study Area**

Feature Name	Wetland Delineation Map No.	Acreage
SW-1	6a	0.063
SW-3	6a	0.093
SW-4	6b	0.014
SW-11	6a	0.056
SW-12	6a	0.046
SW-13	6a	1.093
SW-14	6a	1.513
SW-24	6a	0.174
SW-30	6a	0.021
SW-31	6a	0.029
SW-32	6a	0.520
SW-36	6a	0.019
W-20	6b	0.659
PEM-26	6a	3.464
VP-2	6a	0.838
<b>Total</b>		<b>8.602</b>

Source: Data compiled by AECOM in 2022

**Note:** Numbering of wetland features is based on the numbering of sample points as the features were mapped in the field. For example, the first set of sample points completed in the field correspond to SW-1 (referred to as Wetland #1 in the sample point datasheets), and the second set of wetland datasheets completed in the field correspond to VP-2 (referred to as Wetland #2 in the datasheets), and so on. Where wetland numbers are skipped in this table, they are either (1) associated with upland-only sample points and therefore do not correspond to a wetland feature, or (2) are associated with non-jurisdictional aquatic features listed in Table 7 of the next section (Non-Jurisdictional Features)

## SEASONAL WETLANDS

Twelve seasonal wetlands (**SW-1, SW-3, SW-4, SW-11, SW-12, SW-13, SW-14, SW-24, SW-30, SW-31, SW-32, and SW-36**) totaling 3.641 acres were identified in the study area that are inundated by water from potentially jurisdictional tributaries and physically separated from those tributaries only by an artificial barrier (berm) that allows for a direct hydrological surface connection. SW-1, SW-3, SW-4, SW-30, SW-31, SW-32, and SW-36 are part of a large wetland complex near the northern floodplain of tributary ID-04; and SW-11, SW-12, SW-13, SW-14, and SW-24 are associated with openings or breaks in a berm along the western boundary of the tributary agricultural canal AC-01 (Source: Data compiled by AECOM in 2022

Exhibit 6a and 6b, Appendix A). Some of the deeper depressional areas of these seasonal wetlands supporting obligate species such as cattails and soft rush still held water during the field surveys conducted from April to August 2021. The hydrophytic vegetation in these wetlands is described in more detail in Section 4.2 (Vegetation Communities). Data forms 001-A, 003-A, 004-A, 007-A in Appendix B provide additional information about these adjacent seasonal wetland habitats present in the study area.

## EMERGENT WETLANDS

Two emergent wetlands (W-20 and PEM-26) totaling 4.123 acres were identified in the study area adjacent to tributary drainages. The hydrophytic vegetation in these wetlands is described in more detail in Section 4.2 (Vegetation Communities) under the Cattail Marsh and Tule Marsh community descriptions. Data forms 020-A and 026-A in Appendix B provide additional information about these emergent wetland habitats present in the study area.

**W-20** is 0.659 acre and corresponds to an NWI mapped feature classified as PSSC (palustrine, scrub-shrub, seasonally flooded) (USFWS 2021). Based on field observations, this feature appears to be flooded throughout most of the year, both seasonally during the winter and

throughout the spring and summer due to runoff from adjacent rice fields. W-20 represents the terminus floodplain of tributaries ID-03 and AC-01 and corresponds to a low-lying area between two large berms where hydrologic flows from ID-03 and AC-01 merge and backup before draining passively to the west through a small break in the western berm and into the floodplain of ID-04, located immediately west of rice fields in the northwestern portion of the study area (Source: Data compiled by AECOM in 2022

Exhibit 6b, Appendix A). The dominant vegetation community in this feature at the time of the survey was cattail marsh, surrounded by Himalayan blackberry thickets growing on berms.

**PEM-26** is 3.464 acres and is a perennial emergent marsh that corresponds to an NWI mapped PEM1C (USFWS 2021) feature that is part of a is a large wetland complex in the northern floodplain of the tributary ID-04, located in the northwestern portion of the study area (Source: Data compiled by AECOM in 2022

Exhibit 6a, Appendix A). Like W-20, the PEM-26 feature appears to be flooded throughout most of the year, both seasonally during the winter and throughout the spring and summer due to runoff from adjacent irrigated pastures and excess rice field irrigation flows from the east. The dominant vegetation community in this feature at the time of the survey was cattail marsh.

These two emergent wetlands meet the three-parameter criteria of wetlands and abut tributary drainages that connect to Curry Creek, which is tributary to the Sacramento River, which is a TNW; therefore, W-20 and PEM-26 are considered adjacent waters.

**VERNAL POOL**

**VP-2** is 0.838 acre and was identified in the study area adjacent to a tributary natural drainage (ID-04) (Source: Data compiled by AECOM in 2022

Exhibit 6b, Appendix A). The hydrophytic vegetation in this wetland is described in more detail in Section 4.2 (Vegetation Communities) under the Vernal Pool community, and on data form 003-A in Appendix B. This vernal pool is part a large wetland complex in the northern floodplain of the tributary ID-04, located in the western portion of the study area in parcel 017-090-048 (Source: Data compiled by AECOM in 2022

Exhibit 6a-6b, Appendix A). This vernal pool meets the three-parameter criteria of a wetland and abuts a tributary drainage that flows into Curry Creek, which is tributary to the Sacramento River, which is a TNW; therefore, VP-2 is considered adjacent waters.

**NON-JURISDICTIONAL FEATURES**

A total of 1,160.516 acres of potentially non-jurisdictional features occur in the study area and include 1.899 acres of isolated wetland swales, seasonal wetlands, vernal pools, and ditches; and 1,158.617 acres of uplands, which including orchard and rice field agriculture (Table 6).

**Table 6. Potentially Non-Jurisdictional Features**

Isolated Wetlands and Other Waters, and Uplands	Acres
Seasonal Wetlands Swale	0.053
Seasonal Wetlands	0.959
Vernal Pools	0.640
Ditches	0.247
Uplands	1,158.617
<b>Total Non-jurisdictional Features</b>	<b>1,160.516</b>

Source: Data compiled by AECOM in 2022

**ISOLATED WETLANDS AND OTHER WATERS**

A total of 25 isolated ephemeral wetlands and other waters were mapped in the study area. These include one seasonal wetland swale (SWS), six seasonal wetlands (SW), 15 vernal pools (VP), and four ditches (D), all listed

below in Table 7. These features fill seasonally from direct precipitation and normally dry by late spring and remain dry through the summer and early fall dry season, filling again after the arrival of fall/winter rains. Based on field observations and an analysis of online USGS current and historical maps, these features are isolated and rarely overflow, and thus do not flow, connect, or contribute to jurisdictional waters.

**Table 7. Isolated Wetlands and Other Waters in the SMUD Country Acres Study Area**

Feature Name	Wetland Delineation Map No.	Acres	Linear Feet
SWS-49	6d	0.053	n/a
SW-21	6a	0.020	n/a
SW-22	6a	0.003	n/a
SW-29	6a	0.492	n/a
SW-38	6a	0.234	n/a
SW-47	6d	0.199	n/a
SW-48	6d	0.011	n/a
VP-5	6a	0.528	n/a
VP-6	6a	0.002	n/a
VP-7	6a	0.062	n/a
VP-8	6a	0.002	n/a
VP-9	6a	0.002	n/a
VP-10	6a	0.010	n/a
VP-28	6a	0.010	n/a
VP-33	6a	0.004	n/a
VP-34	6a	0.003	n/a
VP-35	6a	0.004	n/a
VP-52	6d	0.164	n/a
VP-55	6d	0.016	n/a
VP-56	6d	0.005	n/a
VP-58	6d	0.012	n/a
VP-60	6d	0.002	n/a
VP-63	6d	0.005	n/a
D-40	6d	0.083	587.353
D-41	6d	0.007	220.328
D-42	6d	0.067	379.976
D-43	6d	0.090	689.079
<b>Total</b>		<b>1.899</b>	<b>1,876.737</b>

Source: Data compiled by AECOM in 2021

**Note:** Numbering of wetland features is based on the sample points as features were mapped in the field. (See Table 5 footnote above)

## SEASONAL WETLAND SWALE

**SWS-49** is a 0.053 acre isolated seasonal wetland swale in the southern part of the study area (Source: Data compiled by AECOM in 2022 Exhibit 6d, Appendix A). The hydrophytic vegetation in these wetlands is like that described for Seasonal Wetlands in Section 4.2 (Vegetation Communities). Data form 049-A in Appendix B provides additional information about the habitat in this wetland swale. This swale is not connected to any other aquatic features because it is located within a topographical micro-depression and is surrounded by uplands. During the wet season, it collects seasonal precipitation and runoff and then dries out by late spring and remains dry through the summer and early fall.

## SEASONAL WETLANDS

Six isolated seasonal wetlands (**SW-21, SW-22, SW-29, SW-38, SW-47, SW-48**) totaling 0.959 acre were identified in the northwest and southern parts of the study area (Source: Data compiled by AECOM in 2022

Exhibit 6a and 6d, Appendix A). The hydrophytic vegetation in the seasonal wetlands is described in Section 4.2 (Vegetation Communities) Seasonal Wetland. Data forms 021-A, 029-A, and 047-A in Appendix B provide additional information about several of these isolated seasonal wetland habitats. These six seasonal wetlands are not connected to any other aquatic features. They are in topographical depressions, surrounded by uplands, that collect seasonal precipitation and runoff, and then dry out by late spring and remain dry through the summer and early fall.

## VERNAL POOLS

There are 15 isolated vernal pools (**VP-5 – VP-10, VP-28, VP-33 – VP-35, VP-52, VP-55, VP-56, VP-58, VP-60, and VP-63**) mapped in the study area totaling 0.640 acre. These features occur in the northwest and southern portions of the study area (Source: Data compiled by AECOM in 2022)

Exhibit 6a and 6d, Appendix A). The hydrophytic vegetation in these wetlands is described in more detail in Section 4.2 (Vegetation Communities) under Vernal Pools. Data sheets 005-A, 006-A, and 035-A in Appendix B provide additional information about the vernal pools in northwestern portion of the study area. All 15 of these vernal pools are not connected to any other aquatic features and are located in topographical depressions that collect seasonal precipitation and runoff, and then dry out by late spring and remain dry through the summer and early fall.

## DITCHES

There are four isolated ditches (**D-40, D-41, D-42, and D-43**) totaling 0.247 acre and 1,876.737 linear feet. These ditches are excavated and mapped along the edges of almond orchards in the southern portion of the study area (APNs 017-130-061 and 017-130-058) (Source: Data compiled by AECOM in 2022)

Exhibit 6d, Appendix A) and appear to receive occasional ephemeral water from surface runoff associated with irrigation and/or precipitation. All four ditches are not connected to any other features and are not culverted. The ditches have a defined bed and bank, an unconsolidated bottom, range in width from 1 to 5 feet, and are vegetated by upland and facultative herbaceous grassland species.

## UPLAND FEATURES

A total of 1,158.617 acres of upland and agricultural land make up the remainder of the study area. The majority (73%) of the study area consists of rice fields (872.755 acres) that have been certified as prior converted cropland (NRCS 2019). According to the EPA and USACE, prior converted cropland and artificially irrigated areas, including fields flooded for agricultural production, that would revert back to upland should the application of irrigation water to that area cease (such is the case of the rice fields in the study area), are not identified as jurisdictional and are not a jurisdictional feature under the CWA (EPA 2021).

The remainder of the study area delineated as non-jurisdictional uplands consists of almond orchards, irrigated pasture for livestock grazing, annual grassland, developed, and ruderal vegetation. These areas are highly disturbed by regular human disturbance, including mowing of vegetation, disking, grading, agricultural activities, pesticide/herbicide application, equipment staging and storage, and vehicle access and parking. Vegetation in these areas is either absent or dominated by upland species, typically consisting of nonnative annual grasses and forbs that are tolerant of regular disturbance. There are no hydric soils or hydrology indicators in these areas.

## JURISDICTIONAL DETERMINATION

The approximately 1,170-acre study area contains 9.341 acres of potentially jurisdictional waters of the U.S. (wetlands [8.602 acres] and other waters [0.739 acre]). The remainder of the study area contains 1,160.516 acres of potentially non-jurisdictional features that consists of 1.899 acres of isolated wetlands and other waters and 1,158.617 acres of uplands, including agricultural land, that is highly disturbed from rice and orchard operations. This jurisdictional determination is draft and contingent on verification by USACE.

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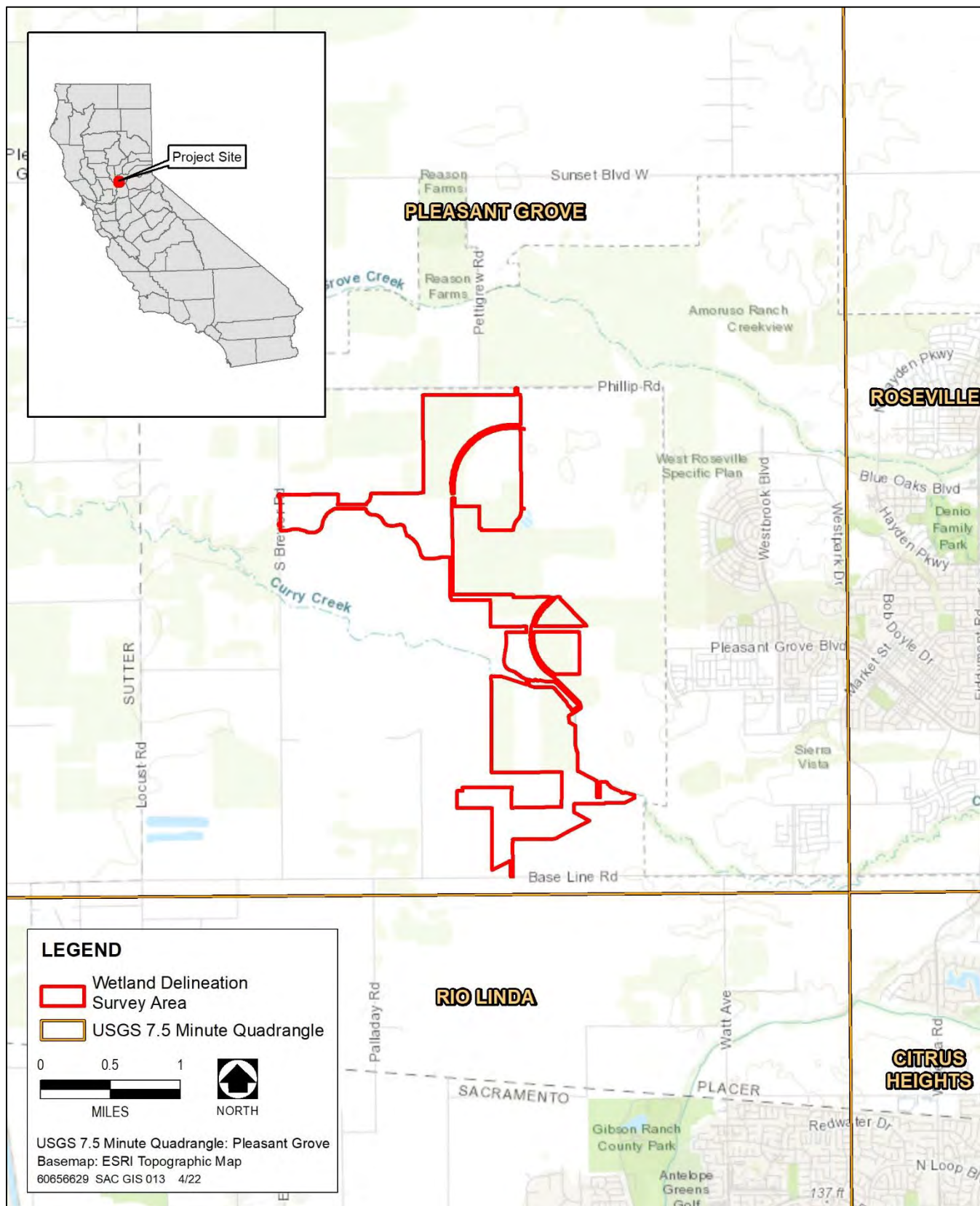


# APPENDIX A

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Exhibits

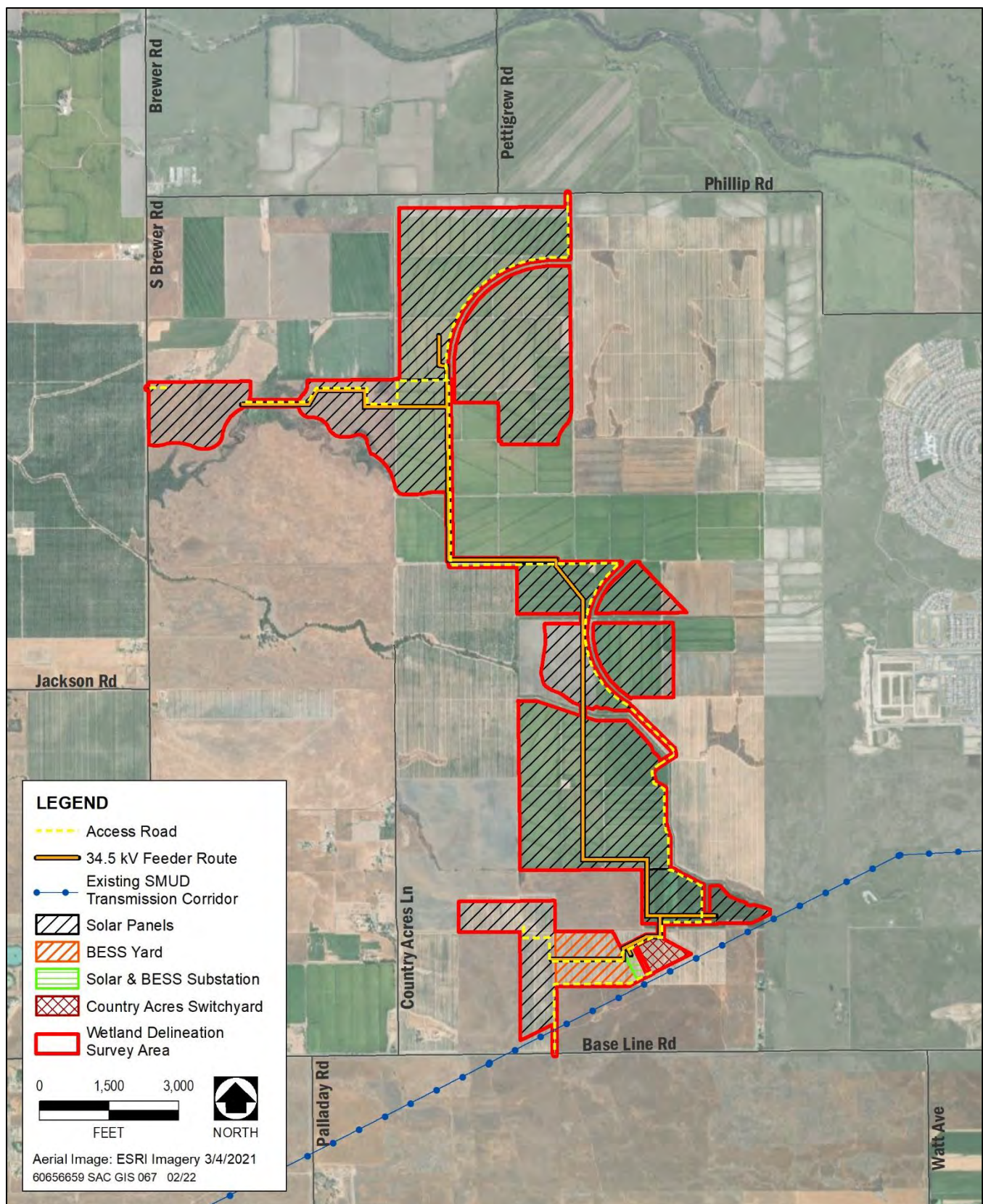
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Source: Data compiled by AECOM in 2022

### Exhibit 1. Project Vicinity Map

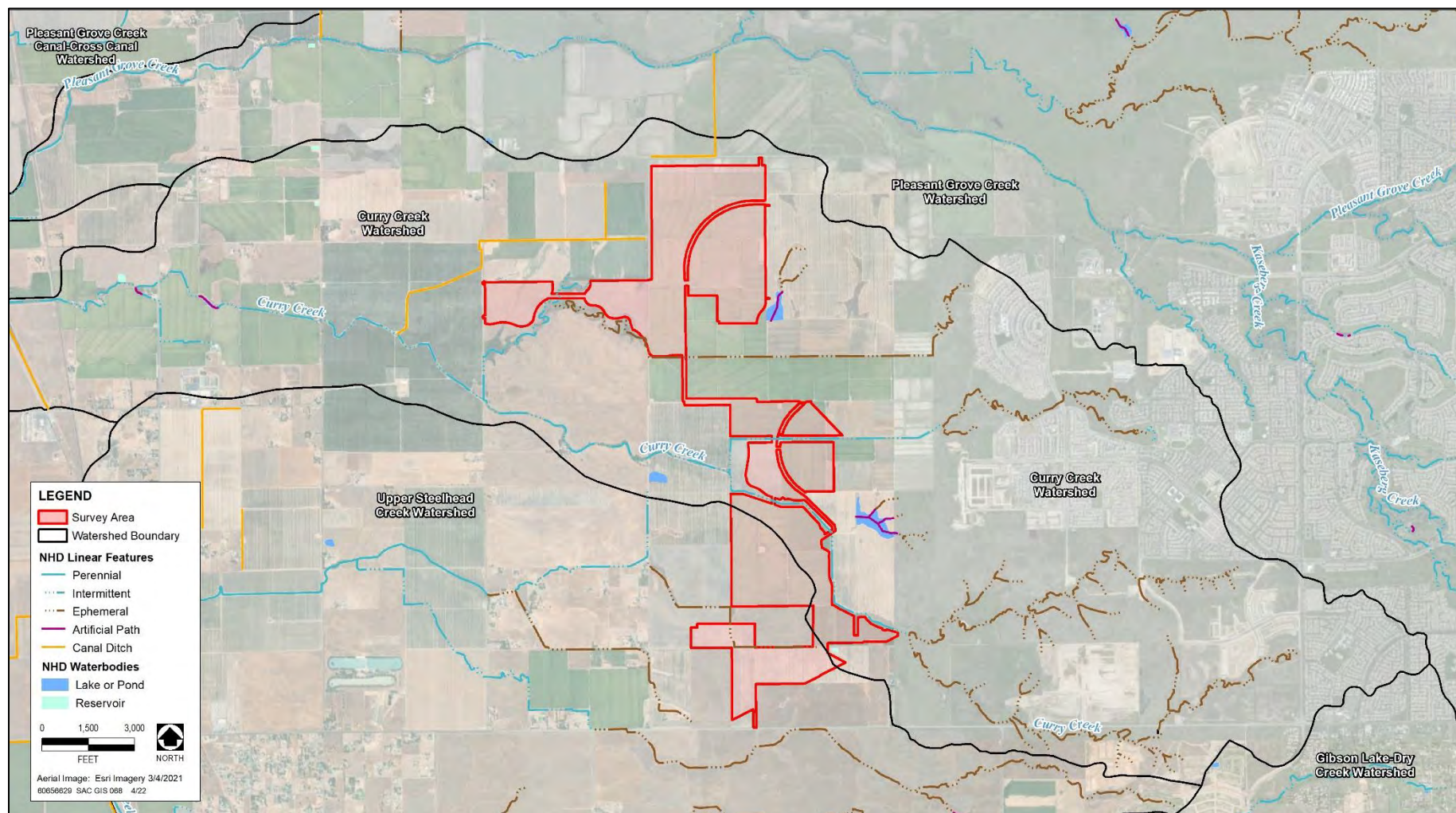




Source: Data compiled by AECOM in 2022

## Exhibit 2. Conceptual Project Area Map

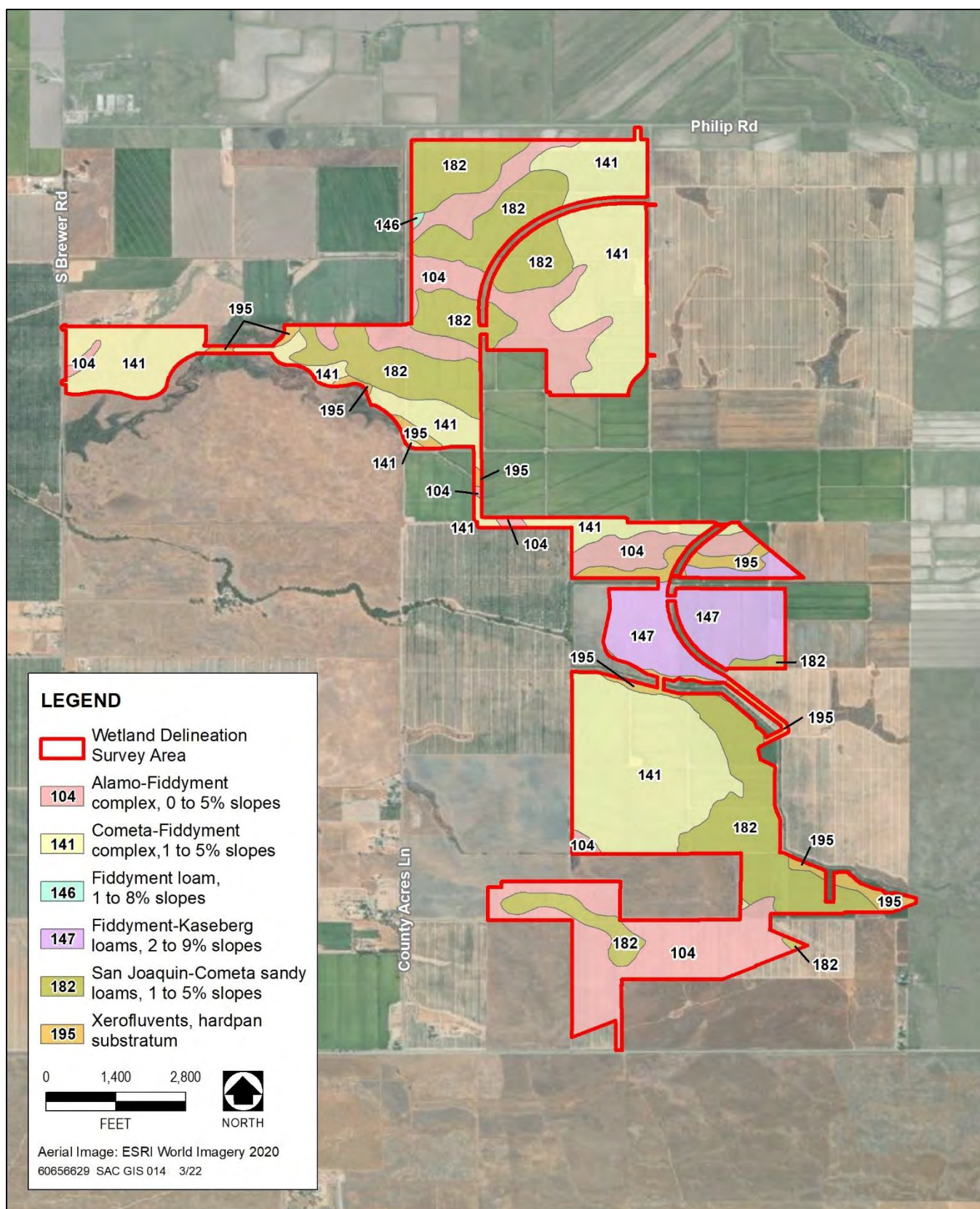




Source: USGS 2021a

### Exhibit 3. Watershed and Hydrology Map

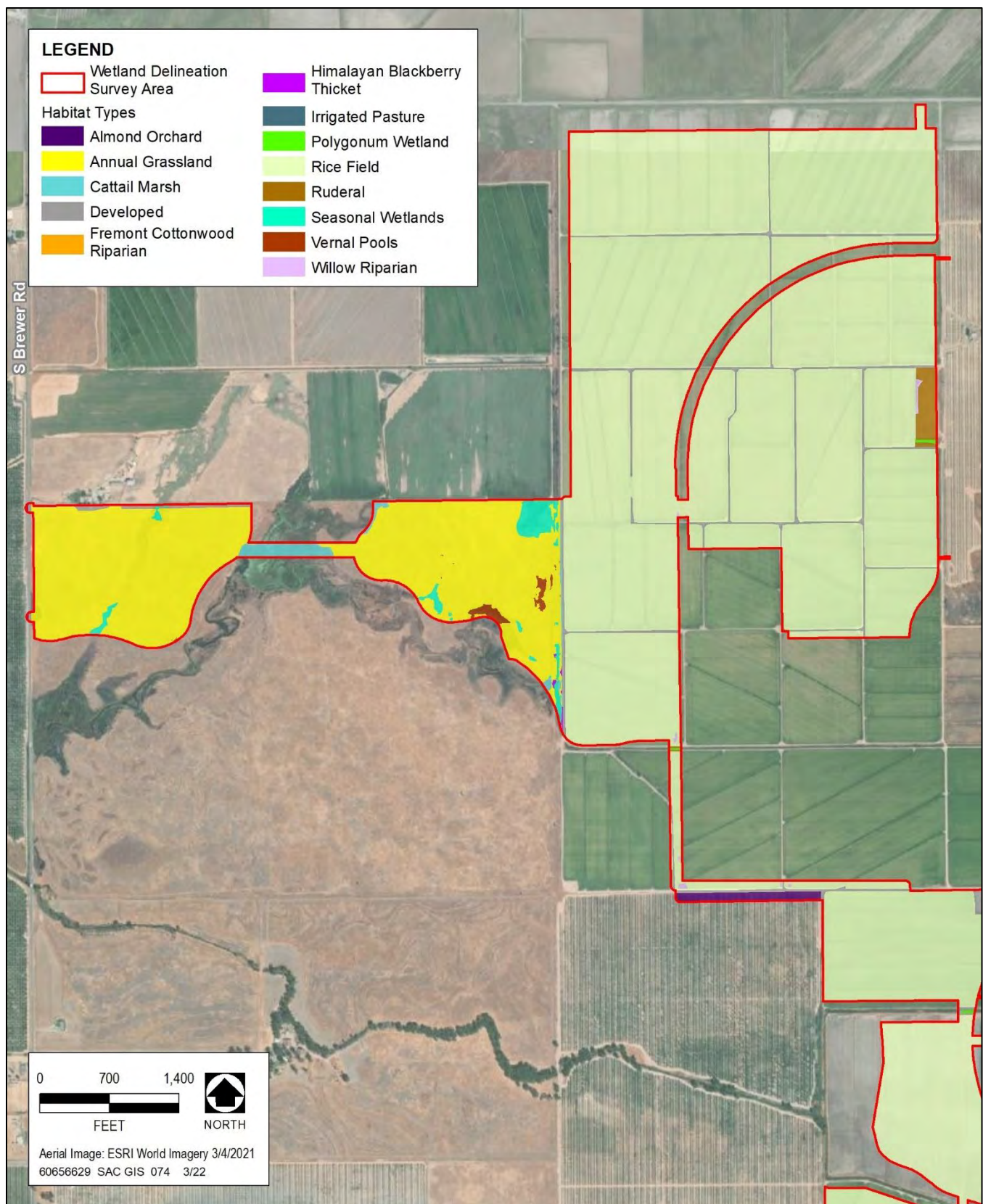




Source: NRCS 2021

#### Exhibit 4. Soils Map

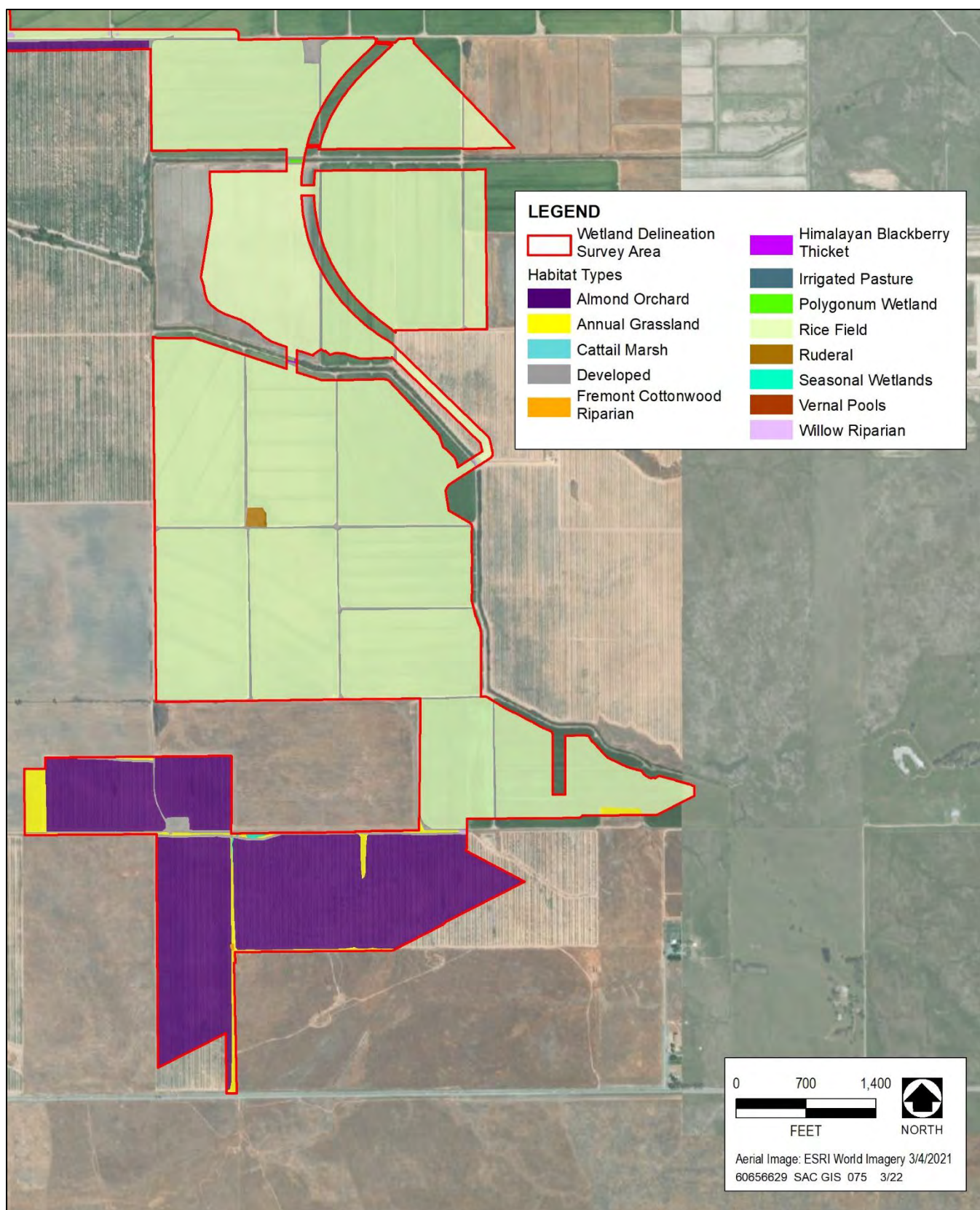




Source: Data compiled by AECOM in 2022

**Exhibit 5a. Vegetation Communities and Land Cover Type Map 1 of 2**

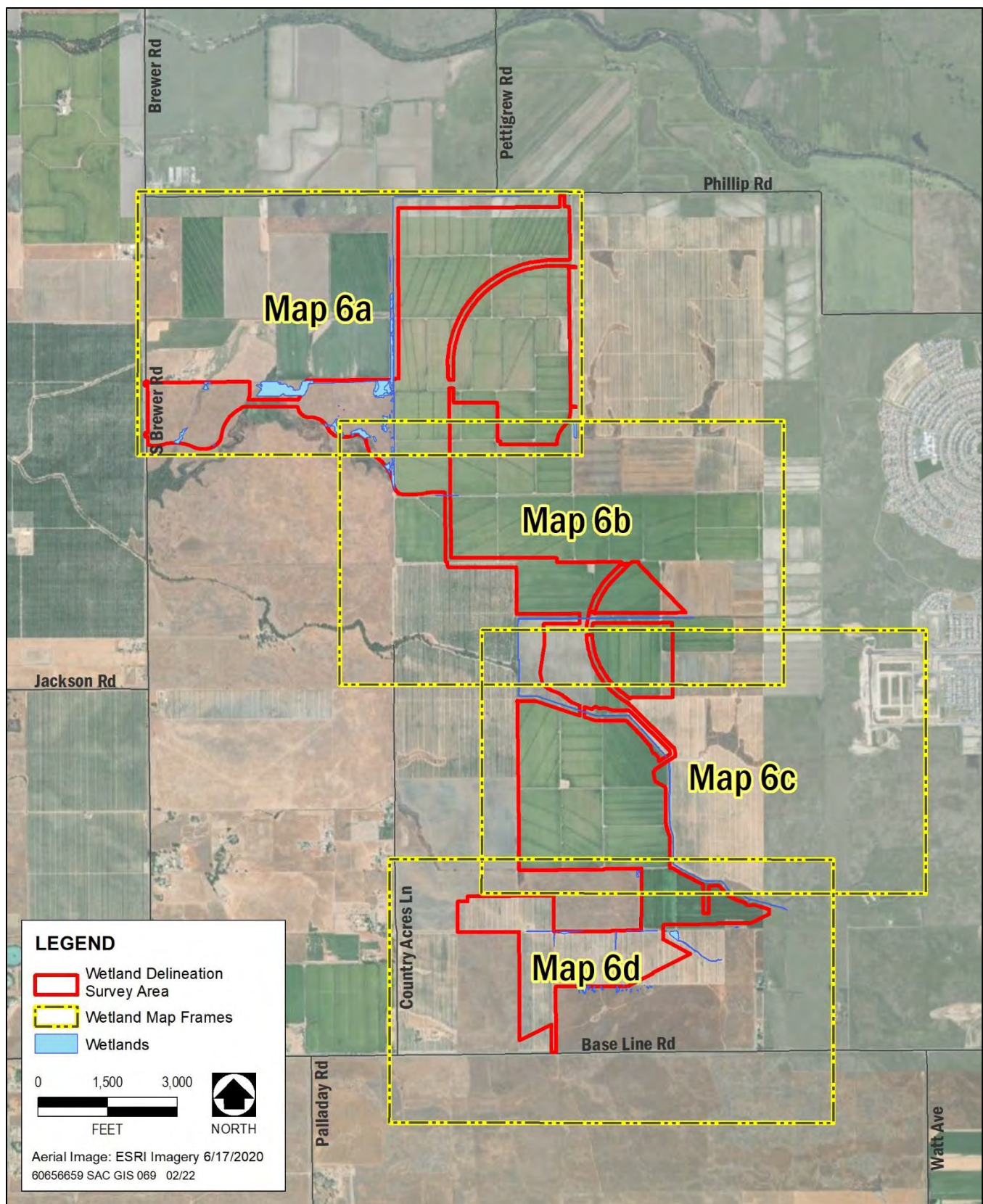




Source: Data compiled by AECOM in 2022

### Exhibit 5b. Vegetation Communities and Land Cover Type Map 2 of 2

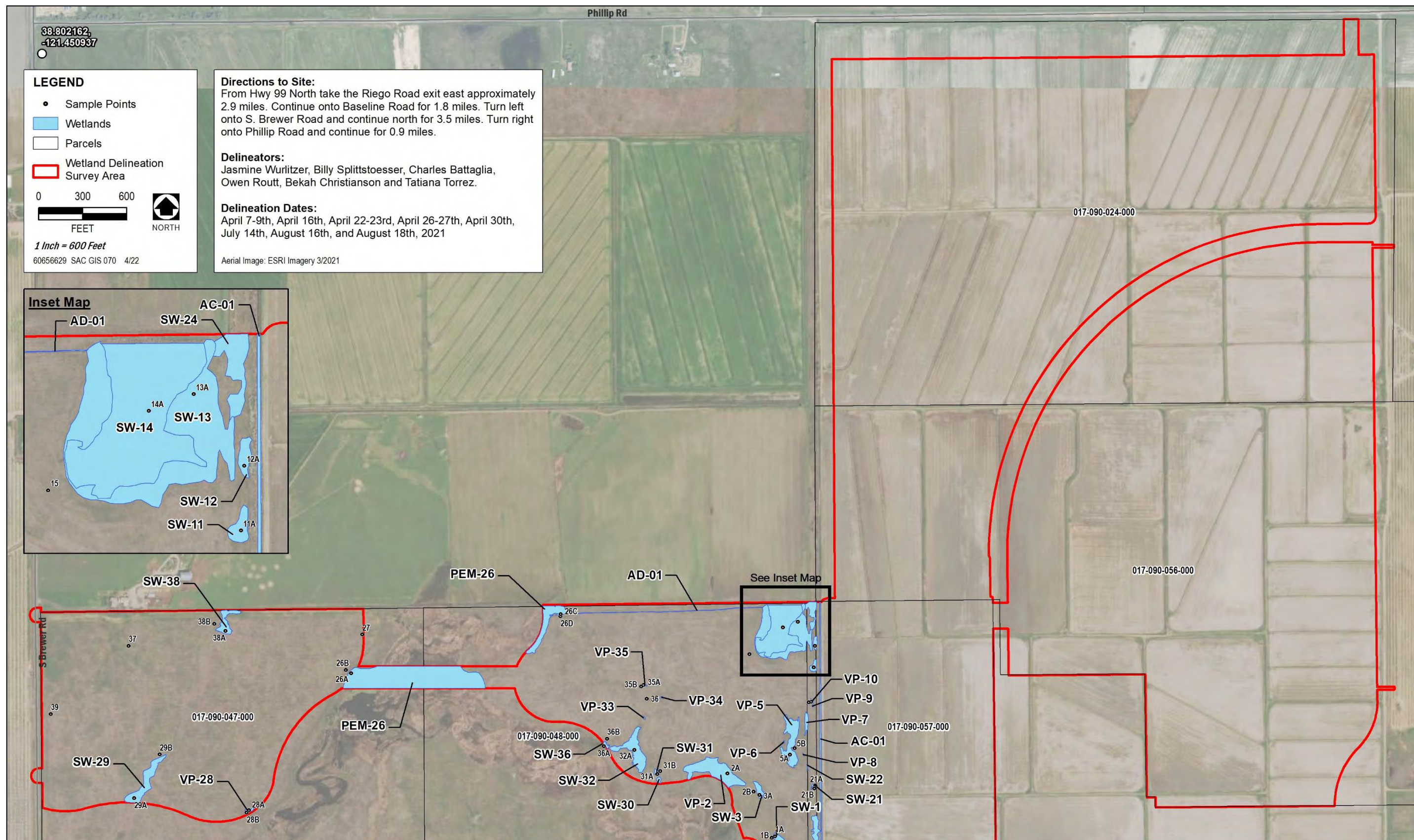




Source: Data compiled by AECOM in 2022

## Exhibit 6. Wetland Delineation Overview Map

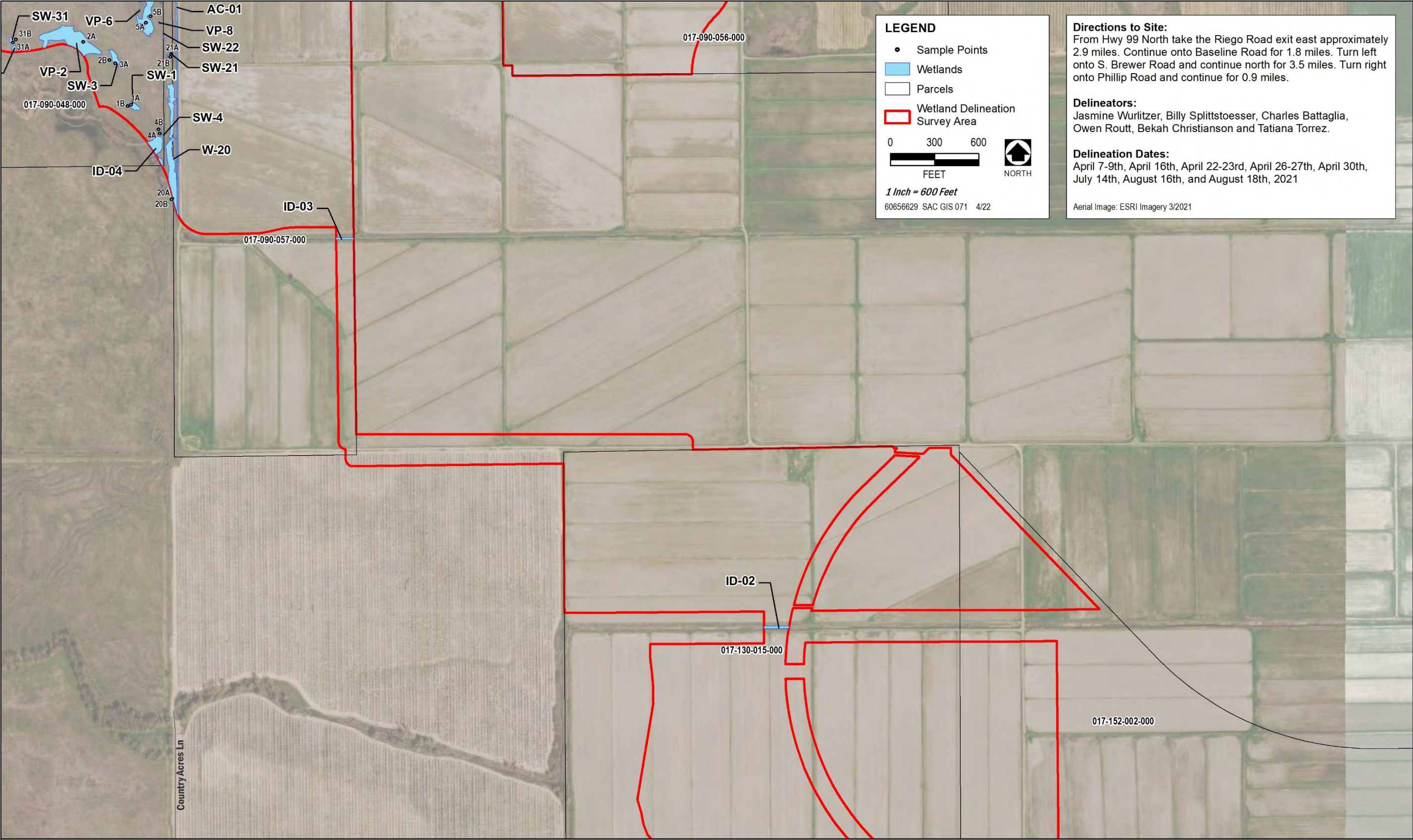




Source: ECORP 2017; Data Compiled by AECOM in 2022

Exhibit 6a. Wetland Delineation Map 1 of 4

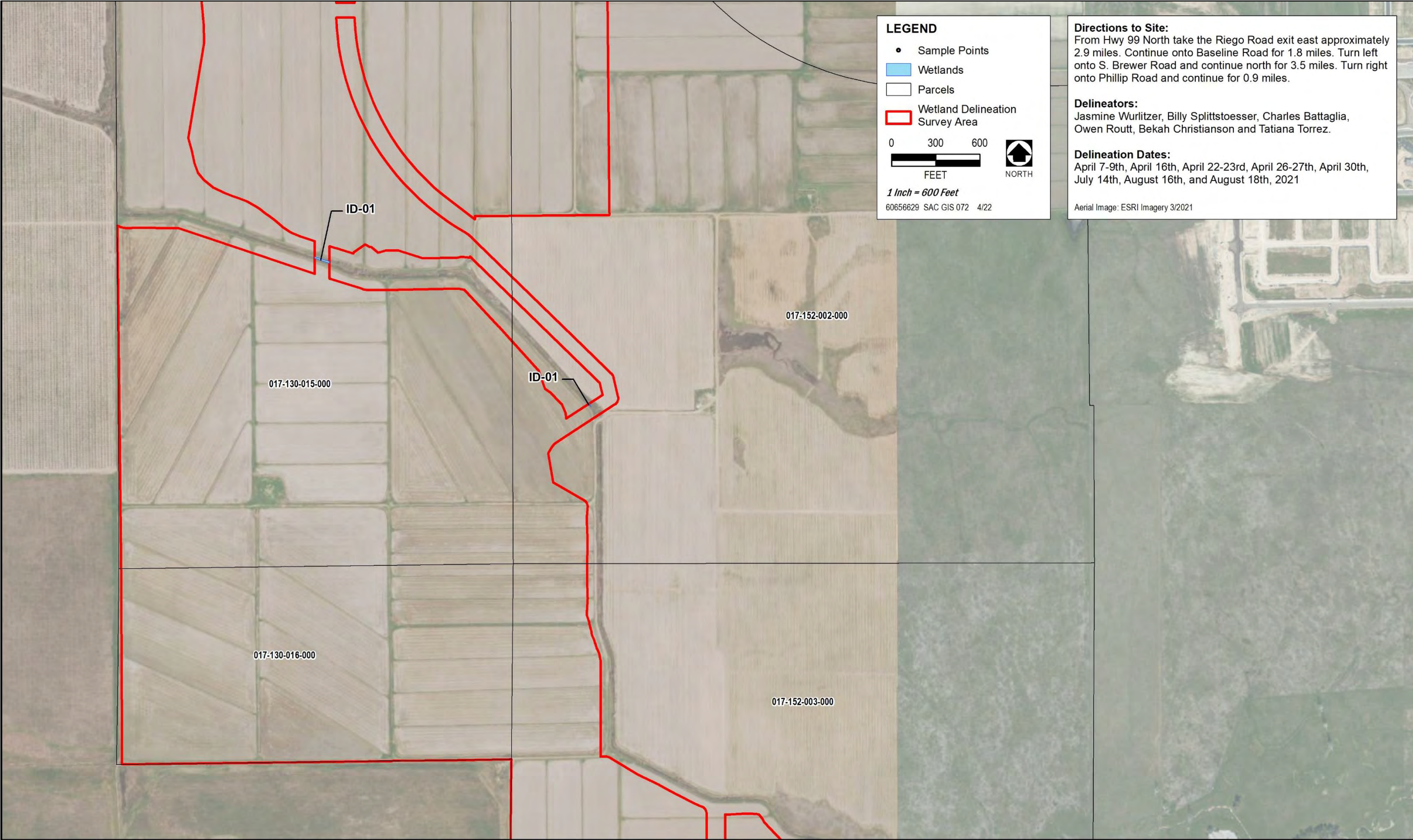




Source: ECORP 2017; Data Compiled by AECOM in 2022

Exhibit 6b. Wetland Delineation Map 2 of 4

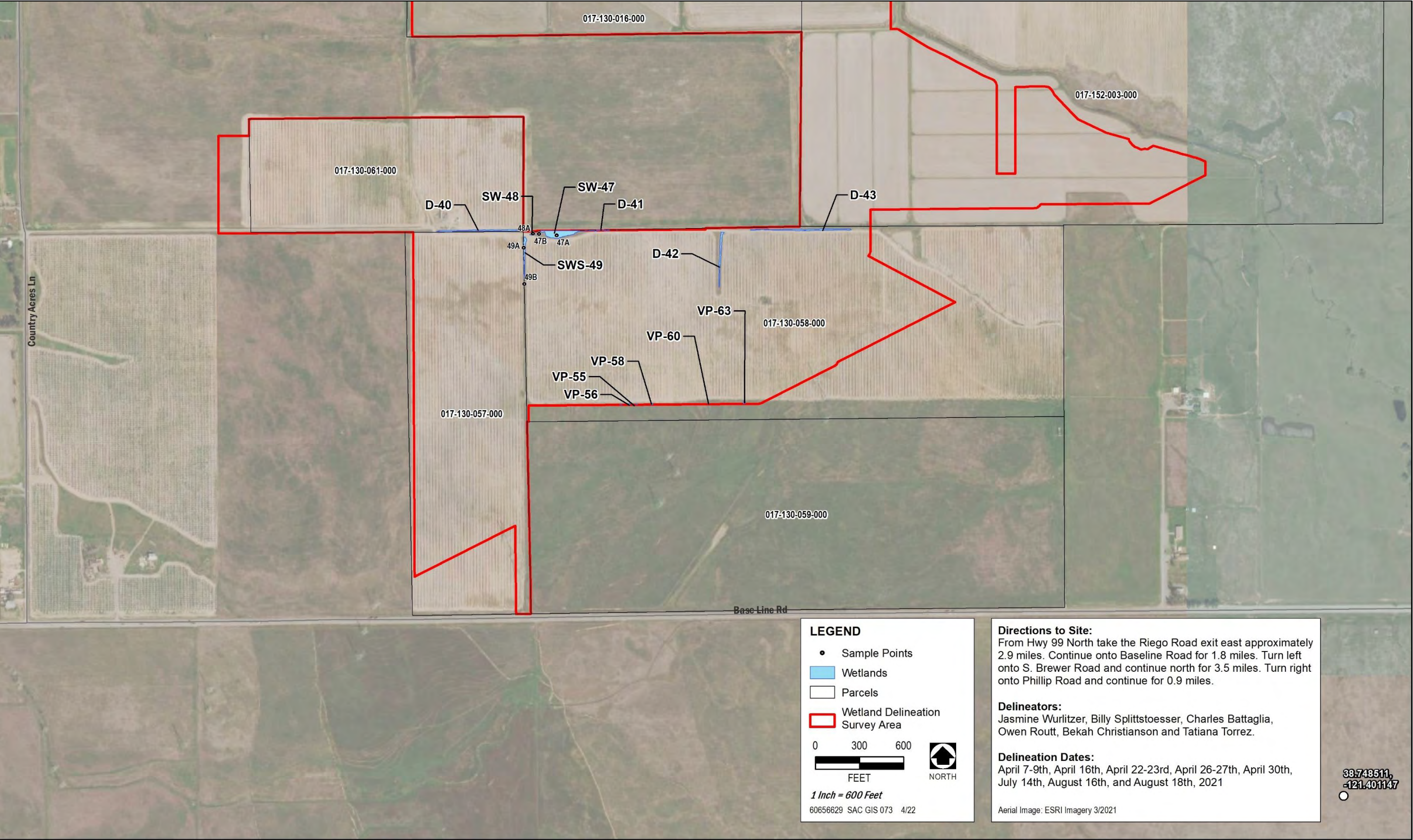




Source: ECORP 2017; Data Compiled by AECOM in 2022

Exhibit 6c. Wetland Delineation Map 3 of 4





Source: ECORP 2017; Data Compiled by AECOM in 2022

Exhibit 6d. Wetland Delineation Map 4 of 4



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## APPENDIX B

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Field Datasheets





# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/08/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 001-A  
 Investigator(s): W. Splittstoesser, J. W. Martin, B. Christianson, & O. Roult Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Low terrace Local relief (concave, convex, none): concave Slope (%): 1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78720219 Long: -121.4336574 Datum: NAD 83  
 Soil Map Unit Name: Cometa-Fiddymont complex, 1 to 5 percent slopes (460305) NWI Classification: n/a  
 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 <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No			

Remarks: Wetland #1. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). The site is north of a drainage that may flood periodically and not every year. The project site is in an annual grassland with irrigated pastures to the north and rice fields to the east and may receive overland or subsurface flow from these adjacent uses during the summer, or what would normally be the dry season. Area may be grazed occasionally, cows are present on field to the west.

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A) Total Number of Dominant Species Across All Strata: 3 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)
1.				
2.				
3.				
4.				
		=Total Cover		
<b>Sapling/Shrub Stratum (Plot size: )</b>				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL species 1 x1 = 1 FACW species 3 x2 = 6 FAC species 33 x3 = 99 FACU species 44 x4 = 176 UPL species 0 x5 = 0 Column Totals: 81 (A) 282 (B) Prevalence Index = B/A = 3.5
1.				
2.				
3.				
4.				
		=Total Cover		
<b>Herb Stratum (Plot size: r = 6 ft )</b>				<b>Hydrophytic Vegetation Indicators:</b> Dominance Test is >50% Prevalence Index is ≤3.0 Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input checked="" type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. <i>Festuca perennis</i>	33%	Yes	FAC	
2. <i>Festuca myuros</i>	33%	Yes	FACU	
3. <i>Lactuca serriola</i>	10%	Yes	FACU	
4. <i>Juncus patens</i>	3%		FACW	
5. <i>Erodium botrys</i>	1%		FACU	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. <i>Typha ssp.</i>	1%		OBL	
7.				
8.				
	81%	=Total Cover		
<b>Woody Vine Stratum (Plot size: )</b>				<b>Hydrophytic Vegetation Present?</b> Yes No <input checked="" type="checkbox"/>
1.				
2.				
		=Total Cover		
% Bare Ground in Herb Stratum 19%	% Cover of Biotic Crust 0			

Remarks: The plant community at the time of sampling does not exhibit hydrophytic vegetation indicators, but indicators of hydric soil and wetland hydrology are present. Even though the site was sampled during the normal wet period (i.e., near the end of the rainy season), it is possible that the site receives irrigation runoff from adjacent properties during the dry season and that may be the primary driver of the soil and hydrology indicators. Standing dead *Typha* indicate that the area has been inundated in the past.

Sampling Point: 001-A

## HYDROLOGY

US Army Corps of Engineers

Arid West - Version 2.0

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/08/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 001-B  
 Investigator(s): W. Spillstoesser, J. Wurlitzer, B. Christianson, & O. Routh Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Low terrace Local relief (concave, convex, none): none Slope (%): 1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78717656 Long: -121.4337327 Datum: NAD 83  
 Soil Map Unit Name: Cometa-Fiddymont complex, 1 to 5 percent slopes (460305) NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If no, explain in Remarks.)  
 Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No  
 Are Vegetation, Soil, or Hydrology X 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	X	Is the Sampled Area within a Wetland?	Yes	No	X
Hydric Soil Present?	Yes	No	X				
Wetland Hydrology Present?	Yes	No	X				

Remarks: Paired upland point for wetland #1. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). The site is north of a drainage that may flood periodically and not every year. The project site is in an annual grassland with irrigated pastures to the north and rice fields to the east and may receive overland or subsurface flow from these adjacent uses during the summer, or what would normally be the dry season. Area may be grazed occasionally, cows are present on field to the west.

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL species <u>0</u> x1 = <u>0</u> FACW species <u>0</u> x2 = <u>0</u> FAC species <u>8</u> x3 = <u>24</u> FACU species <u>3</u> x4 = <u>12</u> UPL species <u>30</u> x5 = <u>150</u> Column Totals: <u>41</u> (A) <u>186</u> (B) Prevalence Index = B/A = <u>4.5</u>
=Total Cover				
_____				
_____				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> <u>33%</u> Dominance Test is >50% <u>4.5</u> Prevalence Index is ≤3.0 <sup>1</sup> Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
=Total Cover				
<b>Herb Stratum (Plot size: 1 m = 6 ft)</b>				
1. <i>Erodium botrys</i>	5%	Yes	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <i>Elymus caput-medusae</i>	30%	Yes	NL	
3. <i>Cirsium vulgare</i>	1%		FACU	
4. <i>Rumex crispus</i>	3%		FAC	
5. <i>Vicia sativa</i>	2%		FACU	
6. <i>Festuca perennis</i>	5%	Yes	FAC	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
=Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
=Total Cover				
% Bare Ground in Herb Stratum	54%	% Cover of Biotic Crust	0%	

Remarks:

Sampling Point: 001-B

## HYDROLOGY

US Army Corps of Engineers

Arid West - Version 2.0

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/08/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 002-A  
 Investigator(s): W. Spillstoesser, J. Wuritzer, B. Christianson, & O. Routt Section, Township, Range: 20.11N 5E  
 Landform (hillslope, terrace, etc.): Low terrace Local relief (concave, convex, none): concave Slope (%): 2%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78838202 Long: -121.4347823 Datum: NAD 83  
 Soil Map Unit Name: Xerollics, hardpan substratum (460359) NWI Classification: N/A  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If no, explain in Remarks.)  
 Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No  
 Are Vegetation X, Soil, or Hydrology X 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 <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: Wetland #3. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). The site is north of a drainage that may flood periodically and not every year. The project site is in an annual grassland with irrigated pastures to the north and rice fields to the east and may receive overland or subsurface flow from these adjacent uses during the summer, or what would normally be the dry season. Area may be grazed occasionally, cows are present on field to the west.		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
=Total Cover				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL species <u>48%</u> x1 = <u>48</u> FACW species <u>30%</u> x2 = <u>60</u> FAC species <u>2%</u> x3 = <u>6</u> FACU species <u>0</u> x4 = <u>0</u> UPL species <u>2</u> x5 = <u>10</u> Column Totals: <u>82%</u> (A) <u>124</u> (B) Prevalence Index = B/A = <u>1.5</u>
=Total Cover				
=Total Cover				
=Total Cover				
=Total Cover				
=Total Cover				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≥3.0 <sup>1</sup> Morphological Adaptation <sup>2</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>3</sup> (Explain)
=Total Cover				
=Total Cover				
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=Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
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## SOIL

Sampling Point: 002-A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-6	10YR 5/1	72	7.5 YR 4/6	10	C	M	Sandy loam
-	-	-	7.5YR 5/8	15	C	M	-
-	-	-	7.5YR 5/8	3	PL	M	-
6-12	10YR 5/1	48	5Y 2.5/1	15	C	M	Sandy loam
-	-	-	7.5YR 3/4	25	C	M	-
-	-	-	5YR 3/6	7	C	M	-
-	-	-	5YR 3/6	5	PL	M	-

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if present):</b> Type: <u>none</u> Depth (inches): <u>12"</u>	<b>Hydric Soil Present?</b> Yes <u>X</u> No <u>      </u>
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Remarks: Organic layer 0.25" in depth. In closed depressions subject to ponding, 5 percent or more distinct or prominent redox concentrations occurring as soft masses or pore linings in a layer that is 5 cm (2 inches) or more thick and starts at a depth ≤10 cm (4 inches) from the soil surface; in the sample, redox concentrations are at 25% masses in a layer that is 6 inches thick and starts at a depth less than 4 inches from the surface.

## HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)	
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	

<b>Field Observations:</b> Surface Water Present? Yes <u>      </u> No <u>X</u> Depth (inches): <u>      </u> Water Table Present? Yes <u>      </u> No <u>X</u> Depth (inches): <u>      </u> Saturation Present? Yes <u>      </u> No <u>X</u> Depth (inches): <u>      </u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No <u>      </u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/08/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 002 B  
 Investigator(s): [W. Spillshoeper, J. Wullner, B. Christianovic, A. C. Fout] Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Low terrace Local relief (concave, convex, none): none Slope (%): 0.1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78804013 Long: -121.4341621 Datum: NAD 83  
 Soil Map Unit Name: Cometa-Fiddymint complex, 1 to 5 percent slopes (460305) NWI Classification: N/A  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation       , Soil       , or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes X No         
 Are Vegetation       , Soil       , or Hydrology X 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 <u>      </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u>      </u> No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>	
Wetland Hydrology Present?	Yes <u>X</u> No <u>      </u>	
Remarks: Upland point for wetland #2 and wetland #3. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). The site is north of a drainage that may flood periodically and not every year. The project site is in an annual grassland with irrigated pastures to the north and rice fields to the east and may receive overland or subsurface flow from these adjacent uses during the summer, or what would normally be the dry season. Area may be grazed occasionally, cows are present on field to the west.		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)	
1. <u>      </u>					
2. <u>      </u>					
3. <u>      </u>					
4. <u>      </u>					
<u>      </u> = Total Cover					
Sapling/Shrub Stratum (Plot size: <u>      </u> )				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: OBL species <u>0</u> x1 = <u>0</u> FACW species <u>0</u> x2 = <u>0</u> FAC species <u>42</u> x3 = <u>126</u> FACU species <u>2</u> x4 = <u>8</u> UPL species <u>14</u> x5 = <u>70</u> Column Totals: <u>58%</u> (A) <u>204</u> (B) Prevalence Index = B/A = <u>3.5</u>	
1. <u>      </u>					
2. <u>      </u>					
3. <u>      </u>					
4. <u>      </u>					
5. <u>      </u>					
<u>      </u> = Total Cover					
Herb Stratum (Plot size: <u>1 = 5 ft. x 5 ft.</u> )				<b>Hydrophytic Vegetation Indicators:</b> Dominance Test is $\geq 50\%$ Prevalence Index is $\leq 3.0$ <sup>1</sup> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
1. <u>Vicia villosa</u>	10%	Yes	UPL		
2. <u>Lupinus bicolor</u>	2%		UPL		
3. <u>Rumex crispus</u>	1%		FAC		
4. <u>Erodium botrys</u>	2%		FACU		
5. <u>Triteleia hyacinthina</u>	1%		FAC		
6. <u>Geranium dissectum</u>	2%		UPL		
7. <u>Festuca perennis (Lolium perenne)</u>	40%	Yes	FAC		
8. <u>      </u>					
<u>58%</u> = Total Cover					
Woody/Vine Stratum (Plot size: <u>      </u> )				<b>Hydrophytic Vegetation Present?</b> Yes <u>      </u> No <u>X</u> <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1. <u>      </u>					
2. <u>      </u>					
<u>      </u> = Total Cover					
% Bare Ground in Herb Stratum <u>42%</u>	% Cover of Biotic Crust <u>0%</u>				

Remarks: To meet dominance test requirement for hydrophytic vegetation, percent of dominant species that are OBL, FACW or FAC must be greater than 50%. There is exactly 50% FAC vegetation in the sampled area, and not greater than 50%, so the sampled area does not meet the dominance test. Furthermore, the prevalence index is greater than 3.0 at 3.5.

Sampling Point: 002-B

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<b>Primary Indicators</b> (minimum of one required; check all that apply)		<b>Secondary Indicators</b> (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>		
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>		
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Oxidized rhizospheres present; may be due to periodic flooding of drainage to the south. The project site is in an annual grassland with irrigated pastures to the north and rice fields to the east and may receive overland or subsurface flow from these adjacent uses during the summer, or what would normally be the dry season. Area may be grazed occasionally, cows are present on field to the west, leading to compaction of the A horizon and oxidation.			



# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/08/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 003-A  
 Investigator(s): J. Wurlitzer & W. Splittstoesser Section, Township, Range: 20 11N 5E  
 Landform (hillside, terrace, etc.): Low terrace Local relief (concave, convex, none): concave Slope (%): 1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78797761 Long: -121.4340229 Datum: NAD 83  
 Soil Map Unit Name: San Joaquin/Cometa sandy loams, 1-5% slopes; and Cometa-Fiddymont complex, 1-5% slopes NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation       , Soil       , or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u>      </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u> No <u>      </u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>		
Wetland Hydrology Present?	Yes <u>X</u> No <u>      </u>		
Remarks: Wetland (vernal pool) #2. Abnormally low rainfall for the water year.			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> ft = 30 ft )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u> = Total Cover
<b>Sapling/Shrub Stratum</b> (Plot size: <u>      </u> )				
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: OBL species: <u>35</u> x1 = <u>35</u> FACW species: <u>2</u> x2 = <u>4</u> FAC species: <u>23</u> x3 = <u>69</u> FACU species: <u>5</u> x4 = <u>20</u> UPL species: <u>0</u> x5 = <u>0</u> Column Totals: <u>65</u> (A) <u>128</u> (B) Prevalence Index = B/A = <u>2.0</u>
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
5. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
6. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<b>Herb Stratum</b> (Plot size: <u>      </u> ft = 5 ft )				
1. <u>Lasiotheria glaberrima</u>	15%	Yes	OBL	<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is >50% <u>X</u> Prevalence Index is ≤3.0 <sup>1</sup> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Festuca perennis (Lolium perenne)</u>	20%	Yes	FAC	
3. <u>Hordium marinum</u>	3%		FAC	
4. <u>Plagiobothrys stipitatus</u>	1%		FACW	
5. <u>Lactuca seriola</u>	1%		FACU	
6. <u>Ranunculus borariensis</u>	5%		OBL	
7. <u>Eryngium vaseyi</u>	1%		FACW	
8. <u>Festuca myuros</u>	4%		FACU	
9. <u>Eleocharis macrostachya (Eleocharis palustris)</u>	15%	Yes	OBL	
<u>      </u>	<u>65%</u>	<u>      </u>	<u>      </u> = Total Cover	
<b>Woody/Vine Stratum</b> (Plot size: <u>      </u> )				
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<b>Hydrophytic Vegetation Present?</b> X Yes <u>      </u> No <u>      </u>
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<b>% Bare Ground in Herb Stratum</b> <u>      </u> <b>% Cover of Biotic Crust</b> <u>      </u>				
Remarks: feature is in an annual grassland matrix along the northern edge of a low terrace that parallels a perennial drainage.				

## SOIL

Sampling Point: 003-A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
1-4	10YR 6/4	92	10YR 5/8	8	C	M	Silty clay loam
4-10	10YR 6/4	65	10YR 5/8	28	C	M	Sandy clay
-	-	-	7.5YR 2.5/2	7	C	M	-

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):	Hydric Soil Present?
Type: <u>Claypan</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Depth (inches): <u>4 - 10 inches</u>	

Dark redox throughout combined with manganese. Restrictive layer as shallow as 4 inches bgs. In closed depressions subject to ponding, 5 percent or more distinct or prominent redox concentrations occurring as soft masses in a layer that is 2 inches or more thick and starts at a depth  $\geq$  4 inches from the soil surface. This indicator occurs on depressional landforms, such as vernal pools. In the sample point, redox concentrations are 8% in a layer that is 4 inches thick and starts at a 1 inch from the soil surface.

## HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water Marks (B1) (Riverine)
	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input checked="" type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:		Wetland Hydrology Present?
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>                    </u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>                    </u>	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>                    </u>	
(includes capillary fringe)		

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

Remarks: vernal pool topography and soil type

US Army Corps of Engineers

Arid West - Version 2.0

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/08/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 004-A  
 Investigator(s): [W. Spillshoeper, J. Wulliger, B. Christianson, & C. Fout] Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Low terrace Local relief (concave, convex, none): concave Slope (%): 2%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.7866748 Long: -121.4329743 Datum: NAD 83  
 Soil Map Unit Name: Cometa-Fiddymert complex, 1 to 5 percent slopes (460305) NWI Classification: N/A  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology X 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks: Wetland #4, Adjacent wetland to the north of drainage channel. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). The site is north of a drainage that may flood periodically and not every year. The project site is in an annual grassland with irrigated pastures to the north and rice fields to the east and may receive overland or subsurface flow from these adjacent uses during the summer, or what would normally be the dry season. Area may be grazed occasionally, cows are present on field to the west.

**VEGETATION – Use scientific names of plants.**

	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: 1 = 6 ft. )				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)	
1. <u>Salix gooddingii</u>	<u>5</u>		<u>FACW</u>	Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66%</u> (A/B)	
3. _____					
4. _____	<u>5</u> = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				Prevalence Index Worksheet:	
1. _____				Total % Cover of: _____ Multiply by: _____	
2. _____				OBL species: <u>20</u> x1 = <u>20</u>	
3. _____				FACW species: <u>9</u> x2 = <u>18</u>	
4. _____				FAC species: <u>10</u> x3 = <u>30</u>	
5. _____				FACU species: <u>20</u> x4 = <u>80</u>	
	= Total Cover			UPI species: _____ x5 = _____	
				Column Totals: <u>59</u> (A) <u>148</u> (B)	
				Prevalence Index = B/A = <u>2.5</u>	
<u>Herb Stratum</u> (Plot size: 1 = 6 ft. )				Hydrophytic Vegetation Indicators:	
1. <u>Eleocharis macrostachya (E. palustris)</u>	<u>20%</u>	<u>Yes</u>	<u>OBL</u>	<u>66%</u> Dominance Test is >50%	
2. <u>Festuca myuros (Vulpia myuros)</u>	<u>20%</u>	<u>Yes</u>	<u>FACU</u>	<u>2.5</u> Prevalence Index is ≥3.0 <sup>1</sup>	
3. <u>Rumex crispus</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
4. <u>Cyperus eragrostis</u>	<u>3%</u>		<u>FACW</u>	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
5. <u>Ronippa curvipes</u>	<u>1%</u>		<u>FACW</u>		
6. _____					
7. _____					
8. _____					
	<u>54</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1. _____					
2. _____					
	= Total Cover				
% Bare Ground in Herb Stratum	<u>41</u>	% Cover of Biotic Crust	<u>0</u>	Hydrophytic Vegetation Present? Yes <u>X</u> No _____	

Remarks:

Sampling Point: 004-A

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Almost saturated			

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/08/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 004-B  
 Investigator(s): [W. Spillstoeser, J. Wulfer, B. Christianow, & C. Focht] Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Low terrace Local relief (concave, convex, none): none Slope (%): 2%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78674299 Long: 121.4329991 Datum: NAD 83  
 Soil Map Unit Name: Cometa-Fiddymont complex, 1 to 5 percent slopes (460305) NWI Classification: N/A  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology X 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 <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No _____		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		

Remarks: Upland point for wetland #4. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). The site is north of a drainage that may flood periodically and not every year. The project site is in an annual grassland with irrigated pastures to the north and rice fields to the east and may receive overland or subsurface flow from these adjacent uses during the summer, or what would normally be the dry season. Area may be grazed occasionally, cows are present on field to the west.

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	<b>Prevalence Index Worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: (A) _____ (B) _____ Prevalence Index = B/A = _____
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> Dominance Test is >50% _____ Prevalence Index is <3.0 <sup>1</sup> _____ Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) _____ <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
= Total Cover				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
= Total Cover				
<b>Herb Stratum (Plot size: 1 = 6 ft<sup>2</sup>)</b>				
1. <i>Vicia villosa</i>	2%	_____	UPL	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
2. <i>Bromus hordeaceus</i>	30%	Yes	FACU	
3. <i>Bromus diandrus</i>	20%	Yes	UPL	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
4. <i>Raphanus sp.</i>	1%	_____	UPL	
5. <i>Brassica nigra</i>	1%	_____	UPL	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
6. <i>Lactuca serriola</i>	1%	_____	FACU	
7. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
8. _____	_____	_____	_____	
= Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
2. _____	_____	_____	_____	
= Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
<b>% Bare Ground in Herb Stratum</b> <u>44</u> <b>% Cover of Biotic Crust</b> <u>0</u>				

Remarks:

Sampling Point: 004-B

HYDROLOGY				
<b>Wetland Hydrology Indicators:</b>				
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )		
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )		
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )		
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)		
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)		
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)		
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)		
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)		
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)		
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			Depth (inches): <input type="text"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			Depth (inches): <input type="text"/>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			Depth (inches): <input type="text"/>
(includes capillary fringe)				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks:				

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: 6066629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/09/21  
 Applicant/Owner: Applicant is Sacramento Municipal Utility District (SMUD) State: CA Sampling Point: 005-A  
 Investigator(s): W. Spitznesser, J. Wenzler, B. Christianson, & G. Roub Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78872889 Long: -121.433283 Datum: NAD 83  
 Soil Map Unit Name: San Joaquin-Cometa sandy loams, 1 to 5 percent slopes NWI Classification: N/A  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation       , Soil       , or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u>      </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u>      </u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>	
Wetland Hydrology Present?	Yes <u>X</u> No <u>      </u>	
Remarks: This sample point, taken in Wetland #5, is also representative of wetlands #6, #7, #8, and #22. Wetland #8 had two additional plant species, <i>Juncus burlinius</i> and <i>Crassula arguta</i> that were identified in the vegetation under story at low cover, and it is assumed these were present in the other features as well. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). Area may be grazed occasionally, cows are present on field to the west.		

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>      </u> x1 = <u>      </u> FACW species <u>      </u> x2 = <u>      </u> FAC species <u>      </u> x3 = <u>      </u> FACU species <u>      </u> x4 = <u>      </u> UPL species <u>      </u> x5 = <u>      </u> Column Totals: (A) <u>      </u> (B) <u>      </u> Prevalence Index = B/A = <u>      </u>
<b>Sapling/Shrub Stratum (Plot size: <u>      </u>)</b> 1. <u>      </u> 2. <u>      </u> 3. <u>      </u> 4. <u>      </u> 5. <u>      </u> <u>      </u> = Total Cover				
<b>Herb Stratum (Plot size: <u>1 = 6 ft</u>)</b> 1. <i>Ranunculus honariensis</i> <u>10%</u> Yes <u>      </u> OBL 2. <i>Deschampsia caespitosa</i> <u>3%</u> Yes <u>      </u> FACW 3. <i>Lasthenia fremontii</i> <u>20%</u> Yes <u>      </u> OBL 4. <i>Psilocarphus brevissimus</i> <u>22%</u> Yes <u>      </u> FACW 5. <i>Hordeum maritum</i> <u>2.50%</u> Yes <u>      </u> FAC 6. <i>Plagiobothrys stipitatus</i> <u>12%</u> Yes <u>      </u> FACW 7. <i>Triphysaria eriantha</i> <u>1%</u> Yes <u>      </u> NL 8. <i>Leontodon saxatilis</i> <u>1%</u> Yes <u>      </u> FACU <u>71.5</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: <u>      </u>)</b> 1. <u>      </u> 2. <u>      </u> <u>      </u> = Total Cover				
% Bare Ground in Herb Stratum <u>28.5</u> % Cover of Biotic Crust <u>0</u>				
<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is $\geq 60\%$ <u>      </u> Prevalence Index is $\leq 3.0$ <sup>1</sup> <u>      </u> Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>      </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				
<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>      </u>				
Remarks: <u>Vernal pool vegetation</u>				

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Sampling Point: 005-A

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			



# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/09/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 005-B  
 Investigator(s): W. Spillstouffer, J. Wurlitzer, B. Christianson, & O. Rout Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): convex Slope (%): 2%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78884947 Long: -121.4331716 Datum: NAD 83  
 Soil Map Unit Name: San Joaquin Cometa sandy loams, 1 to 5 percent slopes (460346) NWI Classification: N/A  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: Upland point for wetlands #5, #6, #7, #8, and #22. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). Area may be grazed occasionally, cows are present on field to the west.		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
=Total Cover				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL species <u>0</u> x1 = <u>0</u> FACW species <u>0</u> x2 = <u>0</u> FAC species <u>3</u> x3 = <u>9</u> FACU species <u>36</u> x4 = <u>308</u> UPL species <u>15</u> x5 = <u>75</u> Column Totals: <u>54</u> (A) <u>392</u> (B) Prevalence Index = B/A = <u>7.3</u>
=Total Cover				
=Total Cover				
=Total Cover				
=Total Cover				
<b>Herb Stratum (Plot size: r = 6 ft)</b>				
1. <i>Vicia villosa</i>	15%	Yes	UPL	<b>Hydrophytic Vegetation Indicators:</b> _____ Dominance Test is >50% _____ Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptation <sup>2</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>3</sup> (Explain)
2. <i>Hordeum murinum</i>	20%	Yes	FACU	
3. <i>Bromus hordeaceus</i>	15%	Yes	FACU	
4. <i>Trifolium dubium</i>	5%		UPL	
5. <i>Triteleia hyacinthina</i>	3%		FAC	
6. <i>Erodium botrys</i>	1%		FACU	_____ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
=Total Cover				
=Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
2. _____	_____	_____	_____	
=Total Cover				
% Bare Ground in Herb Stratum	<u>41</u>	% Cover of Biotic Crust	<u>0</u>	
Remarks:				

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## SOIL

Sampling Point: 005-B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
10	7.5YR 4/6	100					loamy sand	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if present):</b> Type: <u>none</u> Depth (inches): <u>10"</u>	<b>Hydric Soil Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks:

## HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)	
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	

<b>Field Observations:</b> Surface Water Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)				<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/09/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 006-A  
 Investigator(s): W. Splittstoesser, J. Wurtzler, B. Christensen, & O. Rout Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 2%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78971672 Long: -121.4327726 Datum: NAD 83  
 Soil Map Unit Name: San Joaquin-Coneta sandy loams, 1 to 5 percent slopes (460346) NWI Classification: N/A  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation       , Soil       , or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u>      </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u>      </u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>	
Wetland Hydrology Present?	Yes <u>X</u> No <u>      </u>	
Remarks: Sample point corresponds to mapped Wetland #10 and is also representative of wetland #9. Wetland#10 had three plant species <i>Lasthenia fremontii</i> , <i>Psilocarphus brevissimus</i> , and <i>Navaretia leucocephala</i> , that were not found in Wetland #9. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). Area may be grazed occasionally, cows are present on field to the west.		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
<u>      </u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>      </u> )				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>      </u> x1 = <u>      </u> FACW species <u>      </u> x2 = <u>      </u> FAC species <u>      </u> x3 = <u>      </u> FACU species <u>      </u> x4 = <u>      </u> UPL species <u>      </u> x5 = <u>      </u> Column Totals: <u>      </u> (A) <u>      </u> (B) Prevalence Index = B/A = <u>      </u>
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
<u>      </u> = Total Cover				
Herb Stratum (Plot size: 1 = 6 ft <u>      </u> )				<b>Hydrophytic Vegetation Indicators:</b> X Dominance Test is >50% Prevalence Index is ≤3.0 <sup>1</sup> Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. <i>Eryngium vaseyi</i>	8%		FACW	
2. <i>Plagiobothrys stipitatus</i>	15%	Yes	FACW	
3. <i>Leontodon saxatilis</i>	10%		FACU	
4. <i>Lasthenia fremontii</i>	25%	Yes	OBL	
5. <i>Navaretia leucocephala</i>	2.50%		OBL	
6. <i>Psilocarphus brevissimus</i>	2.50%		FACW	
7. <i>Hordeum marinum</i>	22%	Yes	FAC	
8. <u>      </u>				
<u>85</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>      </u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>      </u>				
2. <u>      </u>				
<u>      </u> = Total Cover				
% Bare Ground in Herb Stratum <u>15</u>	% Cover of Biotic Crust <u>0</u>	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>      </u>		
Remarks:				

Sampling Point: 006-A

<b>HYDROLOGY</b>					
<b>Wetland Hydrology Indicators:</b>					
<u>Primary Indicators (minimum of one required; check all that apply)</u>			<u>Secondary Indicators (2 or more required)</u>		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/>	Salt Crust (B11)	<input type="checkbox"/>	Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/>	Biotic Crust (B12)	<input type="checkbox"/>	Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/>	Aquatic Invertebrates (B13)	<input type="checkbox"/>	Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/>	Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/>	Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/>	Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/>	Presence of Reduced Iron (C4)	<input type="checkbox"/>	Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/>	Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)	
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/>	Thin Muck Surface (C7)	<input checked="" type="checkbox"/>	Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/>	Other (Explain in Remarks)	<input checked="" type="checkbox"/>	FAC Neutral Test (D5)	
<b>Field Observations:</b>					
Surface Water Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):		
Water Table Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):		
Saturation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):		
(includes capillary fringe)					
			<b>Wetland Hydrology Present?      Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></b>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					
US Army Corps of Engineers					
Arid West - Version 2					

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/09/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 006-B  
 Investigator(s): W. Spillstoeser, J. Wurtler, B. Christianson, & C. Rault Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 39.7897037 Long: -121.4328327 Datum: NAD 83  
 Soil Map Unit Name: San Joaquin Cometa sandy loams, 1 to 5 percent slopes (460346) NWI Classification: N/A  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes      No X (If no, explain in Remarks.)  
 Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>    </u> No <u>X</u>	Is the Sampled Area within a Wetland?	Yes <u>    </u> No <u>X</u>
Hydric Soil Present?	Yes <u>    </u> No <u>X</u>		
Wetland Hydrology Present?	Yes <u>    </u> No <u>X</u>		
Remarks: Upland point for Wetlands #9, #10, #11, #12, #13, and #14. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). Area may be grazed occasionally, cows are present on field to the west.			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>    </u> Multiply by: OBL species <u>0</u> x1 = <u>0</u> FACW species <u>0</u> x2 = <u>0</u> FAC species <u>0</u> x3 = <u>0</u> FACU species <u>15</u> x4 = <u>60</u> UPL species <u>80</u> x5 = <u>400</u> Column Totals: <u>95</u> (A) <u>460</u> (B) Prevalence Index = B/A = <u>4.8</u>
<u>    </u> = Total Cover				
<b>Sapling/Shrub Stratum</b> (Plot size: <u>    </u> )				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<b>Hydrophytic Vegetation Indicators:</b> Dominance Test is >50% <u>    </u> Prevalence Index is >3.0 <sup>1</sup> <u>    </u> Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>    </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <u>    </u>
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
<u>    </u> = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <u>    </u> No <u>X</u>
<b>Herb Stratum</b> (Plot size: <u>r = 6 ft</u> )				
1. <u>Vicia villosa</u>	<u>50%</u>	<u>Yes</u>	<u>UPL</u>	
2. <u>Avena sp.</u>	<u>15%</u>	<u>Yes</u>	<u>UPL</u>	
3. <u>Erodium botrys</u>	<u>5%</u>	<u>    </u>	<u>FACU</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. <u>Trifolium dubium</u>	<u>10%</u>	<u>    </u>	<u>UPL</u>	
5. <u>Hordeum murinum</u>	<u>10%</u>	<u>    </u>	<u>FACU</u>	
6. <u>Bromus diandrus</u>	<u>5%</u>	<u>    </u>	<u>UPL</u>	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<b>Hydrophytic Vegetation Present?</b> Yes <u>    </u> No <u>X</u>
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
<u>95%</u> = Total Cover				
<b>Woody/Vine Stratum</b> (Plot size: <u>    </u> )				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<b>Hydrophytic Vegetation Present?</b> Yes <u>    </u> No <u>X</u>
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
<u>    </u> = Total Cover				
% Bare Ground in Herb Stratum <u>5%</u>	% Cover of Biotic Crust <u>0%</u>			
Remarks:				

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Arid West - Version 2.0

Sampling Point: 006-B

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/09/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 007-A  
 Investigator(s): W. Spitzhoefer, J. Wurlitzer, B. Christianson, & C. Rault Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.7903567 Long: -121.4327071 Datum: NAD 83  
 Soil Map Unit Name: Salt Joquias-Concha sandy loams, 1 to 5 percent slopes (460346) Alamo-Hollymont complexes, 0 to 5 percent slopes (460288) NWI Classification: N/A  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation       , Soil       , or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes X No         
 Are Vegetation       , Soil       , or Hydrology X 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 <u>X</u> No <u>      </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u>      </u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>	
Wetland Hydrology Present?	Yes <u>X</u> No <u>      </u>	

Remarks: Wetland #11. Abnormally low rainfall totals for the season: only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). The site is north of a drainage that may flood periodically and not every year. The project site is in an annual grassland with irrigated pastures to the north and rice fields to the east and may receive overland or subsurface flow from these adjacent uses during the summer, or what would normally be the dry season. Area may be grazed occasionally, cows are present on field to the west.

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover	<u>      </u>			
<b>Sapling/Shrub Stratum (Plot size: <u>      </u>)</b>				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species: <u>12</u> x1 = <u>12</u> FACW species: <u>10</u> x2 = <u>20</u> FAC species: <u>30</u> x3 = <u>90</u> FACU species: <u>3</u> x4 = <u>12</u> UPL species: <u>0</u> x5 = <u>0</u> Column Totals: <u>58</u> (A) <u>134</u> (B) Prevalence Index = B/A = <u>2.3</u>
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
5. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover	<u>      </u>			
<b>Herb Stratum (Plot size: <u>      </u>)</b>				<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is >50% <u>X</u> Prevalence Index is ≤3.0 Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. <u>Hordeum niarinum</u>	15%	Yes	FAC	
2. <u>Eleocharis macrostachya (E. palustris)</u>	10%	Yes	OBL	
3. <u>Plagiobothrys stipitatus</u>	5%	Yes	FACW	
4. <u>Cyperus eragrostis</u>	3%		FACW	
5. <u>Lytium hyssopifolium</u>	2%		OBL	
6. <u>Leontodon saxatilis</u>	3%		FACU	
7. <u>Juncus effusus</u>	5%	Yes	FACW	
8. <u>Festuca perennis</u>	15%	Yes	FAC	
<u>      </u> = Total Cover	58%			
<b>Woody/Vine Stratum (Plot size: <u>      </u>)</b>				Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. <b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>      </u>
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover	<u>      </u>			
% Bare Ground in Herb Stratum <u>40%</u>	% Cover of Biotic Crust <u>0</u>			

Remarks:

Sampling Point: 007-A

## HYDROLOGY

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# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/09/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 008-A  
 Investigator(s): W. Spaldenheiser, J. Wulitzer, B. Christianova, & C. Riadt Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 4%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.79075893 Long: -121.4326767 Datum: NAD 83  
 Soil Map Unit Name: Alamo-Fiddymont complex, 0-5% slopes NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks: Wetland #12: *Juncus xiphioides* dominant. Abnormally low rainfall totals for the season: only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). The project site is in an annual grassland with irrigated pastures to the north and rice fields to the east and may receive overland or subsurface flow from these adjacent uses during the summer, or what would normally be the dry season. Area may be grazed occasionally. cows are present on field to the west.

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>r = 30 ft</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				<b>Prevalence Index Worksheet:</b> Total % Cover of: _____ Multiply by: OBL species <u>75</u> x1 = <u>75</u> FACW species <u>5</u> x2 = <u>10</u> FAC species <u>1</u> x3 = <u>3</u> FACU species <u>0</u> x4 = <u>0</u> UPL species <u>10</u> x5 = <u>50</u> Column Totals: <u>91</u> (A) <u>138</u> (B) Prevalence Index = B/A = <u>1.5</u>
_____				
_____				
_____				
_____				
= Total Cover				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is >50% <u>X</u> Prevalence Index is ≥3.0 <sup>1</sup> Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____				
_____				
= Total Cover				
<b>Herb Stratum (Plot size: <u>r = 6 ft</u>)</b>				
1. <i>Juncus xiphioides</i>	75%	Yes	OBL	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
2. <i>Geranium dissectum</i>	10%		NL	
3. <i>Juncus effusus</i>	5%		FACW	
4. <i>Rumex crispus</i>	1%		FAC	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____				
_____				
= Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
2. _____	_____	_____	_____	
_____				
_____				
_____				
= Total Cover				
% Bare Ground in Herb Stratum	9%	% Cover of Biotic Crust	_____	

Remarks:

Sampling Point: 008-A

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input checked="" type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<input type="text" value="10"/>
(includes capillary fringe)			
		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Evidence of earthworm activity in the soils.			

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/09/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 009 A  
 Investigator(s): W. Spillshoeffer, J. Wullner, B. Christensen, & C. Rault Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.79120727 Long: -121.4330761 Datum: NAD 83  
 Soil Map Unit Name: Alamo-Fiddymont complex, 0-5% slopes NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: Wetland #13: <i>Cyperus</i> and <i>Geranium</i> dominated wetland. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). The project site is in an annual grassland with irrigated pastures to the north and rice fields to the east and may receive overland or subsurface flow from these adjacent uses during the summer, or what would normally be the dry season. Area may be grazed occasionally; cows are present on field to the west.		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>1 = 30 ft</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
=Total Cover _____				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is >50% <u>X</u> Prevalence Index is ≤3.0 <sup>1</sup> Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
=Total Cover _____				
<b>Herb Stratum (Plot size: <u>1 = 6 ft</u>)</b>				
1. <i>Cyperus eragrostis</i>	30%	Yes	FACW	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
2. <i>Juncus effusus</i>	8%	Yes	FACW	
3. <i>Geranium dissectum</i>	5%		NL	
4. <i>Festuca perennis</i>	13%	Yes	FAC	
5. <i>Rumex crispus</i>	2%		FAC	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
=Total Cover <u>58%</u>				
<b>Woody/Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
=Total Cover _____				
% Bare Ground in Herb Stratum <u>42%</u>	% Cover of Biotic Crust _____			
Remarks:				

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## SOIL

Sampling Point: 009-A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-4	10YR 4/2	88	10YR 4/6	8	C	M	sandy clay loam
-	-	-	10YR 2/1	4	C	M	manganese masses
4-10	10YR 4/3	79	10YR 4/6	18	C	M	sandy clay loam
-	-	-	10YR 2/1	3	C	M	manganese masses

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):	Hydric Soil Present?
Type: <u>none</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Depth (inches): <u>10"</u>	

Remarks: layer that has a depleted matrix with 60 percent or more chroma of 2 or less and that has a minimum thickness of 2 inches starting at a depth  $\leq$  4 inches from the soil surface. A depleted matrix requires a value of 4 or more and chroma of 2 or less. Redox concentrations, including soft iron-manganese masses are required in soils with matrix colors of 4/2.

## HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> FAC-Neutral Test (D5)	

Field Observations:		Wetland Hydrology Present?
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>          </u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>          </u>	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>          </u>	
(includes capillary fringe)		

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

Remarks:

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Arid West - Version 2.0

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/09/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 010 A  
 Investigator(s): W. Spillshoeffer, J. Wullner, B. Christensen, & C. Rault Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.79110496 Long: -121.4334354 Datum: NAD 83  
 Soil Map Unit Name: Alamo-Fiddymont complex, 0-5% slopes NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: Wetland #14 – interior to Wetland #13, deeper, and dominated by Eleocharis. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). The project site is in an annual grassland with irrigated pastures to the north and rice fields to the east and may receive overland or subsurface flow from these adjacent uses during the summer, or what would normally be the dry season. Area may be grazed occasionally, cows are present on field to the west.		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>1 = 30 ft</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				<b>Prevalence Index Worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACI species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ = Total Cover				
<b>Herb Stratum (Plot size: <u>1 = 6 ft</u>)</b> 1. <u>Eleocharis macrostachya</u> 35% Yes OBL 2. <u>Ranunculus bonariensis</u> 7% _____ OBL 3. <u>Alopecurus aequalis</u> 13% Yes OBL 4. <u>Rorippa curvipes</u> 15% Yes FACW 5. _____ 6. _____ 7. _____ 8. _____ = Total Cover 70%				
<b>Woody/Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ = Total Cover				
<b>% Bare Ground in Herb Stratum</b> <u>30</u> <b>% Cover of Biotic Crust</b> _____				
<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is >50% _____ Prevalence Index is $\leq 3.0$ <sup>1</sup> _____ Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				
<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____				
Remarks:				

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Sampling Point: 010-A

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>		
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <input type="text" value="18"/>		
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <input type="text" value="10"/>		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Crayfish burrows present			

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/09/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 011-A  
 Investigator(s): W. Spaldenheiser, J. Wutzler, B. Christianson, & C. Riadt Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.79061364 Long: -121.4342309 Datum: NAD 83  
 Soil Map Unit Name: Alamo-Fiddymen complex, 0-5% slopes NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: Originally mapped in field as Wetland #15, but polygon removed from map due to lack of hydrology indicators. Feature consists of old tire ruts in upland near a larger wetland feature. Abnormally low rainfall totals for the season: only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). Area may be grazed occasionally, cows are present on field to the west.		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>r = 30 ft</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
=Total Cover				
<b>Sapling/Shrub Stratum</b> (Plot size: _____)				
1. _____				<b>Prevalence Index Worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = <u>#DIV/0!</u>
2. _____				
3. _____				
4. _____				
5. _____				
=Total Cover				
<b>Herb Stratum</b> (Plot size: <u>r = 5 ft</u> )				
1. <u>Hordeum marinum</u>	20%	Yes	FAC	<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is >50% Prevalence Index is $\leq 3.0^1$ Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>Plagiobothrys stipitatus</u>	12%	Yes	FACW	
3. <u>Festuca perennis</u>	3%		FAC	
4. <u>Eleocharis macrostachya</u>	2%		OBL	
5. <u>Veronica peregrina</u>	1%		FAC	
6. <u>Crassula aquatica</u>	1%		OBL	
7. <u>Juncus bufonius</u>	1%		FACW	
8. <u>Psilocarphus oregonus</u>	1%		OBL	
41% =Total Cover				
<b>Woody Vine Stratum</b> (Plot size: _____)				
1. _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
=Total Cover				
% Bare Ground in Herb Stratum	59%	% Cover of Biotic Crust		<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
Remarks:				

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Sampling Point: 011-A

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	Depth (inches):	<input type="text"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	Depth (inches):	<input type="text"/>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	Depth (inches):	<input type="text"/>
(includes capillary fringe)			
		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: No wetland hydrology indicators present. No inundation or saturation visible on aerial imagery. Feature is very small and consists of old tire ruts in upland.			
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## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site:	60656629 SMUD Country Acres Solar		City/County:	Placer County		Sampling Date:	04/21/21			
Applicant/Owner:	SMUD			State:		CA		Sampling Point:	020 A	
Investigator(s):	J. Wuritzer & C. Battaglia		Section:	Township, Range:		20 11N 5E				
Landform (hillslope, terrace, etc.):	Terrace		Local relief (concave, convex, none):	none		Slope (%):		1.2%		
Subregion (LRR):	Mediterranean California (LRR C)		Lat:	38.785451		Long:	-121.432676		Datum: NAD 83	
Soil Map Unit Name:	Xerfluvents, hardpan substratum				NW1 Classification:		n/a			
Are climatic / hydrologic conditions on the site typical for this time of year?										
			Yes		No X		(If no, explain in Remarks.)			
Are Vegetation	Soil	Hydrology	X	significantly disturbed?		Are 'Normal Circumstances' present?		Yes	No	X
Are Vegetation	Soil	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 <u>X</u> No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____		
Wetland Hydrology Present?	Yes <u>X</u> No _____		

Remarks: Wetland #20, Adjacent to ditch feature and connects to the ditch via several breaks in berm between this wetland and the ditch. Rice fields to the east influence hydrology, whereby this wetland will fill with water when the rice fields are flooded during what would normally be the dry season. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek).

**VEGETATION** – Use scientific names of plants.

Tree Stratum (Plot size: _____)		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1.					Number of Dominant Species That Are OBL, FACW, or FAC: _____ 4 (A)	
2.					Total Number of Dominant Species Across All Strata: _____ 4 (B)	
3.					Percent of Dominant Species That Are OBL, FACW, or FAC: _____ 100% (A/B)	
4.						
		=Total Cover				
Sapling/Shrub Stratum (Plot size: _____)					Prevalence Index Worksheet:	
1.					Total % Cover of: _____ Multiply by: _____	
2.					OBL species _____ x1 = _____	
3.					FACW species _____ x2 = _____	
4.					FAC species _____ x3 = _____	
5.					FACU species _____ x4 = _____	
		=Total Cover			UPL species _____ x5 = _____	
					Column Totals: _____ (A) _____ (B)	
Herb Stratum (Plot size: _____)					Prevalence Index = B/A = _____	
1.	<i>Eleocharis macrostachya (palustris)</i>	20%	yes	OBL		
2.	<i>Cyperus eragrostis</i>	25%	yes	FACW		
3.	<i>Rumex crispus</i>	5%		FAC		
4.	<i>Helminthotheca echioides</i>	5%		FAC		
5.	<i>Juncus effusus</i>	8%	yes	FACW		
6.	<i>Alopecurus aequalis</i>	8%	yes	OBL		
7.	<i>Sorichus asper</i>	3%		FAC		
8.	<i>Erodium brachycarpum</i>	3%		NL		
		77% =Total Cover				
Woody Vine Stratum (Plot size: _____)					Hydrophytic Vegetation Indicators:	
1.					<input checked="" type="checkbox"/> Dominance Test is >50%	
2.					Prevalence Index is $\leq 3.0^1$	
		=Total Cover			<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
					<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
					<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
% Bare Ground in Herb Stratum _____ 10%		% Cover of Biotic Crust _____ 0%		Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks:						

Sampling Point: 020-A

## HYDROLOGY

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# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/21/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 020-B  
 Investigator(s): J. Wuriltzer & C. Battaglia Section: Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.785435 Long: -121.432704 Datum: NAD 83  
 Soil Map Unit Name: Xerofluents, hardpan substratum NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil X, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: Upland point paired to wetland #20. Abnormally low rainfall totals for the season, only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek).		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Prevalence Index Worksheet:</b> Total % Cover of: _____ Multiply by: OBL species: <u>0</u> x1 = <u>0</u> FACW species: <u>0</u> x2 = <u>0</u> FAC species: <u>40</u> x3 = <u>120</u> FACU species: <u>10</u> x4 = <u>40</u> UPL species: <u>25</u> x5 = <u>125</u> Column Totals: <u>75</u> (A) <u>285</u> (B) Prevalence Index = B/A = <u>3.8</u>
= Total Cover				
_____				
_____				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> Dominance Test is >50% _____ Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) _____ <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
= Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
_____				
<b>Herb Stratum (Plot size: 1 = 5 ft.)</b>				
1. <i>Erodium brachycarpum</i>	20%	yes	NL	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
2. <i>Plantago lanceolata</i>	13%	yes	FAC	
3. <i>Bromus diandrus</i>	5%	yes	NL	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
4. <i>Bromus hordeaceus</i>	10%	yes	FACU	
5. <i>Festuca perennis</i>	25%	yes	FAC	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
6. <i>Sonchus asper</i>	2%	yes	FAC	
7. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
8. _____	_____	_____	_____	
= Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
_____				
<b>Woody/Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
2. _____	_____	_____	_____	
= Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
_____				
% Bare Ground in Herb Stratum	2%	% Cover of Biotic Crust	0%	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
Remarks:				

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Arid West - Version 2.0

Sampling Point: 020-B

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>		
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>		
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: No hydrology indicators			
<div> <div>U.S. Army Corps of Engineers</div> <div>Arid West - Version 2</div> </div>			

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/21/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 021-A  
 Investigator(s): T. Wondolzer, C. Battaglia, C. Poul & S. Christensen Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 30.78814853 Long: 121.4326891 Datum: NAD 83  
 Soil Map Unit Name: San Joaquin-Cometa sandy loams, 1-5% slopes NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: Wetland #21. Soils appear to have been historically disturbed; feature is in an area that is between an ag ditch to the east and a fence line to the west. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). NOTE: Wetland #22 is represented by Sample Point 005-A (datasheet DS 7).		

## VEGETATION – Use scientific names of plants.

Tier Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____	_____	_____	_____	
=Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index Worksheet:
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x1 = _____
3. _____	_____	_____	_____	FACW species _____ x2 = _____
4. _____	_____	_____	_____	FAC species _____ x3 = _____
5. _____	_____	_____	_____	FACU species _____ x4 = _____
=Total Cover				UPL species _____ x5 = _____
				Column Totals: (A) _____ (B) _____
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: <u>r = 10 ft</u> )				Hydrophytic Vegetation Indicators:
1. <i>Festuca perennis</i>	50%	Yes	FAC	<u>X</u> Dominance Test is >50%
2. <i>Tribleria hyacinthina</i>	10%		FAC	Prevalence Index is ≤3.0 <sup>1</sup>
3. <i>Holocarpha virgata</i>	15%		NL	Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. <i>Festuca [Vulpia] bromoides</i>	10%		FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. <i>Erodium botrys</i>	2%		FACU	
6. <i>Bromus hordeaceus</i>	3%		FACU	
7. <i>Hordeum marinum</i>	1%		FAC	
8. <i>Elymus caput-medusae</i>	3%		NL	
94% =Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
=Total Cover				
% Bare Ground in Herb Stratum	6%	% Cover of Biotic Crust	0%	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
Remarks:				

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## SOIL

Sampling Point: 021-A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10YR 4/2	50	5YR 4/6	50	C	M	sandy clay loam	
3-8	7.5YR 4/3	50	2.5YR 2.5/4	40	C	M	loam	
			10YR 2/1	10	C	M	loam	manganese masses

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):	Hydric Soil Present?
Type: <u>none</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Depth (inches): _____	

Remarks: A layer that has a depleted matrix with 60 percent or more chroma of 2 or less and that has a minimum thickness of 5 cm (2 inches) if the 5 cm starts at a depth  $\leq$ 10 cm (4 inches) from the soil surface; in the sample, the depleted matrix is 50%. In closed depressions subject to ponding, 5 percent or more distinct or prominent redox concentrations occurring as soft masses or pore linings in a layer that is 5 cm (2 inches) or more thick and starts at a depth  $\leq$ 10 cm (4 inches) from the soil surface; in the sample, redox concentrations are at 50% as soft masses in a layer that is 3 inches thick and starts just below the soil surface.

## HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)	
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	

Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
(includes capillary fringe)			

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

Remarks:

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**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/21/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 021-B  
 Investigator(s): J. Wurlitzer, C. Battaglia, G. Kout & B. Christianson Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0-1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.7880929 Long: -121.4327074 Datum: NAD 83  
 Soil Map Unit Name: San Joaquin-Cometa sandy loams, 1-5% slopes NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes <u>X</u> No _____		

Remarks: Upland point paired to wetland #21. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek).

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				<b>Prevalence Index Worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____				
2. _____				
3. _____				
4. _____				
Total Cover				
Herb Stratum (Plot size: <u>r = 5 ft.</u> )				<b>Hydrophytic Vegetation Indicators:</b> _____ Dominance Test is >50% _____ Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Bromus hordeaceus</i>	80%	Yes	FACU	
2. <i>Erodium botrys</i>	5%		FACU	
3. <i>Elymus caput-medusae</i>	10%		NL	
4. <i>Holocarpha virgata</i>	1%		NL	
5. <i>Triteleia hyacinthina</i>	2%		FAC	
6. <i>Brodiaea coronaria</i>	1%		FAC	
7. <i>Vicia villosa ssp. varia</i>	1%		NL	
8. _____				
100% = Total Cover				
Woody Vine Stratum (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
1. _____				
2. _____				
Total Cover				
% Bare Ground in Herb Stratum	0%	% Cover of Biotic Crust	0%	

Remarks:

Sampling Point: 021-B

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Oxidized rhizospheres			



# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/23/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 026 A  
 Investigator(s): J. Wuriltzer, C. Battaglia, & B. Christianson Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 2%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.798197 Long: -121.432802 Datum: NAD 83  
 Soil Map Unit Name: Xerfluvents, hardpan substratum NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation       , Soil       , or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u>      </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u>      </u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>	
Wetland Hydrology Present?	Yes <u>X</u> No <u>      </u>	
Remarks: Wetland #26 - palustrine emergent marsh adjacent to perennial drainage feature. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek).		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
= Total Cover				
<b>Sapling/Shrub Stratum (Plot size: <u>      </u>)</b>				
1. <u>      </u>				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>      </u> x1 = <u>      </u> FACW species <u>      </u> x2 = <u>      </u> FAC species <u>      </u> x3 = <u>      </u> FACU species <u>      </u> x4 = <u>      </u> UPL species <u>      </u> x5 = <u>      </u> Column Totals: (A) <u>      </u> (B) <u>      </u> Prevalence Index = B/A = <u>      </u>
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
5. <u>      </u>				
= Total Cover				
<b>Herb Stratum (Plot size: <u>1 = 10 ft</u>)</b>				
1. <u>Paspalum distichum</u>	30%	Yes	FACW	<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is >50% <u>      </u> Prevalence Index is ≤3.0 <sup>1</sup> <u>      </u> Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>      </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Eleocharis macrostachya (palustris)</u>	20%	Yes	OBL	
3. <u>Typha latifolia</u>	10%		OBL	
4. <u>Lythrum hyssopifolium</u>	3%		OBL	
5. <u>Vicia villosa ssp. varia</u>	1%		NL	
6. <u>Cyperus eragrostis</u>	1%		FACW	
7. <u>Rumex crispus</u>	1%		FAC	
8. <u>Juncus effusus</u>	1%		FACW	
9. <u>Festuca perennis (l. olium perenne)</u>	10%		FAC	
80% = Total Cover				
<b>Woody Vine Stratum (Plot size: <u>      </u>)</b>				
1. <u>      </u>				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>      </u>
2. <u>      </u>				
= Total Cover				
% Bare Ground in Herb Stratum <u>20%</u>	% Cover of Biotic Crust <u>0%</u>			
Remarks:				

Sampling Point: 026-A

HYDROLOGY									
<b>Wetland Hydrology Indicators:</b>									
<b>Primary Indicators</b> (minimum of one required; check all that apply)					<b>Secondary Indicators</b> (2 or more required)				
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/>	<input type="checkbox"/> Salt Crust (B11)			<input type="checkbox"/>	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/>	<input type="checkbox"/> Biotic Crust (B12)			<input type="checkbox"/>	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )			
<input type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/>	<input type="checkbox"/> Aquatic Invertebrates (B13)			<input type="checkbox"/>	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )			
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/>	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)			<input type="checkbox"/>	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/>	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)			<input type="checkbox"/>	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/>	<input type="checkbox"/> Presence of Reduced Iron (C4)			<input type="checkbox"/>	<input type="checkbox"/> Crayfish Burrows (C8)			
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/>	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)			<input type="checkbox"/>	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/>	<input type="checkbox"/> Thin Muck Surface (C7)			<input type="checkbox"/>	<input type="checkbox"/> Shallow Aquitard (D3)			
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/>	<input type="checkbox"/> Other (Explain in Remarks)			<input type="checkbox"/>	<input type="checkbox"/> FAC-Neutral Test (D5)			
<b>Field Observations:</b>									
Surface Water Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <input type="text"/>						
Water Table Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <input type="text"/>						
Saturation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): <input type="text"/> 10-11 bgs						
(includes capillary fringe)			<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>						
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:									
Remarks: Crayfish burrows. Sample is on the edge of a cattail marsh (palustrine emergent wetland) that is inundated year-round									

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/23/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 026-B  
 Investigator(s): J. Wurltzer, C. Battaglia, & B. Christianson Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 2%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.79109 Long: -121.442648 Datum: NAD 83  
 Soil Map Unit Name: Cometa-Tiddymint complex, 1-5% slopes NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation       , Soil X, or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>      </u> No <u>X</u>	Is the Sampled Area within a Wetland?	Yes <u>      </u> No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>		
Wetland Hydrology Present?	Yes <u>      </u> No <u>X</u>		
Remarks: Upland point paired to wetland #26. Site has been historically and regularly disked and farmed for hay. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek).			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
	=Total Cover			
<b>Sapling/Shrub Stratum (Plot size: <u>      </u>)</b>				
1. <u>      </u>				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>      </u> x1 = <u>      </u> FACW species <u>      </u> x2 = <u>      </u> FAC species <u>      </u> x3 = <u>      </u> FACU species <u>      </u> x4 = <u>      </u> UPL species <u>      </u> x5 = <u>      </u> Column Totals: (A) <u>      </u> (B) <u>      </u> Prevalence Index = B/A = <u>      </u>
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
5. <u>      </u>				
	=Total Cover			
<b>Herb Stratum (Plot size: <u>1 = 10 ft</u>)</b>				
1. <u>Cynodon dactylon</u>	40%	Yes	FACU	<b>Hydrophytic Vegetation Indicators:</b> Dominance Test is >50% <u>      </u> Prevalence Index is ≤3.0 <sup>1</sup> <u>      </u> Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Vicia villosa ssp. varia</u>	35%	Yes	NL	
3. <u>Bromus diandrus</u>	15%		NL	
4. <u>Cyperus eragrostis</u>	1%		FACW	
5. <u>Bromus hordeaceus</u>	3%		FACU	
6. <u>Trifolium hirtum</u>	2%		NL	
7. <u>Festuca perennis [Lotium perenne]</u>	2%		FAC	
8. <u>Geranium dissectum</u>	4%		NL	
9. <u>      </u>				
	102% =Total Cover			
<b>Woody Vine Stratum (Plot size: <u>      </u>)</b>				
1. <u>      </u>				<b>Hydrophytic Vegetation Present?</b> Yes <u>      </u> No <u>X</u>
2. <u>      </u>				
	=Total Cover			
% Bare Ground in Herb Stratum <u>0%</u>	% Cover of Biotic Crust <u>0%</u>			
Remarks:				

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Sampling Point: 026-B

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (2 or more required)</b>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: No indicators of hydrology			

**WETLAND DETERMINATION DATA FORM - Arid West Region**

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/23/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 27  
 Investigator(s): J. Wurlitzer & B. Christianson Section, Township, Range: 20 11N SE  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0-1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.791022 Long: -121.443495 Datum: NAD 83  
 Soil Map Unit Name: Cometa-Fiddymont complex, 1-5% slopes NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No _____		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		
Remarks: Sample #27. Site has been historically and regularly disked and farmed for hay. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek).			

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
= Total Cover				<b>Prevalence Index Worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x1 = <u>0</u> FACW species <u>0</u> x2 = <u>0</u> FAC species <u>48</u> x3 = <u>144</u> FACU species <u>52</u> x4 = <u>208</u> UPL species <u>3</u> x5 = <u>15</u> Column Totals: <u>103</u> (A) <u>367</u> (B) Prevalence Index = B/A = <u>3.6</u>
<b>Sapling/Shrub Stratum</b> (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
= Total Cover				
<b>Herb Stratum</b> (Plot size: <u>1 = 6 ft</u> )				<b>Hydrophytic Vegetation Indicators:</b> Dominance Test is >50% _____ Prevalence Index is <3.0 <sup>1</sup> _____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>2</sup> (Explain) _____ <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Festuca perennis</i> ( <i>Lolium perenne</i> )	45%	Yes	FAC	
2. <i>Lactuca serriola</i>	8%		FACU	
3. <i>Bromus hordeaceus</i>	5%		FACU	
4. <i>Vicia sativa</i>	38%	Yes	FACU	
5. <i>Elymus caput medusae</i>	3%		NI	
6. <i>Hordeum marinum</i>	3%		FAC	
7. <i>Erodium botrys</i>	1%		FACU	
8. _____				
9. _____				
= Total Cover				
<b>Woody Vine Stratum</b> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
1. _____				
2. _____				
= Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>	% Cover of Biotic Crust <u>0%</u>			
Remarks: Vegetation is regularly disturbed and sample taken in abnormally dry year.				

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## SOIL

Sampling Point: \_\_\_\_\_

27

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	7.5YR 4/3	87	5YR 5/8	10	C	M	loam	
-	-	-	5YR 2.5/1	7	C	M	-	
5-11	10YR 4/3	75	2.5YR 4/8	7	PL	M	loam	
			2.5YR 4/8	8	C	M		
			5YR 2.5/1	10	C	M		manganese masses

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):	Hydric Soil Present?
Type: <u>none</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Depth (inches): _____	

Remarks: In closed depressions subject to ponding, 5 percent or more distinct or prominent redox concentrations occurring as soft masses or pore linings in a layer that is 5 cm (2 inches) or more thick and starts at a depth  $\leq 10$  cm (4 inches) from the soil surface; sample is from a closed depressional feature with 17% prominent redox concentrations occurring as soft masses in a layer that is 5 inches thick and starts just below the soil surface. This indicator occurs on depressional landforms, such as vernal pools, playa lakes, rainwater basins, "Grady" ponds, and potholes

## HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)	
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	

Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
(includes capillary fringe)			

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

Remarks: No indicators of hydrology

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# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/23/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 028 A  
 Investigator(s): J. Wuriltzer, C. Battaglia, & B. Christianson Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78775 Long: -121.446225 Datum: NAD 83  
 Soil Map Unit Name: Cometa-Tiddymint complex, 1-5% slopes NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u>      </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u>      </u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>	
Wetland Hydrology Present?	Yes <u>X</u> No <u>      </u>	
Remarks: Wetland #28. Site has been historically and regularly disked and farmed for hay. Tire tracks visible inside feature. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek)		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67%</u> (A/B)
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>      </u> x1 = <u>      </u> FACW species <u>      </u> x2 = <u>      </u> FAC species <u>      </u> x3 = <u>      </u> FACU species <u>      </u> x4 = <u>      </u> UPL species <u>      </u> x5 = <u>      </u> Column Totals: (A) <u>      </u> (B) <u>      </u> Prevalence Index = B/A = <u>      </u>
<u>      </u> = Total Cover				
<u>      </u> = Total Cover				
<u>      </u> = Total Cover				
<u>      </u> = Total Cover				
<b>Herb Stratum (Plot size: <u>1 = 8 ft.</u>)</b>				
1. <u>Plagiobothrys greeneri</u>	15%	Yes	FACW	<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is >50% <u>      </u> Prevalence Index is ≤3.0 <sup>1</sup>  Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Castilleja campestris</u>	15%	Yes	FACW	
3. <u>Leontodon saxatilis</u>	20%	Yes	FACU	
4. <u>Holocarpha virgata</u>	12%		NL	
5. <u>Briza minor</u>	3%		FAC	
6. <u>Aira caryophylla</u>	2%		FACU	
7. <u>Gratiola ebracteata</u>	2%			
8. <u>Juncus butonius</u>	1%			
<u>70%</u> = Total Cover				
<u>      </u> = Total Cover				
<b>Woody/Vine Stratum (Plot size: <u>      </u>)</b>				
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>      </u>
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
% Bare Ground in Herb Stratum <u>25%</u> % Cover of Biotic Crust <u>0%</u>				
Remarks: 20% moss cover of ground.				

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Sampling Point: 028-A

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (2 or more required)</b>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Inundation visible on 2/2014 aerial.			



# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/23/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 028-B  
 Investigator(s): J. Wuriltzer, C. Battaglia, & B. Christianson Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78771 Long: -121.446285 Datum: NAD 83  
 Soil Map Unit Name: Cometa-Fiddymert complex, 1-5% slopes NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation       , Soil X, or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>      </u> No <u>X</u>	Is the Sampled Area within a Wetland?	Yes <u>      </u> No <u>X</u>
Hydric Soil Present?	Yes <u>      </u> No <u>X</u>		
Wetland Hydrology Present?	Yes <u>      </u> No <u>X</u>		
Remarks: Upland point paired to wetland 28. Site has been historically and regularly disked and farmed for hay. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date. When normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek)			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
			=Total Cover	
<b>Sapling/Shrub Stratum (Plot size: <u>      </u>)</b>				
1. <u>      </u>				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>      </u> x1 = <u>      </u> FACW species <u>      </u> x2 = <u>      </u> FAC species <u>      </u> x3 = <u>      </u> FACU species <u>      </u> x4 = <u>      </u> UPL species <u>      </u> x5 = <u>      </u> Column Totals: (A) <u>      </u> (B) <u>      </u> Prevalence Index = B/A = <u>      </u>
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
5. <u>      </u>				
			=Total Cover	
<b>Herb Stratum (Plot size: <u>1 = 8 ft.</u>)</b>				
1. <u>Bromus hordeaceus</u>	50%	YES	FACU	<b>Hydrophytic Vegetation Indicators:</b> Dominance Test is >50% <u>      </u> Prevalence Index is ≤3.0 <sup>1</sup> <u>      </u> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>      </u> <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Erodium botrys</u>	10%		FACU	
3. <u>Holocarpha virgata</u>	5%		NL	
4. <u>Leontodon saxatilis</u>	5%		FACU	
5. <u>Acmispon americanus</u>	3%		UPL	
6. <u>Festuca [Vulpia] bromoides</u>	15%		FACU	
7. <u>Briza minor</u>	3%		FAC	
8. <u>      </u>				
			91% =Total Cover	
<b>Woody/Vine Stratum (Plot size: <u>      </u>)</b>				
1. <u>      </u>				
2. <u>      </u>				
			=Total Cover	
% Bare Ground in Herb Stratum <u>9%</u>	% Cover of Biotic Crust <u>0%</u>	<b>Hydrophytic Vegetation Present?</b> Yes <u>      </u> No <u>X</u>		
Remarks: 20% moss cover of ground.				

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Sampling Point: 028-B

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<b>Primary Indicators</b> (minimum of one required; check all that apply)		<b>Secondary Indicators</b> (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: no hydrology indicators			

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/23/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 029 A  
 Investigator(s): J. Wurltzer, C. Battaglia, & B. Christianson Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 2-5%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78798 Long: -121.44897 Datum: NAD 83  
 Soil Map Unit Name: Cometa-Tiddymint complex, 1-5% slopes NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation       , Soil X, or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u>      </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u>      </u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>	
Wetland Hydrology Present?	Yes <u>X</u> No <u>      </u>	
Remarks: Wetland #29. Site has been historically and regularly disked and farmed for hay. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek)		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
=Total Cover				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>      </u> x1 = <u>      </u> FACW species <u>      </u> x2 = <u>      </u> FAC species <u>      </u> x3 = <u>      </u> FACU species <u>      </u> x4 = <u>      </u> UPL species <u>      </u> x5 = <u>      </u> Column Totals: (A) <u>      </u> (B) <u>      </u> Prevalence Index = B/A = <u>      </u>
<b>Sapling/Shrub Stratum (Plot size: <u>      </u>)</b> 1. <u>      </u> 2. <u>      </u> 3. <u>      </u> 4. <u>      </u> 5. <u>      </u> =Total Cover				
<b>Herb Stratum (Plot size: <u>1 = 10 ft</u>)</b> 1. <u>Festuca perennis (Lolium perenne)</u> 80% Yes FAC 2. <u>Lactuca serriola</u> 10% FACU 3. <u>Rumex crispus</u> 5% FAC 4. <u>Convolvulus arvensis</u> 2% NL 5. <u>Plagiobothrys stipitatus</u> 1% FACW 6. <u>Hordeum marinum</u> 1% FAC 7. <u>Hypochaeris radicata</u> 1% FACU 8. <u>      </u> =Total Cover 100%				
<b>Woody Vine Stratum (Plot size: <u>      </u>)</b> 1. <u>      </u> 2. <u>      </u> =Total Cover				
% Bare Ground in Herb Stratum <u>0%</u> % Cover of Biotic Crust <u>0%</u>				
<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is >50% <u>      </u> Prevalence Index is ≤3.0 <sup>1</sup> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)				
<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>      </u>				
Remarks:				

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Sampling Point: 029-A

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (2 or more required)</b>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
(includes capillary fringe)			
		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Inundation visible on 2/2014 imagery.			

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/30/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 029 B  
 Investigator(s): J. Wuriltzer and O. Rout Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78880374 Long: -121.4483532 Datum: NAD 83  
 Soil Map Unit Name: Cometa-Tiddymint complex, 1-5% slopes NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>      </u> No <u>X</u>	Is the Sampled Area within a Wetland?	Yes <u>      </u> No <u>X</u>
Hydric Soil Present?	Yes <u>      </u> No <u>X</u>		
Wetland Hydrology Present?	Yes <u>      </u> No <u>X</u>		
Remarks: Upland point paired to wetland #29. Site has been historically and regularly disked and farmed for hay. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date. When normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek)			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
			=Total Cover	
<b>Sapling/Shrub Stratum (Plot size: <u>      </u>)</b>				
1. <u>      </u>				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>      </u> x1 = <u>      </u> FACW species <u>      </u> x2 = <u>      </u> FAC species <u>      </u> x3 = <u>      </u> FACU species <u>      </u> x4 = <u>      </u> UPL species <u>      </u> x5 = <u>      </u> Column Totals: (A) <u>      </u> (B) <u>      </u> Prevalence Index = B/A = <u>      </u>
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
5. <u>      </u>				
			=Total Cover	
<b>Herb Stratum (Plot size: <u>1 = 6 ft.</u>)</b>				
1. <u>Avena fatua</u>	50%	Yes	NL	<b>Hydrophytic Vegetation Indicators:</b> Dominance Test is >50% <u>      </u> Prevalence Index is ≤3.0 <sup>1</sup> <u>      </u> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>      </u> <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Elymus caput-medusae</u>	25%		NL	
3. <u>Bromus hordeaceus</u>	5%		FACU	
4. <u>Holocarpha virgata</u>	3%		NL	
5. <u>Erodium botrys</u>	5%		FACU	
6. <u>Lactuca serriola</u>	2%		FACU	
7. <u>Leontodon saxatilis</u>	2%		FACU	
8. <u>      </u>				
			92% =Total Cover	
<b>Woody/Vine Stratum (Plot size: <u>      </u>)</b>				
1. <u>      </u>				<b>Hydrophytic Vegetation Present?</b> Yes <u>      </u> No <u>X</u>
2. <u>      </u>				
			=Total Cover	
% Bare Ground in Herb Stratum <u>0%</u>		% Cover of Biotic Crust <u>0%</u>		

Remarks: About 8% of ground cover is medusahed thatch

Sampling Point: 029-B

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<b>Primary Indicators</b> (minimum of one required; check all that apply)		<b>Secondary Indicators</b> (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)			
		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: No hydrology indicators			

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/26/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 031-A  
 Investigator(s): J. Wuriltzer and T. Torrez Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 2%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78838069 Long: -121.4364595 Datum: NAD 83  
 Soil Map Unit Name: Xerluvents, hardpan substratum NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation       , Soil X, or Hydrology        significantly disturbed? Are 'Normal Circumstances' present? Yes X No         
 Are Vegetation       , Soil       , or Hydrology X 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 <u>X</u> No <u>      </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u>      </u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>	
Wetland Hydrology Present?	Yes <u>X</u> No <u>      </u>	
Remarks: Sample point taken from wetland #31, and also applies to conditions of wetland #30. These wetlands are close to the northern boundary of a perennial drainage/creek and appear to receive hydrology from this drainage/creek when it floods, which may happen in the winter and also in the spring/summer when the nearby rice fields are flooded. Site has been historically disturbed by burning activities. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek)		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
	<u>      </u> = Total Cover			
<b>Sapling/Shrub Stratum (Plot size: <u>      </u>)</b>				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>      </u> x1 = <u>      </u> FACW species <u>      </u> x2 = <u>      </u> FAC species <u>      </u> x3 = <u>      </u> FACU species <u>      </u> x4 = <u>      </u> UPL species <u>      </u> x5 = <u>      </u> Column Totals: <u>      </u> (A) <u>      </u> (B) Prevalence Index = B/A = <u>      </u>
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
	<u>      </u> = Total Cover			
<b>Herb Stratum (Plot size: <u>1 = 6 ft.</u>)</b>				<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is >50% <u>      </u> Prevalence Index is ≤3.0 <sup>1</sup>  Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
1. <u>Epilobium brachycarpum</u>	25%	Yes	FAC	
2. <u>Eleocharis macrostachya (palustris)</u>	38%	Yes	OBL	
3. <u>Hordeum marinum</u>	8%		FAC	
4. <u>Lactuca serriola</u>	8%		FACU	
5. <u>Festuca perennis (Lolium perenne)</u>	5%		FAC	
6. <u>Rumex crispus</u>	2%		FAC	
7. <u>Acmispon americanus</u>	1%		UPL	
8. <u>      </u>				
	<u>87%</u> = Total Cover			
<b>Woody/Vine Stratum (Plot size: <u>      </u>)</b>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>      </u>				
2. <u>      </u>				
	<u>      </u> = Total Cover			
% Bare Ground in Herb Stratum <u>13%</u>	% Cover of Biotic Crust <u>0%</u>			<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>      </u>
Remarks:				

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Sampling Point: 031-A

## HYDROLOGY

Primary Indicators (minimum of one required; check all that apply)				Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )			
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)			
<b>Field Observations:</b>					
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):			
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):			
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):			
(includes capillary fringe)				<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks: Inundation visible on 8/2012 aerial					



# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/26/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 031 B  
 Investigator(s): J. Wuritzer, O. Routh and T. Torrez Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): convex Slope (%): 5%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78843647 Long: -121.4363873 Datum: NAD 83  
 Soil Map Unit Name: Cometa-Tiddymint complex, 1-5% slopes NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation       , Soil X, or Hydrology        significantly disturbed? Are 'Normal Circumstances' present? Yes X No         
 Are Vegetation       , Soil X, 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 <u>      </u> No <u>X</u>	Is the Sampled Area within a Wetland?	Yes <u>      </u> No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>		
Wetland Hydrology Present?	Yes <u>      </u> No <u>X</u>		
Remarks: Upland point paired to wetlands #30, #31, and #32. Site has been historically bermed; it is part of an upland terrace north of a perennial drainage/creek and often is flooded in spring/summer due to rice field operations. Abnormally low rainfall totals for the season: only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek)			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
=Total Cover				
Sapling/Shrub Stratum (Plot size: <u>      </u> )				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>      </u> x1 = <u>      </u> FACW species <u>      </u> x2 = <u>      </u> FAC species <u>      </u> x3 = <u>      </u> FACU species <u>      </u> x4 = <u>      </u> UPL species <u>      </u> x5 = <u>      </u> Column Totals: <u>      </u> (A) <u>      </u> (B) Prevalence Index = B/A = <u>      </u>
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
=Total Cover				
Herb Stratum (Plot size: <u>1 = 6 ft.</u> )				<b>Hydrophytic Vegetation Indicators:</b> Dominance Test is >50% <u>      </u> Prevalence Index is ≤3.0 <sup>1</sup> <u>      </u> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Vicia villosa ssp. varia</i>	60%	Yes	NL	
2. <i>Bromus diandrus</i>	25%		NL	
3. <i>Geranium dissectum</i>	2%		NL	
4. <i>Festuca perennis (Lolium perenne)</i>	2%		FAC	
5. <i>Epilobium brachycarpum</i>	1%			
6. <i>Bromus hordeaceus</i>	1%		FACU	
7. <i>Erodium botrys</i>	3%		FACU	
8. <u>      </u>				
94% =Total Cover				
Woody Vine Stratum (Plot size: <u>      </u> )				<b>Hydrophytic Vegetation Present?</b> Yes <u>      </u> No <u>X</u>
1. <u>      </u>				
2. <u>      </u>				
=Total Cover				
% Bare Ground in Herb Stratum <u>10%</u>		% Cover of Biotic Crust <u>0%</u>		
Remarks:				

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Sampling Point: 031-B

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<b>Primary Indicators</b> (minimum of one required; check all that apply)		<b>Secondary Indicators</b> (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)			
		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: No hydrology indicators			

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/26/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 032-A  
 Investigator(s): J. Wurlitzer, O. Routh and T. Torrez Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 0-1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78883428 Long: -121.4370025 Datum: NAD 83  
 Soil Map Unit Name: Concilia-Fiddymint complex, 1-5% slopes NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation        Soil X or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes X No         
 Are Vegetation        Soil        or Hydrology X 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 <u>X</u> No <u>      </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u>      </u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>	
Wetland Hydrology Present?	Yes <u>X</u> No <u>      </u>	
Remarks: Wetland #32; upland point corresponds to sample 031-B. Site has been historically bermed; it is part of an upland terrace north of a perennial drainage/creek and often is flooded in spring/summer due to rice field operations. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek).		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67%</u> (A/B)
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>      </u> )				Prevalence Index Worksheet:
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	Total % Cover of: <u>      </u> Multiply by: <u>      </u>
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	OBL species <u>      </u> x1 = <u>      </u>
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	FACW species <u>      </u> x2 = <u>      </u>
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	FAC species <u>      </u> x3 = <u>      </u>
5. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	FACU species <u>      </u> x4 = <u>      </u>
<u>      </u> = Total Cover				UPL species <u>      </u> x5 = <u>      </u>
				Column Totals: (A) <u>      </u> (B) <u>      </u>
				Prevalence Index = B/A = <u>      </u>
Herb Stratum (Plot size: <u>1 = 10 ft. x 10 ft.</u> )				Hydrophytic Vegetation Indicators:
1. <u>Festuca perennis (Folium perenne)</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	<u>X</u> Dominance Test is >50%
2. <u>Epilobium brachycarpum</u>	<u>15%</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index is ≤3.0 <sup>1</sup>
3. <u>Lactuca serriola</u>	<u>12%</u>	<u>Yes</u>	<u>FACU</u>	
4. <u>Trifolium hyacinthina</u>	<u>5%</u>	<u>      </u>	<u>FAC</u>	
5. <u>Lupinus bicolor</u>	<u>3%</u>	<u>      </u>	<u>NL</u>	
6. <u>Geranium dissectum</u>	<u>5%</u>	<u>      </u>	<u>NL</u>	
7. <u>Hordeum maritimum</u>	<u>3%</u>	<u>      </u>	<u>FAC</u>	
8. <u>Trifolium dubium</u>	<u>5%</u>	<u>      </u>	<u>UPL</u>	
9. <u>Achyrocline mollis</u>	<u>3%</u>	<u>      </u>	<u>FAC</u>	
10. <u>Plantago lanceolata</u>	<u>1%</u>	<u>      </u>	<u>FAC</u>	
11. <u>Rumex crispus</u>	<u>1%</u>	<u>      </u>	<u>FAC</u>	
12. <u>Leontodon saxatilis</u>	<u>2%</u>	<u>      </u>	<u>FACU</u>	
<u>78%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>      </u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
% Bare Ground in Herb Stratum <u>22%</u> % Cover of Biotic Crust <u>0%</u>				Hydrophytic Vegetation Present? Yes <u>X</u> No <u>      </u>
Remarks:				

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Arid West - Version 2.0

Sampling Point: 032-A

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (2 or more required)</b>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Clay layer at 10-14 inches bgs is moist			

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/26/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 035-A  
 Investigator(s): J. Wurlitzer, O. Routt and T. Torrez Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 0.1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.79004721 Long: -121.4367788 Datum: NAD 83  
 Soil Map Unit Name: San Joaquin-Coneta sandy loams, 1-5% slopes NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation       , Soil X, or Hydrology        significantly disturbed? Are 'Normal Circumstances' present? Yes X 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 <u>X</u> No <u>      </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u> No <u>      </u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>		
Wetland Hydrology Present?	Yes <u>X</u> No <u>      </u>		
Remarks: Wetland #35; sample is also representative of wetlands #33 and #34. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek).			

## VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>      </u> )				
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
<b>Sapling/Shrub Stratum</b> (Plot size: <u>      </u> )				
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>      </u> x1 = <u>      </u> FACW species <u>      </u> x2 = <u>      </u> FAC species <u>      </u> x3 = <u>      </u> FACU species <u>      </u> x4 = <u>      </u> UPL species <u>      </u> x5 = <u>      </u> Column Totals: <u>      </u> (A) <u>      </u> (B) Prevalence Index = B/A = <u>      </u>
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
5. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
<b>Herb Stratum</b> (Plot size: <u>r = 5 ft.</u> )				
1. <u>Lasthenia fremontii</u>	22%	Yes	OBL	<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is >50% Prevalence Index is ≤3.0 <sup>1</sup> Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
2. <u>Festuca perennis</u> [t. <u>olium perenne</u> ]	12%	Yes	FAC	
3. <u>Ranunculus donariensis</u>	5%	<u>      </u>	OBL	
4. <u>Psilocarphus oregonus</u>	5%	<u>      </u>	OBL	
5. <u>Leontodon saxatilis</u>	10%	<u>      </u>	FACU	
6. <u>Briza minor</u>	5%	<u>      </u>	FAC	
7. <u>Plagiobothrys stipitatus</u>	5%	<u>      </u>	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. <u>Hordeum maritimum</u>	2%	<u>      </u>	FAC	
<u>66%</u> = Total Cover				
<b>Woody Vine Stratum</b> (Plot size: <u>      </u> )				
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>      </u>
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
% Bare Ground in Herb Stratum <u>      </u>	% Cover of Biotic Crust <u>0%</u>			
Remarks: Vernal pool plant species				

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Sampling Point: 035-A

HYDROLOGY				
<b>Wetland Hydrology Indicators:</b>				
Primary Indicators (minimum of one required; check all that apply)			Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/>	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/>	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/>	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/>	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/>	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/>	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/>	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/>	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/>	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/>	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/>	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/>	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/>	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/>	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/>	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/>	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/>	<input type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b>				
Surface Water Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
Water Table Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
Saturation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
(includes capillary fringe)			Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks: Small vernal pool				

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site:	60656629 SMUD Country Acres Solar		City/County:	Placer County		Sampling Date:	04/27/21	
Applicant/Owner:	SMUD		State:	CA		Sampling Point:	034.B	
Investigator(s):	J. Wuritzer and O. Rout		Section, Township, Range:	20 11N 5E				
Landform (hillslope, terrace, etc.):	Terrace		Local relief (concave, convex, none):	concave		Slope (%):	0-1%	
Subregion (LRR):	Mediterranean California (LRR C)		Lat:			Long:		
Soil Map Unit Name:	San Joaquin-Cometa sandy loams, 1-5% slopes		NWI Classification:	n/a				
Are climatic / hydrologic conditions on the site typical for this time of year?			Yes		No <input checked="" type="checkbox"/>		(If no, explain in Remarks.)	
Are Vegetation	<input checked="" type="checkbox"/>	Soil <input checked="" type="checkbox"/>	or Hydrology	<input checked="" type="checkbox"/>	significantly disturbed?	Are 'Normal Circumstances' present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Are Vegetation	<input type="checkbox"/>	Soil <input type="checkbox"/>	or Hydrology	<input type="checkbox"/>	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	<u>X</u>	No		<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
Hydric Soil Present?	Yes	<u>X</u>	No		
Wetland Hydrology Present?	Yes		No	<u>X</u>	
Remarks: Upland point paired to wetland #34. Site has been historically bermed and ploughed. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021). Located about 3 miles west of project site along Pleasant Grove Creek.					

**VEGETATION** – Use scientific names of plants.

Tree Stratum (Plot size: _____)			Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1.						Number of Dominant Species That Are OBL, FACW, or FAC:	1 (A)
2.						Total Number of Dominant Species Across All Strata:	1 (B)
3.						Percent of Dominant Species That Are OBL, FACW, or FAC:	100% (A/B)
4.							
			= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)						Prevalence Index Worksheet:	
1.						Total % Cover of:	Multiply by:
2.						OBL species _____	x1 = _____
3.						FACW species _____	x2 = _____
4.						FAC species _____	x3 = _____
5.						FACU species _____	x4 = _____
			= Total Cover			UPL species _____	x5 = _____
						Column Totals:	(A) _____ (B) _____
Herb Stratum (Plot Size: 1 = 6 ft.)						Prevalence Index = B/A = _____	
1.	<i>Hordeum marinum</i>		35%	Yes	FAC		
2.	<i>Erodium botrys</i>		8%		FACU		
3.	<i>Holocarpha virgata</i>		8%		NL		
4.	<i>Leontodon saxatilis</i>		5%		FACU		
5.	<i>Triteleia hyacinthina</i>		1%		FAC		
6.	<i>Lupinus bicolor</i>		1%		NL		
7.	<i>Elymus caput-medusae</i>		3%		NL		
8.	<i>Centromadia fitchii</i>		1%		FACU		
			= Total Cover				
Woody Vine Stratum (Plot size: _____)						Hydrophytic Vegetation Indicators:	
1.						X	Dominance Test is >50%
2.							Prevalence Index is ≤3.0 <sup>1</sup>
			= Total Cover				
% Bare Ground in Herb Stratum			38%	% Cover of Biotic Crust		0%	
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.							
Hydrophytic Vegetation Present?						Yes	X No
Remarks:							

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Sampling Point: 034-B

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<b>Primary Indicators</b> (minimum of one required; check all that apply)		<b>Secondary Indicators</b> (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: No hydrology indicators			



# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/26/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 035-B  
 Investigator(s): J. Wuriltzer, T. Torrez, and O. Roult Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): convex Slope (%): 2%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.79001778 Long: -121.4368313 Datum: NAD 83  
 Soil Map Unit Name: San Joaquin-Coneta sandy loams, 1-5% slopes NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation       , Soil X, or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u>      </u>	Is the Sampled Area within a Wetland? Yes <u>      </u> No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>	
Wetland Hydrology Present?	Yes <u>      </u> No <u>X</u>	
Remarks: Upland point paired to wetlands #33 and #35. Site has been historically bermed and ploughed. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek)		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
=Total Cover				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>      </u> x1 = <u>      </u> FACW species <u>      </u> x2 = <u>      </u> FAC species <u>      </u> x3 = <u>      </u> FACU species <u>      </u> x4 = <u>      </u> UPL species <u>      </u> x5 = <u>      </u> Column Totals: (A) <u>      </u> (B) <u>      </u> Prevalence Index = B/A = <u>      </u>
<b>Sapling/Shrub Stratum (Plot size: <u>      </u>)</b> 1. <u>      </u> 2. <u>      </u> 3. <u>      </u> 4. <u>      </u> 5. <u>      </u> =Total Cover				
<b>Herb Stratum (Plot size: <u>1 x 6 ft.</u>)</b> 1. <u>Avena fatua</u> 25% Yes NL 2. <u>Elymus caput-medusae</u> 20% Yes NL 3. <u>Bromus hordeaceus</u> 20% Yes FACU 4. <u>Vicia villosa ssp. varia</u> 15% NL 5. <u>Bromus diandrus</u> 10% NL 6. <u>Rumex crispus</u> 1% FAC 7. <u>Erodium botrys</u> 3% FACU 8. <u>      </u> =Total Cover 94%				
<b>Woody/Vine Stratum (Plot size: <u>      </u>)</b> 1. <u>      </u> 2. <u>      </u> =Total Cover <u>      </u> % Bare Ground in Herb Stratum <u>6%</u> % Cover of Biotic Crust <u>0%</u>				
<b>Hydrophytic Vegetation Indicators:</b> Dominance Test is >50% <u>      </u> Prevalence Index is ≤3.0 <sup>1</sup> <u>      </u> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>      </u> <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
<b>Hydrophytic Vegetation Present?</b> Yes <u>      </u> No <u>X</u>				
Remarks: <u>      </u>				

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Sampling Point: 035-B

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<b>Primary Indicators</b> (minimum of one required; check all that apply)		<b>Secondary Indicators</b> (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: no hydrology indicators			

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/27/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 026-C  
 Investigator(s): T. Torrez and C. Battaglia Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 2%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.79138 Long: 121.43874 Datum: NAD 83  
 Soil Map Unit Name: Xerluvents, hardpan substratum NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation       , Soil X, or Hydrology        significantly disturbed? Are 'Normal Circumstances' present? Yes X 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 <u>X</u> No <u>      </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u> No <u>      </u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>		
Wetland Hydrology Present?	Yes <u>X</u> No <u>      </u>		
Remarks: Sample from East Side of wetland #26. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 09, 2021, located about 3 miles west of project site along Pleasant Grove Creek)			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u> Total Cover
<b>Sapling/Shrub Stratum (Plot size: <u>      </u>)</b>				
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>      </u> x1 = <u>      </u> FACW species <u>      </u> x2 = <u>      </u> FAC species <u>      </u> x3 = <u>      </u> FACU species <u>      </u> x4 = <u>      </u> UPL species <u>      </u> x5 = <u>      </u> Column Totals: <u>      </u> (A) <u>      </u> (B) Prevalence Index = B/A = <u>      </u>
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
5. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> Total Cover				
<b>Herb Stratum (Plot size: <u>r = 5 ft.</u>)</b>				
1. <u>Polypogon monspeliensis</u>	20%	Yes	FACW	<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is >50% Prevalence Index is ≤3.0 <sup>1</sup> Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Typha latifolia</u>	15%	Yes	OBL	
3. <u>Juncus effusus</u>	10%	<u>      </u>	FACW	
4. <u>Geranium dissectum</u>	10%	<u>      </u>	NL	
5. <u>Festuca perennis (Lolium perenne)</u>	15%	Yes	FAC	
6. <u>Plantago lanceolata</u>	5%	<u>      </u>	FAC	
7. <u>Eleocharis macrostachya (palustris)</u>	5%	<u>      </u>	OBL	
8. <u>Lithrum hyssopifolium</u>	3%	<u>      </u>	OBL	
<u>83%</u> = Total Cover				
<b>Woody/Vine Stratum (Plot size: <u>      </u>)</b>				
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>      </u>
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> Total Cover				
% Bare Ground in Herb Stratum	17%	% Cover of Biotic Crust	0%	
Remarks: <u>      </u>				

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Sampling Point: 026-C

HYDROLOGY				
<b>Wetland Hydrology Indicators:</b>				
Primary Indicators (minimum of one required; check all that apply)			Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/>	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/>	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/>	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/>	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/>	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/>	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/>	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/>	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/>	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/>	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/>	<input type="checkbox"/> Crayfish Burrows (C8)
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/>	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/>	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/>	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/>	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/>	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/>	<input type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b>				
Surface Water Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
Water Table Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
Saturation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
(includes capillary fringe)			Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks: Edge of perennial cattail marsh				

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/27/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 026 D  
 Investigator(s): T. Torrez and C. Battaglia Section, Township, Range: 20 11N SE  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0.1%  
 Subregion (LR/R): Mediterranean California (LR/R C) Lat: 38.791343 Long: 121.43875 Datum: NAD 83  
 Soil Map Unit Name: Xerofluvents, hardpan substratum NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil X, or Hydrology \_\_\_\_\_ significantly disturbed? Are 'Normal Circumstances' present? Yes X 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 <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		
Remarks: Upland point for east side of marsh (wetland #26), paired to wetland point 026-C. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek)			

## VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____)					
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
_____ Total Cover				<b>Prevalence Index Worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
_____ Total Cover					
<b>Herb Stratum</b> (Plot size: <u>r = 6 ft.</u> )					
1. <u>Bromus diandrus</u>	60%	Yes	NL	<b>Hydrophytic Vegetation Indicators:</b> _____ Dominance Test is >50% _____ Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. <u>Plantago lanceolata</u>	30%		FAC		
3. <u>Geranium dissectum</u>	2%		NL		
4. <u>Bromus hordeaceus</u>	1%		FACU		
5. <u>Elymus caput-medusae</u>	5%		NL		
6. <u>Rumex crispus</u>	1%		FAC		
7. <u>Vicia villosa ssp. varia</u>	1%		NL		
8. _____	106%				
_____ Total Cover					
<b>Woody Vine Stratum</b> (Plot size: _____)					
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>	
2. _____	_____	_____	_____		
_____ Total Cover					
% Bare Ground in Herb Stratum	0%	% Cover of Biotic Crust	0%		
Remarks:					

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Sampling Point: 026-D

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<b>Primary Indicators</b> (minimum of one required; check all that apply)		<b>Secondary Indicators</b> (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)			
		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: No hydrology indicators			

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/27/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 036 A  
 Investigator(s): O. Routt and J. Wulitzer Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 2%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78890863 Long: -121.4377304 Datum: NAD 83  
 Soil Map Unit Name: Xerollics, hardpan substratum NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation       , Soil X, or Hydrology X significantly disturbed? Are 'Normal Circumstances' present? Yes X No         
 Are Vegetation       , Soil       , or Hydrology X 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 <u>X</u> No <u>      </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u>      </u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>	
Wetland Hydrology Present?	Yes <u>X</u> No <u>      </u>	
Remarks: Wetland #36 - Site has been historically bermed. Sample point in area on the northern floodplain of a perennial drainage/creek, that floods in winter and also is influenced by artificial irrigation inputs from adjacent rice fields and thus floods in the dry season. This area likely connects to the drainage channel to the south and east. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek)		

## VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>      </u> )				
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
<b>Sapling/Shrub Stratum</b> (Plot size: <u>      </u> )				
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>      </u> x1 = <u>      </u> FACW species <u>      </u> x2 = <u>      </u> FAC species <u>      </u> x3 = <u>      </u> FACU species <u>      </u> x4 = <u>      </u> UPL species <u>      </u> x5 = <u>      </u> Column Totals: <u>      </u> (A) <u>      </u> (B) Prevalence Index = B/A = <u>      </u>
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
5. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
<b>Herb Stratum</b> (Plot size: <u>r = 10 ft</u> )				
1. <u>Rumex crispus</u>	30%	Yes	FAC	<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is >50% <u>      </u> Prevalence Index is ≤3.0 <sup>1</sup> <u>      </u> Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
2. <u>Festuca perennis [t. ovum perenne]</u>	15%	Yes	FAC	
3. <u>Plagiobothrys stipitatus</u>	12%	<u>      </u>	FACW	
4. <u>Polypogon monspeliensis</u>	7%	<u>      </u>	FACW	
5. <u>Ranunculus bonariensis</u>	3%	<u>      </u>	OBL	
6. <u>Phalaris aquatica</u>	2%	<u>      </u>	FACU	
7. <u>Juncus effusus</u>	10%	<u>      </u>	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. <u>Hordeum maritimum</u>	1%	<u>      </u>	FAC	
<u>      </u> = Total Cover				
<b>Woody Vine Stratum</b> (Plot size: <u>      </u> )				
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>      </u>
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
% Bare Ground in Herb Stratum	15%	% Cover of Biotic Crust	0%	
Remarks: <u>      </u>				

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Sampling Point: 036-A

HYDROLOGY				
<b>Wetland Hydrology Indicators:</b>				
<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )		
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )		
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )		
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)		
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)		
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)		
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)		
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)		
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)		
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			Depth (inches): <input type="text"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			Depth (inches): <input type="text"/>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			Depth (inches): <input type="text"/>
(includes capillary fringe)				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks: The bottom 2-3 inches of the soil pedon is moist				



# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/27/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 036 B  
 Investigator(s): J. Wurlitzer and O. Roult Section, Township, Range: 20 11N SE  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): convex Slope (%): 2%  
 Subregion (LR): Mediterranean California (LR C) Lat: 38.78904747 Long: -121.4376564 Datum: NAD 83  
 Soil Map Unit Name: Cometa-Fiddymint Complex NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_ Soil X or Hydrology \_\_\_\_\_ significantly disturbed? Are 'Normal Circumstances' present? Yes X 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 <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: Upland point paired to wetland #36. Point is on man-made berm north of drainage. Abnormally low rainfall totals for the season; only 4.02 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek)	

## VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____)					
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
Total Cover _____				<b>Prevalence Index Worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
Total Cover _____					
<b>Herb Stratum</b> (Plot size: <u>r = 6 ft.</u> )					
1. <u>Avena fatua</u>	20%	Yes	NL	<b>Hydrophytic Vegetation Indicators:</b> _____ Dominance Test is >50% _____ Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
2. <u>Bromus diandrus</u>	25%	Yes	NL		
3. <u>Erodium botrys</u>	15%	Yes	FACU		
4. <u>Elymus caput-medusae</u>	10%	_____	NL		
5. <u>Raphanus raphanistrum</u>	3%	_____	NL		
6. <u>Vicia villosa ssp. varia</u>	5%	_____	NL		
7. <u>Bromus hordeaceus</u>	10%	_____	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
8. <u>Convolvulus arvensis</u>	3%	_____	NL		
91% = Total Cover					
<b>Woody Vine Stratum</b> (Plot size: _____)					
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>	
2. _____	_____	_____	_____		
Total Cover _____					
% Bare Ground in Herb Stratum	9%	% Cover of Biotic Crust	0%		
Remarks:					

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Sampling Point: 036-B

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (2 or more required)</b>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: no hydrology indicators			

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/30/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 37  
 Investigator(s): J. Wuriltzer and O. Roult Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 0.1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.79083843 Long: -121.4490794 Datum: NAD 83  
 Soil Map Unit Name: Cometa-Fiddymint Complex NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation X Soil X or Hydrology        significantly disturbed? Are 'Normal Circumstances' present? Yes X 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 <u>      </u> No <u>X</u>	Is the Sampled Area within a Wetland?	Yes <u>      </u> No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>		
Wetland Hydrology Present?	Yes <u>      </u> No <u>X</u>		
Remarks: Sample point 37. Historic and recent disking and tilling of site. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek)			

## VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>      </u> )				
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
<b>Sapling/Shrub Stratum</b> (Plot size: <u>      </u> )				
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>0</u> x1 = <u>0</u> FACW species <u>1</u> x2 = <u>2</u> FAC species <u>40</u> x3 = <u>120</u> FACU species <u>28</u> x4 = <u>112</u> UPL species <u>2</u> x5 = <u>10</u> Column Totals: <u>71</u> (A) <u>244</u> (B) Prevalence Index = B/A = <u>3.4</u>
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
5. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
<b>Herb Stratum</b> (Plot size: <u>r = 6 ft</u> )				
1. <u>Festuca perennis (Lolium perenne)</u>	25%	Yes	FAC	<b>Hydrophytic Vegetation Indicators:</b> Dominance Test is >50% Prevalence Index is ≤3.0 <sup>1</sup> Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Lactuca serotina</u>	20%	Yes	FACU	
3. <u>Hordeum marinum</u>	15%	Yes	FAC	
4. <u>Eryngium yaseyi</u>	1%		FACW	
5. <u>Avena fatua</u>	1%		NL	
6. <u>Bromus diandrus</u>	1%		NL	
7. <u>Leontodon saxatilis</u>	5%		FACU	
8. <u>Erodium botrys</u>	3%		FACU	
<u>71%</u> = Total Cover				
<b>Woody/Vine Stratum</b> (Plot size: <u>      </u> )				
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<b>Hydrophytic Vegetation Present?</b> Yes <u>      </u> No <u>X</u>
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u> % Cover of Biotic Crust <u>0%</u>				
Remarks: 30% thatch cover (all thatch is Festuca perennis)				

US Army Corps of Engineers

Arid West - Version 2.0

## Sampling Point: \_\_\_\_\_ 37

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<b>Primary Indicators</b> (minimum of one required; check all that apply)		<b>Secondary Indicators</b> (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: No hydrology indicators			

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/30/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 038-A  
 Investigator(s): J. Wurlitzer and O. Rault Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 2%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.79110783 Long: -121.4467625 Datum: NAD 83  
 Soil Map Unit Name: Concise-Fiddymont Complex NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation X Soil X or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u>      </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u>      </u>
Hydric Soil Present? Yes <u>X</u> No <u>      </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u>      </u>	
Remarks: Wetland #38. Historic and recent disking and tilling of site. Hydrology influenced by irrigated pasture to the north during summer, which is normally the dry season. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek)	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>      3      </u> (A)  Total Number of Dominant Species Across All Strata: <u>      3      </u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>      100%      </u> (A/B)
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: <u>      </u>)</b>				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>      </u> x1 = <u>      </u> FACW species <u>      </u> x2 = <u>      </u> FAC species <u>      </u> x3 = <u>      </u> FACU species <u>      </u> x4 = <u>      </u> UPL species <u>      </u> x5 = <u>      </u> Column Totals: <u>      </u> (A) <u>      </u> (B) Prevalence Index = B/A = <u>      </u>
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
5. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
<b>Herb Stratum (Plot size: <u>1 m = 10 ft</u>)</b>				<b>Hydrophytic Vegetation Indicators:</b>  <u>X</u> Dominance Test is >50% <u>      </u> Prevalence Index is >3.0  Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>      </u>
1. <u>Plagiobothrys stipitatus</u>	8%	Yes	FACW	
2. <u>Polygonum aviculare</u>	10%	Yes	FAC	
3. <u>Ranunculus bonariensis</u>	5%			
4. <u>Festuca perennis</u> [Lolium perenne]	7%	Yes	FAC	
5. <u>Epilobium brachycarpum</u>	2%			
6. <u>Hordeum marinum</u>	2%			
7. <u>Rumex crispus</u>	6%			
8. <u>Cyperus eragrostis</u>	1%			
9. <u>Leontodon saxatilis</u>	1%			
10. <u>Achyrochaena mollis</u>	1%			
11. <u>Convolvulus arvensis</u>	1%			
12. <u>Lactuca serriola</u>	2%			
<u>      46%      </u> = Total Cover				
<b>Woody Vine Stratum (Plot size: <u>      </u>)</b>				
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>		% Cover of Biotic Crust <u>0%</u>		

Remarks: More than 50% thatch cover (all thatch is Festuca perennis)

Sampling Point: 038-A

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<b>Primary Indicators</b> (minimum of one required; check all that apply)		<b>Secondary Indicators</b> (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Appears to be influenced by subsurface flow from irrigated fields to the north. Soils are moist at surface and throughout the pedon sample. The northern portion of the delineated wetland features is along a fence line with deep tire ruts.			

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/30/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 038 B  
 Investigator(s): J. Wurlitzer and O. Routt Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.79123903 Long: -121.4470236 Datum: NAD83  
 Soil Map Unit Name: Cometa-Fiddlyment Complex NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		
Remarks: Upland point paired to wetland #38. Historic and recent disking and tilling of site. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek)			

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				<b>Prevalence Index Worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				<b>Hydrophytic Vegetation Indicators:</b> Dominance Test is >50% Prevalence Index is ≤3.0 <sup>1</sup> Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<b>Herb Stratum (Plot size: _____ r = 5 ft.)</b>				
1. <i>Festuca bromoides</i> [ <i>Vulpia bromoides</i> ]	38%	Yes	FACU	
2. <i>Erodium botrys</i>	20%	Yes	FACU	
3. <i>Festuca perennis</i> [ <i>Lolium perenne</i> ]	15%		FAC	
4. <i>Vicia villosa</i> ssp. <i>varia</i>	5%		NL	
5. <i>Halocarpha virgata</i>	2%		NL	
6. <i>Convolvulus arvensis</i>	1%		NL	
7. <i>Leontodon saxatilis</i>	1%		FACU	
8. <i>Bromus hordeaceus</i>	5%		FACU	
9. <i>Elymus caput-medusae</i>	2%		NL	
_____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>	% Cover of Biotic Crust <u>0%</u>			

Remarks: About 10% thatch cover of ground, comprised of dead standing *Vicia villosa*, *Elymus caput-medusae*, and *Festuca bromoides*.

Sampling Point: 038-B

HYDROLOGY				
<b>Wetland Hydrology Indicators:</b>				
<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )		
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )		
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )		
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)		
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)		
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)		
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)		
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)		
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)		
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			Depth (inches): <input type="text"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			Depth (inches): <input type="text"/>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			Depth (inches): <input type="text"/>
(includes capillary fringe)				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks: No hydrology indicators.				



**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 04/30/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 39  
 Investigator(s): J. Wurlitzer and O. Routh Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0-1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78956979 Long: -121.4509459 Datum: NAD83  
 Soil Map Unit Name: Alamo-Fiddymont Complex NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation X Soil X or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u>      </u>	Is the Sampled Area within a Wetland?	Yes <u>      </u> No <u>X</u>
Hydric Soil Present?	Yes <u>      </u> No <u>X</u>		
Wetland Hydrology Present?	Yes <u>      </u> No <u>X</u>		
Remarks: Sample point 39. Historic and recent disking and tilling of site. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1796, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek)			

**VEGETATION – Use scientific names of plants.**

	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum (Plot size: <u>      </u>)</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
1. <u>      </u>				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
2. <u>      </u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66%</u> (A/B)
3. <u>      </u>				
4. <u>      </u>				
<u>      </u> = Total Cover				
<u>Sapling/Shrub Stratum (Plot size: <u>      </u>)</u>				<b>Prevalence Index Worksheet:</b>
1. <u>      </u>				Total % Cover of: <u>      </u> Multiply by: <u>      </u>
2. <u>      </u>				OBL species <u>      </u> x1 = <u>      </u>
3. <u>      </u>				FACW species <u>      </u> x2 = <u>      </u>
4. <u>      </u>				FAC species <u>      </u> x3 = <u>      </u>
5. <u>      </u>				FACU species <u>      </u> x4 = <u>      </u>
<u>      </u> = Total Cover				UPL species <u>      </u> x5 = <u>      </u>
<u>Herb Stratum (Plot size: <u>1 = 5 ft</u>)</u>				Column Totals: <u>      </u> (A) <u>      </u> (B)
1. <u>Hordeum marinum</u>	38%	Yes	FAC	Prevalence Index = B/A = <u>      </u>
2. <u>Festuca perennis (Lolium perenne)</u>	20%	Yes	FAC	
3. <u>Aira caryophylla</u>	20%	Yes	FACU	
4. <u>Lactuca serriola</u>	2%			
5. <u>Leontodon saxatilis</u>	3%			
6. <u>Epilobium brachycarpum</u>	1%			
7. <u>      </u>				
8. <u>      </u>				
9. <u>      </u>				
<u>      </u> = Total Cover	84%			
<u>Woody/Vine Stratum (Plot size: <u>      </u>)</u>				<b>Hydrophytic Vegetation Indicators:</b>
1. <u>      </u>				<u>X</u> Dominance Test is >50%
2. <u>      </u>				Prevalence Index is ≤3.0 <sup>1</sup>
<u>      </u> = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>		% Cover of Biotic Crust <u>0%</u>		Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>      </u>
Remarks: About 20% thatch cover of ground, comprised of dead standing Hordeum marinum and Festuca perennis.				

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## Sampling Point: 39

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	Depth (inches):	
(includes capillary fringe)			
		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: No hydrology indicators.			

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 08/16/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 047-A  
 Investigator(s): J. Wurlitzer and O. Routh Section, Township, Range: 20 11N 5E  
 Landform (hill/slope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-2%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 35.758805 Long: -121.419937 Datum: NAD 83  
 Soil Map Unit Name: Alamo Fiddymint Complex NWI Classification: None  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are 'Normal Circumstances' present? Yes        No X  
 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 <u>X</u> No <u>      </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u> No <u>      </u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>		
Wetland Hydrology Present?	Yes <u>X</u> No <u>      </u>		
Remarks: Corresponds to Wetland #47. Site is disturbed by adjacent agricultural activities in almond orchards, including runoff and vehicle travel. Feature connects to a ditch at the NE corner of the parcel. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek).			

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
<u>      </u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>      </u> )				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>      </u> x1 = <u>      </u> FACW species <u>      </u> x2 = <u>      </u> FAC species <u>      </u> x3 = <u>      </u> FACU species <u>      </u> x4 = <u>      </u> UPL species <u>      </u> x5 = <u>      </u> Column Totals: <u>      </u> (A) <u>      </u> (B) Prevalence Index = B/A = <u>      </u>
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
<u>      </u> = Total Cover				
Herb Stratum (Plot size: <u>1 = 6 ft</u> )				<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is >50% <u>      </u> Prevalence Index is >3.0 <sup>1</sup>  Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Eleocharis macrostachya</u>	25%	Yes	OBL	
2. <u>Lactuca glaberrima</u>	25%	Yes	OBL	
3. <u>Lactuca scariola</u>	2%		FACW	
4. <u>Polypogon monspeliensis</u>	1%		OBL	
5. <u>Festuca perennis</u>	2%		FAC	
6. <u>Leontodon saxatilis</u>	1%		FACU	
7. <u>      </u>				
8. <u>      </u>				
9. <u>      </u>				
<u>56%</u> = Total Cover				
Woody/Vine Stratum (Plot size: <u>      </u> )				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>      </u>
1. <u>      </u>				
2. <u>      </u>				
<u>      </u> = Total Cover				
% Bare Ground in Herb Stratum	44%	% Cover of Biotic Crust	0%	
Remarks: Seasonal wetland with inputs from ditches, receives seasonal and ag irrigation runoff from adjacent orchards.				

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Sampling Point: 047-A

## HYDROLOGY

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**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 08/16/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 047-B  
 Investigator(s): J. Wurlitzer and O. Routh Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace/Backslope Local relief (concave, convex, none): convex Slope (%): 0-1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.758835 Long: -121.420362 Datum: NAD 83  
 Soil Map Unit Name: San Joaquin-Cometa Sandy Loam NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes        No X  
 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 <u>      </u> No <u>X</u>	Is the Sampled Area within a Wetland?	Yes <u>      </u> No <u>X</u>
Hydric Soil Present?	Yes <u>      </u> No <u>X</u>		
Wetland Hydrology Present?	Yes <u>      </u> No <u>X</u>		
Remarks: Paired upland point to Wetland #47 and wetland #48. Point taken from edge of access road in almond orchard, some garbage nearby.. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek).			

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
<u>      </u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>      </u> )				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>      </u> x1 = <u>      </u> FACW species <u>      </u> x2 = <u>      </u> FAC species <u>      </u> x3 = <u>      </u> FACU species <u>      </u> x4 = <u>      </u> UPL species <u>      </u> x5 = <u>      </u> Column Totals: <u>      </u> (A) <u>      </u> (B) Prevalence Index = B/A = <u>      </u>
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
<u>      </u> = Total Cover				
Herb Stratum (Plot size: <u>1 = 5 ft</u> )				<b>Hydrophytic Vegetation Indicators:</b> Dominance Test is $\geq 50\%$ Prevalence Index is $\leq 3.0^1$ Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Bromus hordeaceus</u>	25%	Yes	FACU	
2. <u>Elymus caput-medusae</u>	20%	Yes	NL	
3. <u>Erodium botrys</u>	20%	Yes	FACU	
4. <u>Holocarpha virgata</u>	5%		NL	
5. <u>Bromus diandrus</u>	10%		NL	
6. <u>Croton setiger</u>	1%		NL	
7. <u>Festuca bromoides</u>	10%		FACU	
8. <u>Festuca perennis</u>	2%		FAC	
9. <u>      </u>				
<u>93%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>      </u> )				<b>Hydrophytic Vegetation Present?</b> Yes <u>      </u> No <u>X</u>
1. <u>      </u>				
2. <u>      </u>				
<u>      </u> = Total Cover				
% Bare Ground in Herb Stratum <u>7%</u>		% Cover of Biotic Crust <u>0%</u>		

Remarks: No hydrophytes except for one FAC at low (2%) cover

Sampling Point: 047-B

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: No hydrology indicators.			

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 08/18/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 048-A  
 Investigator(s): J. Wurlitzer and O. Routh Section, Township, Range: 20 11N 5E  
 Landform (hill/slope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 35.75884 Long: -121.420505 Datum: NAD 83  
 Soil Map Unit Name: San Joaquin Cometa Alamo Fiddymert Complex NWI Classification: None  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes      No X (If no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology      significantly disturbed? Are 'Normal Circumstances' present? Yes      No X  
 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 <u>X</u> No <u>    </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u> No <u>    </u>
Hydric Soil Present?	Yes <u>X</u> No <u>    </u>		
Wetland Hydrology Present?	Yes <u>X</u> No <u>    </u>		

Remarks: Corresponds to Wetland #48. Seasonal wetland on the edge of an agricultural access road; tire tracks through feature. Only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). See 047-B for paired upland point.

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
<u>    </u> = Total Cover				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>    </u> Multiply by: <u>    </u> OBL species <u>    </u> x1 = <u>    </u> FACW species <u>    </u> x2 = <u>    </u> FAC species <u>    </u> x3 = <u>    </u> FACU species <u>    </u> x4 = <u>    </u> UPL species <u>    </u> x5 = <u>    </u> Column Totals: (A) <u>    </u> (B) <u>    </u> Prevalence Index = B/A = <u>    </u>
Sapling/Shrub Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
<u>    </u> = Total Cover				
Herb Stratum (Plot size: <u>1 = 6 ft</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b> X Dominance Test is >50% Prevalence Index is >3.0 <sup>1</sup> Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Lasianthus glaberrima</u>	15%	Yes	OBL	
2. <u>Plagiobothrys stipitatus</u>	20%	Yes	FACW	
3. <u>Deschampsia danthonioides</u>	12%		FACW	
4. <u>Festuca perennis</u>	2%		FAC	
5. <u>Psilocarphus brevissimus</u>	1%		FACW	
6. <u>Castilleja campestris</u>	1%		FACW	
7. <u>Eryngium vaseyi</u>	1%		FACW	
8. <u>Achyrochaena mollis</u>	1%		FAC	
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
<u>53%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>    </u>
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
<u>    </u> = Total Cover				
% Bare Ground in Herb Stratum	47%	% Cover of Biotic Crust	0%	

Remarks: Highly disturbed feature, appears to have been previously scraped out, and soil stockpiles also placed along edges, due to past and ongoing ag activity.

Sampling Point: 048-A

## HYDROLOGY

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# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 08/18/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 049-A  
 Investigator(s): J. Wurflitzer and O. Routt Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 2%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 35.758579 Long: -121.420727 Datum: NAD 83  
 Soil Map Unit Name: San Joaquin-Cornelia NWI Classification: None  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes        No X (If no, explain in Remarks.)  
 Are Vegetation X Soil X or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes        No X  
 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 <u>X</u> No <u>      </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u>      </u>
Hydric Soil Present?	Yes <u>X</u> No <u>      </u>	
Wetland Hydrology Present?	Yes <u>X</u> No <u>      </u>	

Remarks: Corresponds to Wetland #49. Area disturbed by agricultural activities; access road and fence line construction and maintenance impact feature. Only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek). See 047-B for paired upland point.

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>      </u> )				Prevalence Index Worksheet: Total % Cover of: <u>      </u> Multiply by:
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	OBL species <u>      </u> x1 = <u>      </u>
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	FACW species <u>      </u> x2 = <u>      </u>
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	FAC species <u>      </u> x3 = <u>      </u>
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	FACU species <u>      </u> x4 = <u>      </u>
5. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	UPL species <u>      </u> x5 = <u>      </u>
<u>      </u> = Total Cover				Column Totals: (A) <u>      </u> (B) <u>      </u>
Herb Stratum (Plot size: <u>1 = 5 ft x 1</u> )				Prevalence Index = B/A = <u>      </u>
1. <u>Festuca perennis</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <u>X</u> Dominance Test is >50% <u>      </u> Prevalence Index is ≥3.0 <sup>1</sup>  Morphological Adaptation <sup>2</sup> (Provide supporting data in Remarks or on a separate sheet)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Deschampsia danthanoides</u>	<u>10%</u>	<u>Yes</u>	<u>FACW</u>	
3. <u>Plagiobothrys stipitatus</u>	<u>5%</u>	<u>      </u>	<u>FACW</u>	
4. <u>Lathenia fremontii</u>	<u>3%</u>	<u>      </u>	<u>OBL</u>	
5. <u>Eleocharis macrostachya</u>	<u>7%</u>	<u>      </u>	<u>OBL</u>	
6. <u>Ranunculus bonariensis</u>	<u>5%</u>	<u>      </u>	<u>OBL</u>	
7. <u>Psilocarphus brevissimus</u>	<u>1%</u>	<u>      </u>	<u>FACW</u>	
8. <u>Leontodon saxatilis</u>	<u>1%</u>	<u>      </u>	<u>FACU</u>	
9. <u>Polypogon maritimus</u>	<u>1%</u>	<u>      </u>	<u>OBL</u>	
9. <u>Juncus bufonius</u>	<u>1%</u>	<u>      </u>	<u>FACW</u>	Hydrophytic Vegetation Present? Yes <u>X</u> No <u>      </u>
9. <u>Bromus hordeaceus</u>	<u>1%</u>	<u>      </u>	<u>FACU</u>	
<u>5.5%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>      </u> )				
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
% Bare Ground in Herb Stratum <u>45%</u>	% Cover of Biotic Crust <u>0%</u>			

Remarks:

Sampling Point: 049-A

## HYDROLOGY

US Army Corps of Engineers

Arid West - Version 2.0

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: 60656629 SMUD Country Acres Solar City/County: Placer County Sampling Date: 08/18/21  
 Applicant/Owner: SMUD State: CA Sampling Point: 049 B  
 Investigator(s): J. Wurlitzer and O. Routh Section, Township, Range: 20 11N 5E  
 Landform (hillslope, terrace, etc.): Terrace/Backslope Local relief (concave, convex, none): none Slope (%): 0-1%  
 Subregion (LRR): Mediterranean California (LRR C) Lat: 38.757905 Long: -121.420718 Datum: NAD 83  
 Soil Map Unit Name: San Joaquin Cometa NWI Classification: n/a  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 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 <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		
Remarks: Paired upland point to Wetland #49. Point taken from from disturbed grassland between ag access road and fence line. Abnormally low rainfall totals for the season; only 4.92 inches of rain for the rain year to date, when normal is 35 inches for the County (Placer County rain gauge #1786, collected from October 1, 2020 to April 08, 2021, located about 3 miles west of project site along Pleasant Grove Creek).			

**VEGETATION – Use scientific names of plants.**

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____)				
1.				
2.				
3.				
4.				
		= Total Cover		
<b>Sapling/Shrub Stratum</b> (Plot size: _____)				
1.				
2.				
3.				
4.				
5.				
		= Total Cover		
<b>Herb Stratum</b> (Plot size: <u>1 = 5 ft</u> )				
1.	<u>Bromus hordeaceus</u>	<u>45%</u>	<u>Yes</u>	<u>FACU</u>
2.	<u>Festuca bromoides</u>	<u>30%</u>	<u>Yes</u>	<u>FACU</u>
3.	<u>Festuca perennis</u>	<u>8%</u>		<u>FAC</u>
4.	<u>Holocarpha virgata</u>	<u>5%</u>		<u>NL</u>
5.	<u>Erodium botrys</u>	<u>3%</u>		<u>FACU</u>
6.				
7.				
8.				
9.				
		= Total Cover		
<b>Woody Vine Stratum</b> (Plot size: _____)				
1.				
2.				
		= Total Cover		
% Bare Ground in Herb Stratum		<u>2%</u>	% Cover of Biotic Crust	
			<u>0%</u>	

**Dominance Test worksheet:**  
 Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)  
 Total Number of Dominant Species Across All Strata: 2 (B)  
 Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

**Prevalence Index Worksheet:**  
 Total % Cover of: \_\_\_\_\_ Multiply by: \_\_\_\_\_  
 OBL species \_\_\_\_\_ x1 = \_\_\_\_\_  
 FACW species \_\_\_\_\_ x2 = \_\_\_\_\_  
 FAC species \_\_\_\_\_ x3 = \_\_\_\_\_  
 FACU species \_\_\_\_\_ x4 = \_\_\_\_\_  
 UPL species \_\_\_\_\_ x5 = \_\_\_\_\_  
 Column Totals: \_\_\_\_\_ (A) \_\_\_\_\_ (B)  
 Prevalence Index = B/A = \_\_\_\_\_

**Hydrophytic Vegetation Indicators:**  
 Dominance Test is >50% \_\_\_\_\_  
 Prevalence Index is >3.0<sup>1</sup> \_\_\_\_\_  
 Morphological Adaptation<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) \_\_\_\_\_  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes \_\_\_\_\_ No X

Remarks: Gopher mound in center of plot. About 10% thatch cover.

Sampling Point: 049-B

HYDROLOGY			
<b>Wetland Hydrology Indicators:</b>			
<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (2 or more required)</b>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> )	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )	
<input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> )	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: No hydrology indicators.			

## APPENDIX C

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### Plant Species Observed

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### Plant Species Observed in Study Area

Scientific Name	Common Name	Indicator Status <sup>1</sup>
<i>Acer negundo</i>	box Elder	FACW
<i>Achyrachaena mollis</i>	blow-wives	FAC
<i>Acmispon americanus</i>	Spanish clover	UPL
<i>Aira caryophyllea</i>	common silver-hairgrass	FACU
<i>Alopecurus aequalis</i>	short-awn meadow-foxtail	OBL
<i>Apocynum cannabinum</i>	Indian hemp	FAC
<i>Asclepias fascicularis</i>	narrow-leaf milkweed	FAC
<i>Avena fatua</i>	wild oats	NL
<i>Azolla microphylla</i>	mosquito fern	OBL
<i>Baccharis salicifolia</i>	mule fat	FAC
<i>Brassica nigra</i>	black mustard	NL
<i>Brassica rapa</i>	common mustard	FACU
<i>Briza minor</i>	lesser quaking grass	FAC
<i>Brodiaea appendiculata</i>	Hoover's brodiaea	NL
<i>Brodiaea coronaria</i>	harvest cluster lily	FAC
<i>Brodiaea minor</i>	cluster Lily	NL
<i>Bromus diandrus</i>	ripgut brome	NL
<i>Bromus hordeaceus</i>	soft brome	FACU
<i>Calandrinia ciliata</i>	fringed redmaids	FACU
<i>Callitriche stagnalis</i>	vernal pool-starwort	OBL
<i>Carduus pycnocephalus</i>	Italian thistle	NL
<i>Castilleja attenuata</i>	valley tassels	NL
<i>Castilleja campestris</i>	vernal pool-Indian paintbrush	FACW
<i>Centromadia fitchii</i>	Fitch's false tarplant	FACU
<i>Chlorogalum pomeridianum</i>	wavy-leafed soap plant	NL
<i>Cirsium vulgare</i>	bull thistle	FACU
<i>Convolvulus arvensis</i>	field bindweed	NL
<i>Crassula aquatica</i>	water pygmyweed	OBL
<i>Croton setigerus</i>	doveweed	NL
<i>Cyperus eragrostis</i>	tall flat sedge	FACW
<i>Deschampsia caespitosa</i>	tufted hair grass	FACW
<i>Dichelostemma multiflorum</i>	round-toothed snake lily	NL
<i>Downingia bicornuta</i>	double-horn calico-flower	OBL
<i>Echinochloa crus-galli</i>	large barnyard grass	FACW
<i>Eleocharis macrostachya</i> [ <i>E. palustris</i> ]	common spike-rush	OBL
<i>Elymus caput-medusae</i>	medusa head	NL
<i>Epilobium brachycarpum</i>	willowherb	FAC
<i>Erodium botrys</i>	long-beak stork's-bill	FACU
<i>Eryngium vaseyi</i>	coyote thistle	FACW
<i>Festuca arundinacea</i>	tall fescue	NL
<i>Festuca bromoides</i>	brome fescue	NL
<i>Festuca myuros</i>	rattail sixweeks fescue	NL
<i>Festuca perennis</i> [ <i>Lolium perenne</i> ]	Italian ryegrass	NL
<i>Ficus carica</i>	edible fig	FACU
<i>Geranium dissectum</i>	wild geranium	NL
<i>Glyceria declinata</i>	waxy manna grass	FACW
<i>Gratiola ebracteata</i>	bractless hedge-hyssop	OBL
<i>Grindelia camporum</i>	Great Valley gumweed	FACW
<i>Helminthotheca echioides</i>	bristly ox tongue	FAC
<i>Holocarpha virgata</i>	pitgland tarweed	NL
<i>Hordeum marinum</i>	seaside barley	FAC
<i>Hypochoeris glabra</i>	smooth cat's ear	NL
<i>Hypochoeris radicata</i>	hairy cat's ear	FACU
<i>Iris pseudacorus</i>	yellow-flag Iris	OBL
<i>Juncus bufonius</i>	toad rush	FACW

### Plant Species Observed in Study Area

Scientific Name	Common Name	Indicator Status <sup>1</sup>
<i>Juncus capitatus</i>	leafy-bract dwarf rush	FACU
<i>Juncus effusus</i>	soft rush	FACW
<i>Juncus patens</i>	spreading rush	FACW
<i>Juncus xiphioides</i>	iris-leaf rush	OBL
<i>Lactuca serriola</i>	prickly lettuce	FACU
<i>Lasthenia fremontii</i>	Fremont's goldfields	OBL
<i>Lasthenia glaberrima</i>	smooth goldfields	OBL
<i>Leontodon saxatilis</i>	hawkbit	FACU
<i>Lupinus bicolor</i>	miniature lupine	NL
<i>Lythrum hyssopifolia</i>	hyssop loosestrife	NL
<i>Matricaria discoidea</i>	pineapple weed	FACU
<i>Navarretia leucocephala</i>	white-flower pincushion-plant	OBL
<i>Parentucellia viscosa</i>	yellow gland-weed	FAC
<i>Paspalum distichum</i>	jointed crown grass	FACW
<i>Phalaris aquatica</i>	harding grass	FACU
<i>Plagiobothrys greenei</i>	Greene's popcorn-flower	FACW
<i>Plagiobothrys stipitatus</i>	stalked popcorn-flower	FACW
<i>Plantago lanceolata</i>	English plantain	FAC
<i>Plantago erecta</i> [biglovii ssp. californica]	California plantain	OBL
<i>Pleuropogon californicus</i>	California false semaphore grass	OBL
<i>Persicaria</i> sp.	smartweed	-
<i>Persicaria lapathifolia</i>	common knotweed	FACW
<i>Polypogon maritimus</i>	maritime rabbit's-foot grass	OBL
<i>Polypogon monspeliensis</i>	annual rabbit's-foot grass	FACW
<i>Populus fremontii</i>	Fremont cottonwood	NL
<i>Psilocarphus brevissimus</i>	dwarf woollyheads	FACW
<i>Psilocarphus oregonus</i>	oregon woollyheads	OBL
<i>Psilocarphus tenellus</i>	slender woollyheads	OBL
<i>Ranunculus bonariensis</i>	vernal pool buttercup	OBL
<i>Raphanus raphanistrum</i>	wild radish	NL
<i>Raphanus sativus</i>	jointed charlock	NL
<i>Rorippa curvisiliqua</i>	curve-pod yellowcress	OBL
<i>Rorippa palustris</i>	bog yellowcress	OBL
<i>Rosa rubiginosa</i>	sweet brier	UPL
<i>Rubus armeniacus</i>	Himalayan blackberry	FAC
<i>Rumex crispus</i>	curly dock	FAC
<i>Salix exigua</i>	narrow-leaf willow	FACW
<i>Salix gooddingii</i>	Goodding's black willow	FACW
<i>Senecio vulgaris</i>	old-man in-the-spring	FACU
<i>Sonchus asper</i>	spiny-leaf sow-thistle	FAC
<i>Spergularia rubra</i>	ruby sand spurrey	FAC
<i>Spergularia macrotheca</i> var. <i>leucantha</i>	white sticky sand spurrey	FAC
<i>Toxicodendron diversilobum</i>	Pacific poison oak	FACU
<i>Trifolium dubium</i>	suckling clover	UPL
<i>Trifolium repens</i>	white clover	FACU
<i>Triteleia laxa</i>	lthuriel's spear	NL
<i>Triphysaria eriantha</i>	butter 'n' eggs	NL
<i>Typha latifolia</i>	broad-leaf cattail	OBL
<i>Veronica peregrina</i>	neckweed	FAC
<i>Vicia sativa</i>	spring vetch	FACU
<i>Vicia villosa</i> ssp. <i>varia</i>	smooth winter vetch	NL

<sup>1</sup> OBL=Obligate, FACW=Facultative Wetland, FAC = Facultative, FACU = Facultative Upland; UPL = Upland, NL= Not Listed

Sources: Jepson Flora Project 2021; USACE 2018

Compiled by AECOM in 2021



## APPENDIX D

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### Representative Photographs

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**Photo 1. Agricultural canal, AC-01 (other waters). Looking south. April 7, 2021.**



**Photo 2. Agricultural ditch, AD-01 (other waters). Looking west. April 9, 2021.**





**Photo 3. Almond orchard and disturbed (road) land cover types. Looking west. July 14, 2021.**



**Photo 4. Annual grassland land cover type. Looking east. May 14, 2021.**



**Photo 5. Intermittent Drainage (ID-01) (other waters).  
Looking west. May 14, 2021.**



**Photo 6. Cattail marsh land cover type. Looking northwest. April 7, 2021.**





**Photo 7. Ditch, D-43, along fence line north of orchard access road. Looking east. August 18, 2021.**

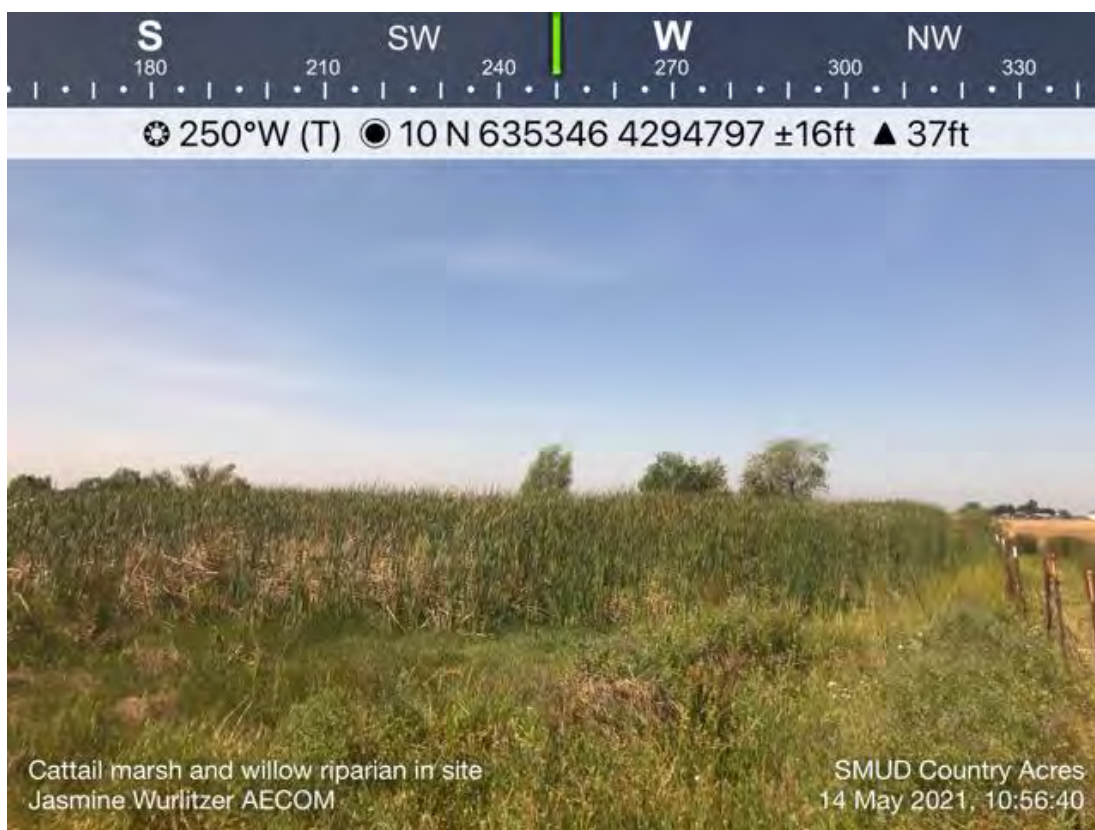


**Photo 8. Himalayan blackberry thicket land cover type. Flooded rice fields in background to the east, and annual grassland in the background to the west. Looking southeast. May 14, 2021.**



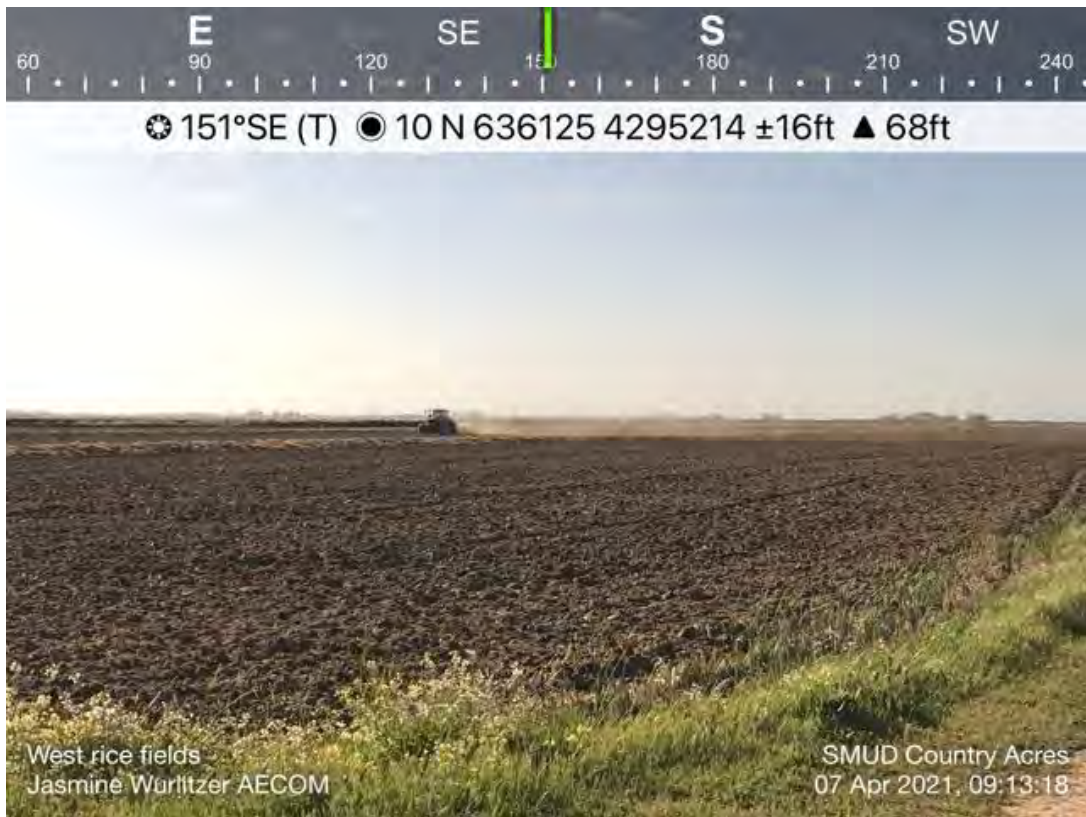


**Photo 9. Intermittent drainage, ID-04. Looking southwest. May 14, 2021.**



**Photo 10. Perennial emergent marsh, PEM-26. Looking west. May 14, 2021.**



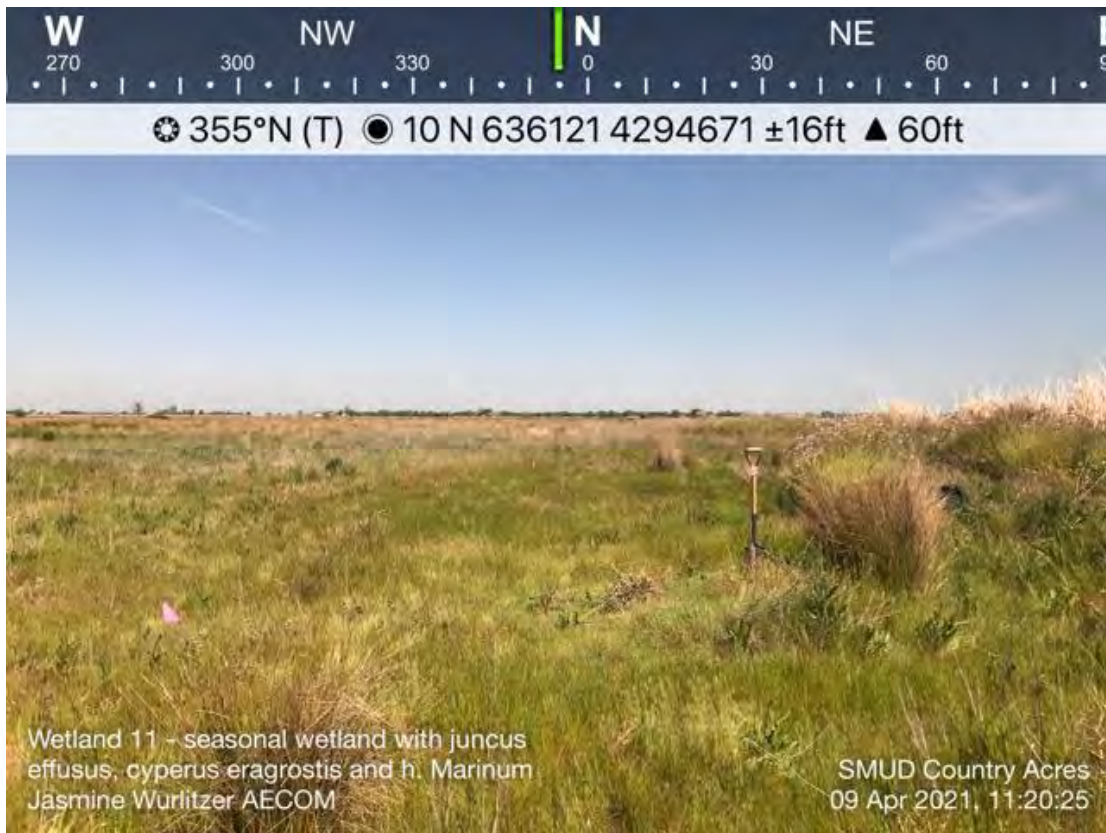


**Photo 11. Rice field land cover type. Looking southeast. April 7, 2021.**



**Photo 12. Willow riparian land cover type, along ID-02. Looking west. May 14, 2021.**





**Photo 13. Seasonal wetland, SW-11. Looking north. April 9, 2021.**



**Photo 14. Vernal pool, VP-5, in grassland matrix. Looking north. April 9, 2021.**



Photo 15. Wetland, W-20, adjacent to AC-01. Looking north. April 21, 2021.

## **BR-3 – GIANT GARTER SNAKE ASSESSMENT REPORT**

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**Eric C. Hansen**  
**Consulting Environmental Biologist**

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**Re:** Giant garter snake (*Thamnophis gigas*) Habitat Assessment on the  
SMUD Country Acres Solar Project, Placer County, California.

**Date:** 31 August 2022

Dear Ms. Fessler:

This memorandum provides the results of surveys conducted on 5 May 2021 and 8 August 2021 at the SMUD Country Acres Solar Project, Placer County, California Project Site (Project Site) in southwestern Placer County, California (Figure 1). These surveys were conducted to assess potential habitat for the giant garter snake (*Thamnophis gigas*) and were completed in reference to information provided by AECOM and information produced by multiple subcontractors associated with the larger project. Potential habitat was evaluated using a combination of ground-level surveys, National Agricultural Imagery Program (NAIP) and Google Earth™ aerial imagery, the California Natural Diversity Database (CNDDDB), and Geographic Information System (GIS) program ArcGIS 10.8 to roughly quantify existing habitat, to assess the overall suitability of the site based on the prevailing character of the landscape, and to examine the site's location in regard to historical and recent giant garter snake occurrence records. This memorandum provides a thorough species background (Appendix 1), details the methodology used to assess habitat suitability (Appendix 2), includes a discussion of the site's suitability and impact potential for the giant garter snake, and provides a list of standard measures that, if implemented, would serve to avoid, and minimize project-related impacts to giant garter snakes in the unlikely event they may occur on site (Appendix 3).



0 20 40 80 120 160 Miles

SMUD Solar

Natomas Basin

CNDDDB Giant Garter Snake Record

0 0.75 1.5 3 4.5 6 7.5 Miles

Sacramento

Merced

PACIFIC OCEAN

Sources: CaSIL, CNDDDB 2015, EC Hansen, NAIIP

The results of the assessment indicate that while rice agriculture and water conveyance infrastructure associated with giant garter snake habitat dominate the region, all potential habitats within the Project Site are of questionable value due to their location relative to the species' modeled range (e.g., CNDDDB 2021, Hansen *et al.* 2017). Some features on the Project Site were deemed suitable due to the prevalence of rice agriculture observed on many, but not all properties. Although deemed suitable and therefore capable of supporting giant garter snakes under the broadest of definitions, it is highly unlikely that resident giant garter snakes occupy features within the Project Site due to the overall character of the potential habitat and the distance of the Project Site from habitats where giant garter snake presence has been verified. The Project Site also falls outside the range of giant garter snake occupancy (Hansen *et al.* 2017). Regardless of predicted suitability, all features occur outside the expected range of giant garter snake. Simply put, the project exists outside the species' known range (CNDDDB 2021, Hansen *et al.* 2017).

The work described herein provides stand-alone results. However, results of prior occupancy analyses (Hansen *et al.* 2017) also have been incorporated to illustrate the broader probability of occupancy across the landscape encompassing the study area. Occupancy models use covariates for which there is data across a large portion of the species range (e.g., road density, canal density, or land cover type) to develop a map of occupancy probability across the landscape. Occupancy models are useful to land managers for a variety of reasons, including identifying locations for future surveys where giant garter snakes are most likely to occur and determining locations where maintaining habitat for giant garter snakes is most critical.

## **SURVEY AND ASSESSMENT METHODS**

Though no formal protocol exists for assessing giant garter snake habitat, the methodology used for this assessment is like those developed for other species that depend upon aquatic habitat (e.g., California tiger salamander<sup>1</sup> and California red-legged frog<sup>2</sup>). Consistent with these protocols, this assessment provides a project description and details: 1) the project location with respect to the species' historic range; 2) known localities within proximity of the project site; and 3) supporting habitat upon and within proximity of the project site.

The habitat assessment includes aquatic and upland habitat within 200 feet of identified ditches, drains, channels, or swales. In its Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects with

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<sup>1</sup> October 2003 Interim Guidance on Site Assessment and Field Surveys for Determining Presence or Negative Findings for the California Tiger Salamander; prepared jointly by the U.S. Fish and Wildlife Service and California Department of Fish and Game

<sup>2</sup> April 4, 1997 Memorandum 1-1-97-TA-1093 Dissemination of Interim Guidance on Site Assessment and Field Surveys for California Red-Legged Frogs; August 2005 Revised Guidance on Site Assessment and Field Surveys for California Red-Legged Frogs

Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties, California (USFWS 1997, 2004), the USFWS incorporated a standard of 200 feet of upland on each bank side of linear habitat as suitable upland for giant garter snakes when assessing a project's disturbance area. The 200-foot upland buffer has become standard in subsequent Biological Opinions and impact analyses and is therefore used as a standard in this assessment.

To place the Project Site in relation to the known geographic distribution of giant garter snakes, locality records were obtained by conducting a computer search of the most recent version of the CNDDDB (2021). Next, to place the Project Site in regional perspective, records falling within 5-kilometer radii of the project site were identified using the Geographic Information Systems (GIS) program ArcMap 10.8. GIS-generated maps are used to illustrate giant garter snake distribution relative to the Project Site. Finally, habitats within and surrounding the project site were identified using a combination of site plans, field surveys, and GIS analysis using digital orthographic quarter quadrangle (DOQQ) maps (digitized aerial maps) and digitized aquatic features from the National Hydrography Dataset (NHD), which were acquired through the United States Department of Agriculture (USDA) National Agriculture Imagery Program (NAIP) (<http://www.fsa.usda.gov/FSA/apfoapp?area=home&subject=prog&topic=nai>). Underlying soil types (Figure 4) were determined using the U.S. General Soil Map (STATSGO2) provided by U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS 2006) in conjunction with GIS program ArcMAP Version 10.8. The methodology used to evaluate scoring variable are provided in Appendix 2.

Classification values described in this assessment are based upon recognized habitat characteristics and personal experience and knowledge of giant garter snakes and their life history, distribution, and habitat requirements (Hansen and Brode 1980; Hansen 1988; USFWS 1999; Wylie *et al.* 2002, 2004; E. Hansen 2006, 2008).

***Suitable habitat*** is characterized by all of the features required to support permanent populations of garter snakes, including: 1) sufficient water during the active summer season to supply cover and food such as small fish and amphibians; 2) emergent, herbaceous aquatic vegetation accompanied by vegetated banks to provide basking and foraging habitat; 3) bankside burrows, holes and crevices to provide short-term aestivation sites; 4) high ground or upland habitat above the annual high water mark to provide cover and refugia from floodwaters during the dormant winter season (Hansen 1988, Hansen and Brode 1980).

***Marginal habitat*** is characterized by any combination of those features listed above needed to support transient giant garter snakes on a temporary basis, or to act as connective corridors between areas of more stable or desirable habitat.

This habitat need only possess the water, vegetation, and refugia required to provide minimal coverage for dispersing snakes. On its own, marginal habitat is considered incapable of supporting permanent populations of giant garter snakes and is typically ephemeral, providing no permanent source of prey.

***Unsuitable habitat*** is devoid of the water, vegetation, and refugia necessary to support giant garter snakes for a meaningful time. Such habitat is generally composed of large rivers, lakes, gunite drains or temporary swales that possess no water during the active spring and summer seasons. As such, unsuitable habitat corridors are no more likely to support giant garter snakes than any non-aquatic environment, and if they do so, they do so only by chance. Transient features, such as shallow trenches and furrows intended only to direct winter runoff, typically do not persist through the remainder of the season, do not provide the aquatic habitat necessary to support giant garter snakes for a meaningful time, and should therefore be assigned to this category. However, because transient features still exhibit characteristics such as winter water, bank sun, and bank or upland vegetation, they can accumulate the number of points necessary to qualify as *marginal* habitat in this evaluation scheme. Wetted features lacking any supporting characteristics are also deemed unsuitable if the distance or connectivity to suitable habitat is likely to preclude their use as migration corridors.

## PROJECT DESCRIPTION

Sacramento Municipal Utility District (SMUD), a local public agency, proposes to build and operate a photovoltaic (PV) solar power and battery storage renewable energy generation facility in southwestern Placer County. The Country Acres Solar Project includes construction and operation of a PV solar power and battery storage facility and interconnection facilities, including a generation substation, switch station, and interconnection lines, that would provide new power production capacity of up to 344 MW delivered at the point of interconnection with the grid managed by SMUD. The total project site would generally comprise PV solar modules, foundation piles, racking, direct current (DC) collection, alternative current (AC) collection, fencing, roads, inverters, medium voltage transformers, an interconnection line between the generation substation and switch station, battery storage equipment, and interconnection lines to the existing SMUD transmission system.

Construction of the project would take approximately eighteen months to two years and is proposed to begin as early as 2023 and conclude in 2024 or 2025. During construction, a temporary construction trailer/office complex and staging areas would be established. Setbacks would be established from the project boundary (footprint) to any wetlands. During operation, the proposed project would likely include an operations facility. At the end of the project's life (anticipated to be 30 to 35 years or more), the site would be decommissioned.



## RESULTS AND DISCUSSION

Potential habitat for giant garter snake on the Project Site consists of the historic channel of Curry Creek, associated roadside drainage and irrigation channels, adjacent rice fields, and upland/ruderal habitats within 200-feet of these aquatic features (Figure 2 and Figure 3). The Project Site consists entirely of San Joaquin series soils (s825), which are commonly used for wheat, rice, pasture, and urban development. Sub soil layers associated with this series are brown loam (upper) and brown clay (lower) characterized by a cemented hardpan a few feet beneath the surface restricting roots and water percolation ([ftp://ftp-fc.sc.egov.usda.gov/NSSC/StateSoil\\_Profiles/ca\\_soil.pdf](ftp://ftp-fc.sc.egov.usda.gov/NSSC/StateSoil_Profiles/ca_soil.pdf)). Except for rice, which is generally suitable after emergence, all these potential habitats (i.e., roadside drainages, irrigation channels, adjacent rice fields, and upland/ruderal habitats within 200-feet of these aquatic features) were deemed unsuitable based on the described criteria due to a lack of aquatic connectivity; no other features on the Project Site were deemed suitable due to the distance from perennial aquatic habitat. Rice fields that occur within the giant garter snake's range provide suitable habitat after the rice fields undergo leaf emergence and an increase in plant height. However, the rice fields on the Project Site are very unlikely to support giant garter snake because of the absence of aquatic connectivity, distance of the rice fields from perennial aquatic features, and lack of evidence for historical or current giant garter snake occupancy.

While this analysis identifies some potential habitats within the project margins as suitable (see Figure 2), giant garter snake presence at the Project Site is highly unlikely. While the overall character of the potential habitat on site is generally consistent with that of occupied sites, the Project Site lies east of the documented range of the species in Sacramento County (CNDDDB 2021). Finally, recent, intensive trapping efforts have failed to identify giant garter snakes in any otherwise suitable features this far east within the American Basin. There are no known giant garter snake occurrence records falling within 5 kilometers of the Project Area (see Figure 1 and Figure 3).

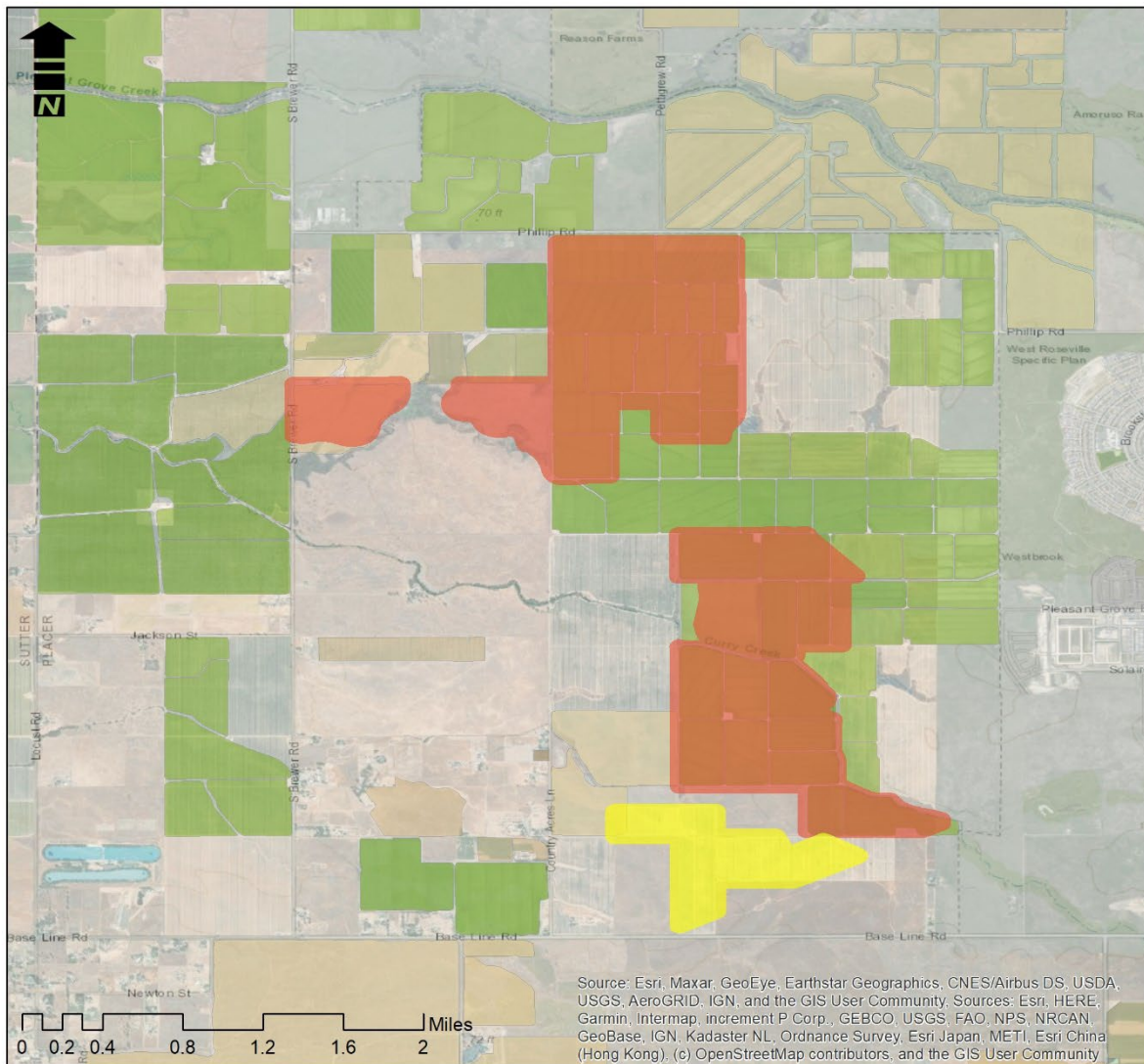
While the current (October 2021) commercial version of the CNDDDB was consulted during this analysis to ensure that no new records were omitted, the CNDDDB is limited in that it does not account for sites that have been sampled without detecting the species of interest -- i.e., it does not address potential species absence. To address this to the extent that data are available, personal records were consulted to place regional survey efforts in perspective (Figure 4). Although recent trapping and/or visual encounter surveys are not known of on the site, giant garter snakes have never been documented here, and extensive trapping efforts conducted since 2001 have failed to detect any giant garter snakes east of the Natomas East Main Drainage Canal (NEMDC) (Hansen 2001, 2003, 2004, 2005a, 2005b, 2006, 2007; Hansen, unpublished data), suggesting that the site lies at or beyond the easterly limit of the species' range. Trapping

conducted by Eric Hansen from 2001 through 2012 are shown alongside of known giant garter snake distribution records in Figure 5 and include several years of trapping surveys conducted within the NEMDC (Steelhead Creek) (Hansen 2004, 2005a, 2006), which is the most likely source from which giant garter snakes could access the Project Site.

Lastly, it is important to note that while elementary habitat characteristics are present on site, the location of the Project Area suggests that it is outside of the species' modeled range (Hansen et al. 2017). Occupancy models identify covariates that are associated with the probability of occupancy (i.e., presence) at a location and are completed using multiple covariates modeled across the landscape as opposed to isolating individual features in the way that an isolated assessment does. Such models and resulting maps can be useful to resource managers for a variety of reasons, including: 1) increased ability to efficiently plan and prioritize maintenance work, particularly in relation to potential mitigation; 2) ability to prepare an avoidance and implementation strategy that is compatible with relevant operations and maintenance activities and can be leveraged into permits; and 3) ability to document increases in populations/distribution and hence the efficacy of avoidance and minimization measures. Contributing to this analysis, the presented occupancy model (Figure 5) illustrates that the study area has a lower probability of giant garter snake occupancy in the identified features than elsewhere in the America Basin, and that the Project Site lies east of the species' predicted range. These results align clearly with known patterns of distribution of both historic and current records. The occupancy model did not include historic records, but rather used multi-year trapping and capture data derived throughout the Sacramento Valley, including multiple sites in the Natomas Basin and is therefore based on records of demonstrated occurrence.

The comparison of known locality records, the published occupancy data, and site-level assessment presented here strongly suggest that the probability of giant garter snake or habitat impacts within the project vicinity is low. While this survey concludes that giant garter snakes are not likely to occur on the Project Site, the project would present a risk of mortality or species take if the species did occur. Steps can be taken to reduce the risk and/or minimize the impacts of species take where feasible when giant garter snakes are present. A list of standard measures is included as Appendix 3; however, appropriate, and specific measures should be determined following the selection of a final project schedule, the development of a formal project description, and in consultation with U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, and local environmental agencies.

**Figure 2: Project Site Detail and Assessed Habitat Suitability**



## DWR 2014 Crop Layers

## Crop2014

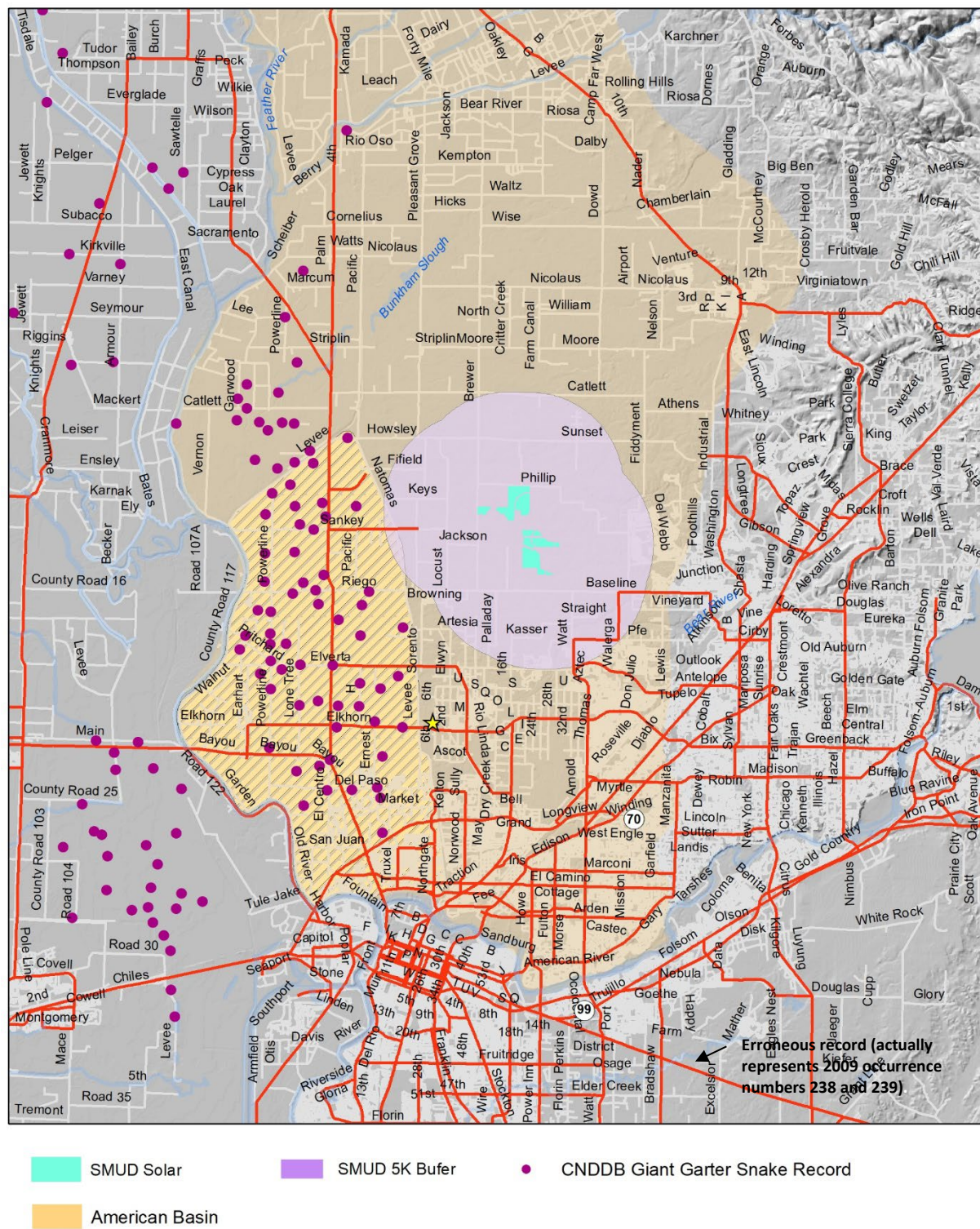
Alfalfa and Alfalfa Mixtures	Managed Wetland	Pomegranates
Almonds	Miscellaneous Deciduous	Rice
Citrus	Miscellaneous Grasses	Strawberries
Corn, Sorghum and Sudan	Miscellaneous Truck Crops	Urban
Flowers, Nursery and Christmas Tree Farms	Mixed Pasture	Walnuts
Grapes	Olives	Young Perennials
	Peaches/Nectarines	

## GGG Habitat Suitability

 Suitable  Marginal  Unsuitable



**Figure 3: GGS occurrence records relative to the Project Site**

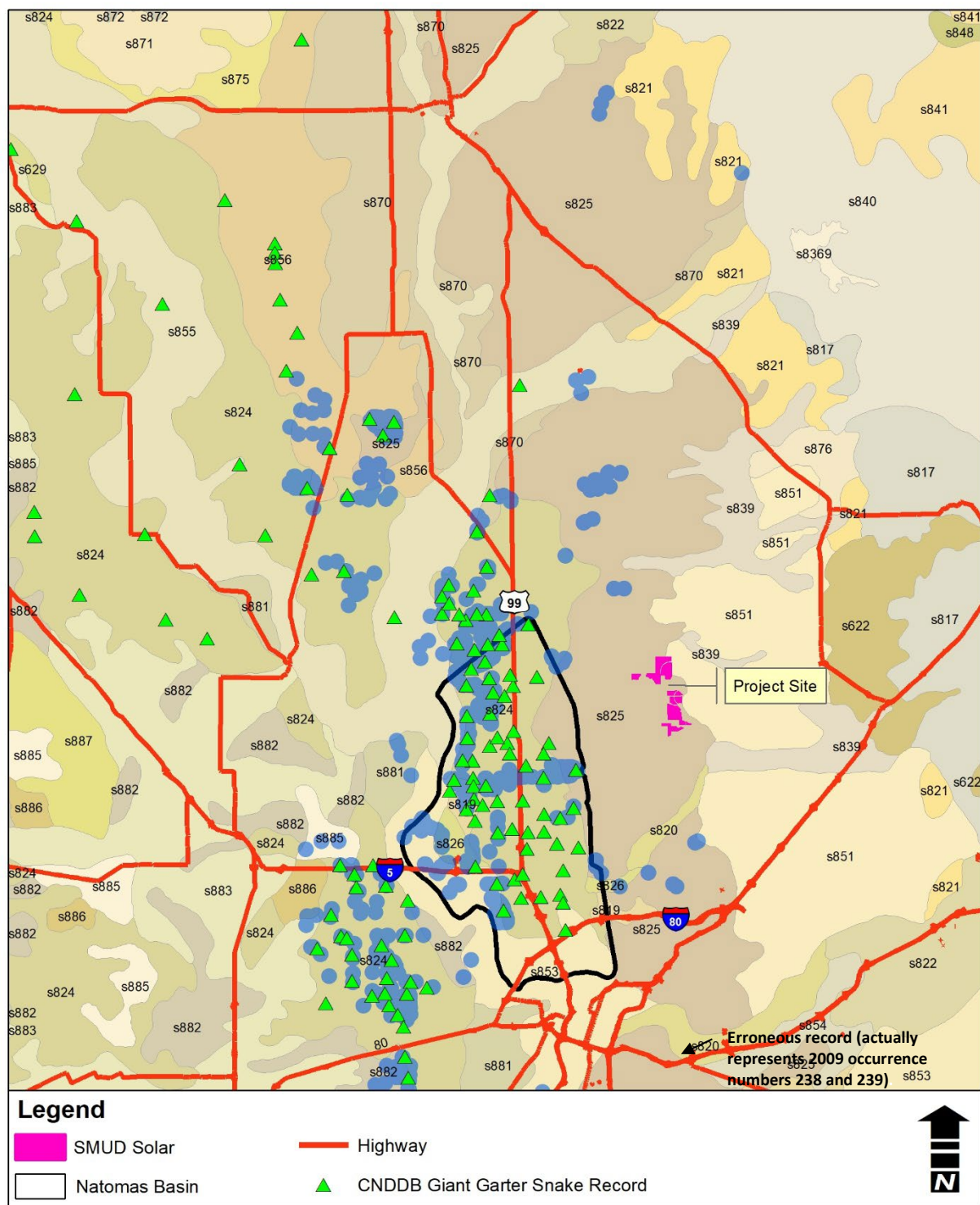


Created on 30 October 2021

Sources: CaSIL, CNDDDB 2015, EC Hansen, NAIP



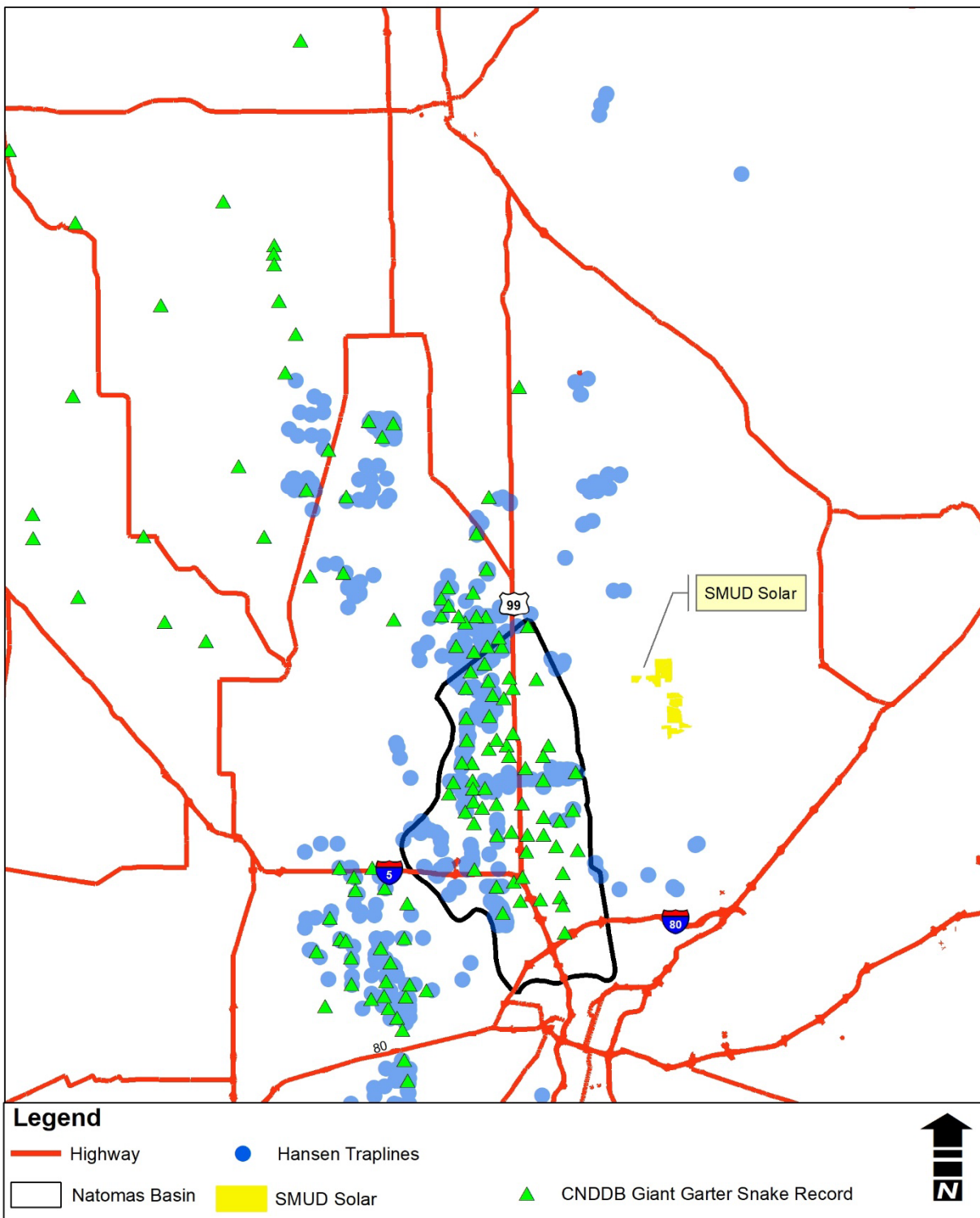
**Figure 4: GGS occurrence records relative to mapped soil categories**



Created on 12 September 2015

Sources: NAIP, ESRI, CNDDDB, Hansen

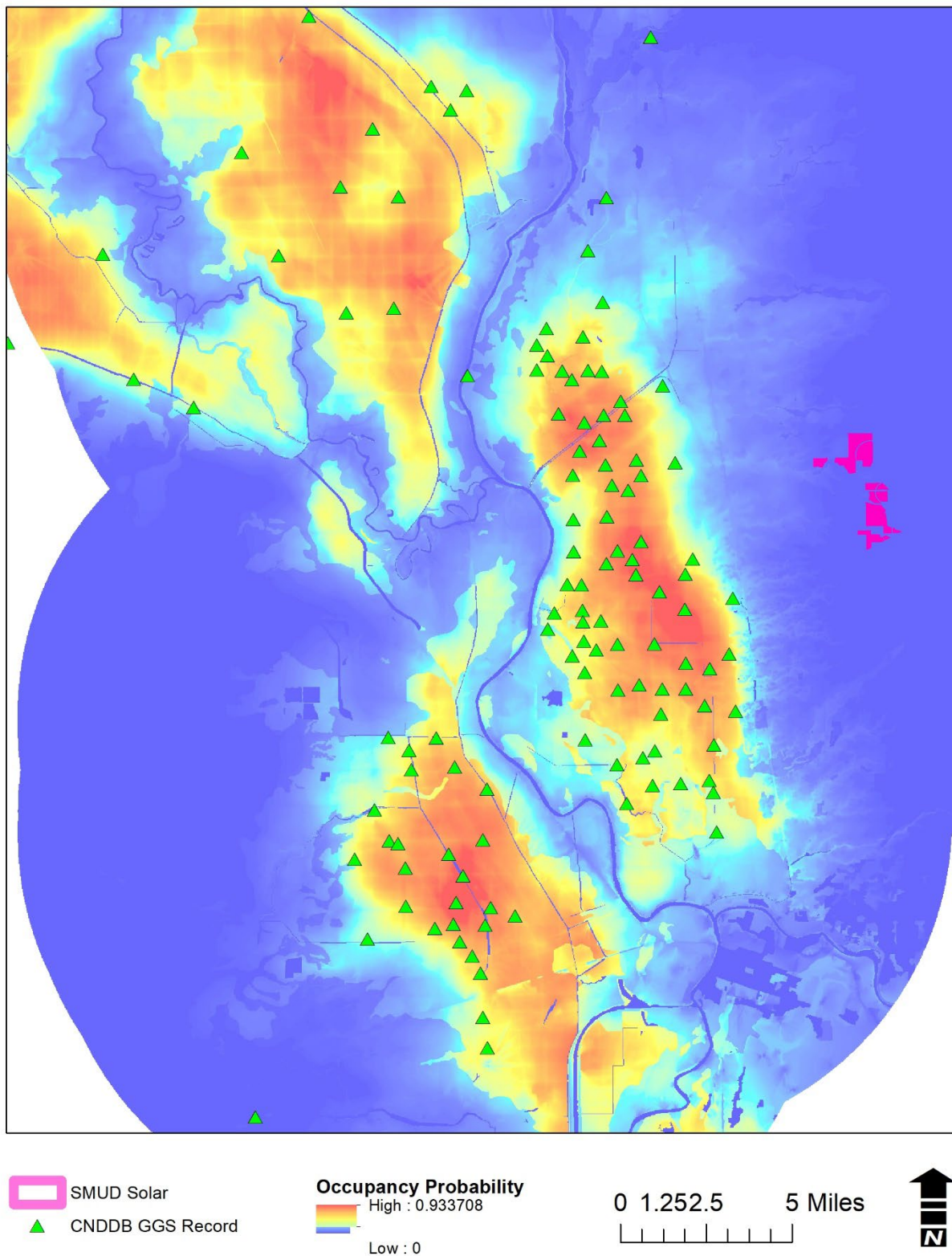
Figure 5: Summary of Regional Trapping Effort (E. Hansen, personal records)



Created on 30 October 2021

Sources: NAIP, ESRI, CNDDDB, Hansen

**Figure 6: Results of regional giant gartersnake occupancy modeling (Hansen et al. 2017)**



If you have questions regarding this evaluation, the methodologies, or any of the subsequent comments, please do not hesitate to contact me. I will gladly expand on any of these topics upon request.

Sincerely,

A handwritten signature in dark ink, reading "Eric C. Hansen". The signature is fluid and cursive, with the first name "Eric" and last name "Hansen" clearly legible.

Eric C. Hansen  
Consulting Environmental Biologist

Appendices:

1. Species Background
2. Scoring Methods
3. Sample of Standard Avoidance Measures for the Giant Garter Snake
4. References



## APPENDIX 1. SPECIES BACKGROUND

**Overview** - The giant garter snake is a federal- and state-listed species precinctive to California's Great Central Valley. Described as among California's most aquatic garter snakes (Fitch 1940), giant garter snakes are associated with low-gradient streams and the wetlands and marshes of the valley floor. The conversion of Central Valley wetlands for agriculture and urban uses has resulted in the loss of as much as 95% of historical habitat for the giant garter snake (Wylie et al. 1997). In some instances where wetlands have been reclaimed, giant garter snakes have adapted successfully to rice agriculture and the irrigation infrastructure supporting its practice (G. Hansen and Brode 1993; G. Hansen 1998; USFWS 1999; Wylie et al. 1997). Giant garter snakes once ranged from Buena Vista Lake near Bakersfield, Kern County, north toward the vicinity of Chico in Glenn and Colusa Counties (G. Hansen and Brode 1980). Due mainly to loss or degradation of aquatic habitat resulting from agricultural and urban development, the giant garter snake has been either extirpated or else suffered serious declines throughout much of its former range.

**Distribution** - The current known distribution of giant garter snakes is patchy, extending from near Chico, Butte County, south to Mendota Wildlife Area, Fresno County. Giant garter snakes are not known from the northern portion of the San Joaquin Valley north to the eastern fringe of the Sacramento-San Joaquin River Delta, where the floodplain of the San Joaquin River is limited to a relatively narrow trough (G. Hansen and Brode 1980, USFWS 1993). The resulting gap of approximately 100 kilometers (62.3 miles) separates the southern and northern populations, with no giant garter snakes known from the lowland regions of Stanislaus County (CNDDB 2011, G. Hansen and Brode 1980). Scattered records suggest that giant garter snakes may have occupied the Sacramento-San Joaquin River Delta at one time, but longstanding reclamation of wetlands for intense agricultural applications has eliminated most suitable habitat (CNDDB 2011, G. Hansen 1986). Recent sightings within the Sacramento-San Joaquin Delta are haphazard, and repeated surveys have failed to identify any extant population clusters west of the eastern inland fringe (G. Hansen 1986, Patterson and E. Hansen 2004, Swaim 2004). Current locality records indicate that within this range, giant garter snakes are distributed in as many as 13 unique population clusters coinciding with historical flood basins, marshes, wetlands, and tributary streams of the Central Valley (R. Hansen 1980, Brode and G. Hansen 1992, USFWS 1993, USFWS 1999). These populations are isolated, without protected dispersal corridors to adjacent populations, and are threatened by land use practices and other human activities, including development of wetland and suitable agricultural habitats.

**Habitat Requirements** - Habitats occupied by giant garter snakes contain permanent or seasonal water, mud bottoms, and vegetated dirt banks (Fitch 1940, G. Hansen and Brode 1980). Prior to reclamation, these wetlands probably consisted of freshwater marshes and low gradient streams. Giant garter snake habitat includes all of the following four characteristics: 1) sufficient water during the snake's active season (typically early spring through mid-fall) to

## APPENDIX 1. SPECIES BACKGROUND

supply cover and food such as small fish and amphibians; 2) emergent, herbaceous wetland vegetation, such as cattails (*Typha* spp.) and bulrushes (*Schoenoplectus* [= *Scirpus*] spp.), accompanied by vegetated banks to provide basking and foraging habitat and escape cover during the active season; 3) upland habitat (e.g., bankside burrows, holes, and crevices) to provide short-term refuge areas during the active season; and 4) high ground or upland habitat above the annual high water mark to provide cover and refuge from flood waters during the dormant winter period (G. Hansen and Brode 1980, G. Hansen 1998).

This species appears to be absent from most permanent waters that support established populations of predatory game fishes, from streams and wetlands with sand, gravel, or rock substrates, and from riparian woodlands lacking suitable basking sites, prey populations, and cover vegetation (G. Hansen and Brode 1980, Rossman and Stewart 1987, Brode 1988, USFWS 1999). The species also appears to be absent from natural or artificial waterways that undergo routine mechanical or chemical weed control or compaction of bank soils (G. Hansen 1988, G. Hansen and Brode 1993).

**Reproduction** - Upon emerging from overwintering sites, male giant garter snakes immediately disperse in search of mates and will continue breeding from March into early May. Female giant garter snakes brood young internally, giving birth to live young from late July through early September (R. Hansen and G. Hansen 1990). Young immediately disperse and seek shelter to absorb their yolk sacs, after which they molt and begin feeding on their own. Brood size ranges from 10 to 46 young, with a mean of 23.1 (n=19) (R. Hansen and G. Hansen 1990). Averaging 3-5 grams with a snout-to-vent length averaging 8.1 inches (20.6 cm), young giant garter snakes will double their size within their first year (R. Hansen and G. Hansen 1990, USFWS 1999). Sexual maturity probably averages 3 years in males and 5 years in females (G. Hansen personal communication, USFWS 1999).

**Longevity** - Survivorship and longevity of giant garter snakes is unknown, with few quantitative studies of survivorship available for the genus as a whole. The best proxy comes from data on individual survival rates for a population of valley garter snakes (*Thamnophis sirtalis fitchi*) at a mountain lake in northern California. Snakes from this population exhibited first year survivorship among neonates ranging from 28.7 to 43.0 percent, with a second year neonate survivorship of 16.4 percent. Survival of yearling snakes was greater than that of juveniles at 50.8 percent, while that of snakes 2 years and older decreased to 32.7 percent (Jayne and Bennett 1990).

**Sources of Mortality** - Giant garter snakes are subject to mortality through the loss or degradation of habitat, predation of juvenile giant garter snakes by introduced predators, elimination of giant garter snakes or prey species by pesticides and other toxins, road mortality, maintenance and modification of

## APPENDIX 1. SPECIES BACKGROUND

agricultural ditches and drains and flood control systems, and flooding (G. Hansen 1986, USFWS 1999).

**Behavior** - Giant garter snakes typically emerge from winter retreats from late March to early April after spending the cool winter months in dormancy or periods of reduced activity. They remain active through October, with the timing of annual activity subject to varying seasonal weather conditions. Daily activity consists of: 1) emergence of burrows after sunrise, 2) basking to increase body temperatures, 3) foraging or courting for the remainder of the day (G. Hansen and Brode 1993). Activity generally peaks during spring emergence and courtship from April into June, whereupon observations of giant garter snakes diminish significantly until a second peak is observed after females give birth during late July into August (G. Hansen and Brode 1993, Wylie et al. 1997, USFWS 1999, E. Hansen 2004). Giant garter snakes then remain active foraging and occasionally courting until the onset of cooler fall temperatures.

**Movement** – Giant garter snakes are strongly associated with aquatic habitats, typically over-wintering in burrows and crevices near to their active-season foraging habitat (E. Hansen 2003a,b). Individuals have been noted using burrows as far as 164 feet (50 meters) from marsh edges during the active season, and retreating as far as 820 feet (250 meters) from the edge of wetland habitats while overwintering, presumably to reach hibernacula that are located above the annual high water mark (G. Hansen 1986, Wylie et al. 1997, USFWS 1999).

Changing agricultural regimes, development, and other shifts in land use create an ever-changing mosaic of available habitat. Giant garter snakes move around in response to these changes in order to find suitable sources of food, cover, and prey. Connectivity between regions is therefore extremely important for providing access to available habitat and for genetic interchange. In an agricultural setting, giant garter snakes rely largely upon the interconnected network of canals and ditches that provide irrigation and drainage to provide this connectivity.

Data based on radiotelemetry studies show that home range varies by location, with median home range estimates varying between 23 acres (9.2 hectares) (range 10.3 to 203 acres [4.2 to 82 hectares], n=8) in a semi-native perennial marsh system and 131 acres (53.2 hectares) (range 3.2 to 2,792 acres [1.3 to 1,330 hectares], n=29) in a managed refuge (USFWS 1999). Differential dispersal and home range patterns between males and larger females who spend the majority of the active season gestating young are not reported. Lifetime dispersal patterns of both neonates and adults of this species are unknown.

**Ecological Relationships** - Giant garter snakes feed on small fishes, tadpoles, and small frogs (Fitch 1940, G. Hansen and Brode 1980, USFWS 1999), specializing in ambushing prey underwater (Brode 1988). Historically, giant

## APPENDIX 1. SPECIES BACKGROUND

garter snakes probably preyed on native species such as the thick-tailed chub (*Gila crassicauda*) and California red-legged frog (*Rana aurora draytonii*) which have been extirpated from the snake's current range, as well as the Pacific chorus frog (*Pseudacris [=Hyla] regilla*) and Sacramento blackfish (*Orthodox microlepidus*) (Cunningham 1959, Rossmann et al. 1996, USFWS 1999). Giant garter snakes now prey upon introduced species, such as small bullfrogs (*Rana catesbeiana*) and their larvae, carp (*Cyprinus carpio*), and mosquitofish (*Gambusia affinis*). While juveniles probably consume insects and other small invertebrates, giant garter snakes are not known to consume larger terrestrial prey such as small mammals or birds.

Large vertebrates, including raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), red foxes (*Vulpes vulpes*), gray foxes (*Urocyon cinereoagustus*), river otters (*Lontra [=Lutra] canadensis*), opossums (*Didelphis virginiana*), northern harriers (*Circus cyaneus*), hawks (*Buteo* spp.), herons (*Ardea herodias*, *Nycticorax nycticorax*), egrets (*Ardea alba*, *Egretta thula*), and American bitterns (*Botaurus lentiginosus*) prey on giant garter snakes (USFWS 1999). In areas near urban development, giant garter snakes may also fall prey to domestic or feral housecats (G. Hansen personal communication). In permanent waterways, introduced predatory game fishes such as black and striped bass (*Micropterus* spp.), sunfish (*Lepomis* spp.), and catfish (*Ictalurus* spp.) probably prey on giant garter snakes and compete with them for smaller prey (G. Hansen 1988, USFWS 1993).

Giant garter snakes coexist with the valley garter snake and, in limited instances, both may be found together with the mountain garter snake (*Thamnophis elegans elegans*), a western terrestrial garter snake subspecies, where this species' range extends to the Central Valley floor. The extent of competition among these species is unknown, but it is likely that differences in habitat use and foraging behavior allow their coexistence (Brode 1988, USFWS 1999).

## APPENDIX 2. SCORING METHODS

### INSTRUCTIONS FOR COMPLETING THE HABITAT EVALUATION AND SCORING FORM FOR GEOGRAPHIC INFORMATION SYSTEMS (GIS)

#### **Giant Garter Snake (*Thamnophis gigas*)**

##### **1. Still or slow-flowing water over silt substrate**

This category is checked if bank habitat adjacent to water is composed of soil, silt, or mud in flows no greater than 3 mph. Water in this category will often be dark or murky rather than clear, of the type observed in marshes, sloughs, or irrigation canals. This category is determined by presence or absence only and receives a positive score.

##### **2. Flowing water over sand, gravel, rock or cement substrate**

This category is checked if channel or bank habitat is composed of an impermeable substrate of the type listed above defining this category, and may include the presence of bank side cinders or fine concrete riprap placed for erosion control. Water in this category will often be clear, associated with flows exceeding 3 mph, of the type typically observed in flowing streams or rivers where silt or sediment will not persist. This category is determined by presence or absence only and receives a negative score.

##### **3. Water available:**

- a) Winter only (runoff) or sporadic availability**
- b) April through October only (e.g. irrigation)**
- c) All year (e.g. perennial marsh or channel)**

Factors in this category are based upon the persistence of all water within 200 feet of observed habitat. Factors in this category are cumulative, are determined by presence or absence only, and receive positive scores.

##### **4. Banks are sunny**

This category is checked if bank habitat adjacent to water receives direct sunlight. Availability of sunlight is determined by the ability of GGS to access sun for basking, and does not include areas where vegetation or topography prevents such access. This category receives positive scores

## **APPENDIX 2. SCORING METHODS**

determined by percentage of sunlight present. Percentage classes and corresponding point values are included on the Habitat Evaluation and Scoring Form.

### ***5. Banks shaded by overstory vegetation***

This category is checked if bank habitat adjacent to water receives shade obstructing direct sunlight. This category is designed to complement and weight category 4, and receives negative scores determined by percentage of shade present. Percentage classes and corresponding point values are included on the Habitat Evaluation and Scoring Form.

### ***6. Aquatic or emergent vegetation present***

This category is checked if bank side aquatic habitat is characterized by aquatic vegetation which persists above the water level (e.g. cattails, bulrushes, primrose or hyacinth). This category receives positive scores determined by the percentage of aquatic vegetation present. Percentage classes and corresponding point values are included on the Habitat Evaluation and Scoring Form.

### ***7. Terrestrial vegetation present***

- a) On banks***
- b) In adjacent uplands***

This category is checked if bank habitat or adjacent uplands within 200 feet of aquatic habitat are characterized by vegetation (e.g. grasses, brush, low shrubs or Himalayan blackberry). This category receives positive scores determined by the percentage of terrestrial vegetation present. Percentage classes and corresponding point values are included on the Habitat Evaluation and Scoring Form.

### ***8. Subterranean retreats present***

- a) In banks***
- b) In adjacent uplands***

This category is checked if bank habitat or adjacent uplands within 200 feet of aquatic habitat are characterized by burrows, holes, or cracks either in the soil or under debris. Factors within this category are cumulative, are determined by presence or absence only, and receive positive scores.

## **APPENDIX 2. SCORING METHODS**

### **9. *Prey fish present***

This category is checked if small aquatic prey fish (e.g. carp, mosquitofish, or blackfish) are present within aquatic habitat. This category is determined by presence or absence only and receives a positive score.

### **10. *Introduced gamefish present***

This category is checked if large, predatory gamefish (e.g. black bass, striped bass, channel catfish) are present within aquatic habitat. This category is determined by presence or absence only and receives a negative score.

### **11. *Prey amphibians present***

This category is checked if amphibians (e.g. bullfrog, treefrog, red-legged frog) are present within or near aquatic habitat. Note that toads do not constitute preferred prey for the giant garter snake and are not included when scoring this category. This category is determined by presence or absence only and receives a positive score.

### **12. *Site subject to severe seasonal or tidal flooding***

This category is checked if habitat is subject to prolonged inundation of upland terrestrial habitat by seasonal floodwaters or persistent tidal flows. This category is determined by presence or absence only and receives a negative score.

### **13. *Adjacent land use***

**a) *Rice, marsh, or wetland***

**b) *Upland***

**c) *Row Crop or horticultural***

**d) *Urban or developed public area***

Factors in this category are based upon dominant land use within 200 feet of observed habitat. Factors in this category are cumulative, are determined by presence or absence only and receive positive or negative scores indicated on the Habitat Evaluation and Scoring Form.

## **APPENDIX 2. SCORING METHODS**

### ***14. Disturbance due to human recreational or maintenance activities***

This category is checked if habitat is subject to prolonged or regular intense disturbance by human recreational or maintenance activities (e.g. fishing, boating, walking, or farming, mowing, burning, or scraping of bankside vegetation). Activities are considered regular if they occur more than 50% of the time between March and November. This category is determined by presence or absence only and receives a negative score.

### ***15. Connectivity to known populations of GGS***

This category is ranked by distance, with occurrence records falling within 10, 5, and 1 mile(s) of the observed habitat receiving scores of 1, 2, and 3 points, respectively. The date of the last recorded observation associated with the record is not considered.



## **APPENDIX 3. SAMPLE OF STANDARD MINIMIZATION AND AVOIDANCE MEASURES FOR THE GIANT GARTER SNAKE**

### **Definition of Take (Federal Definition)**

Section 9 of the Endangered Species Act and Federal Regulation pursuant to section 4(d) of the Endangered Species Act prohibit the take of threatened or endangered species, respectively, without special exemption. Take is defined as harass, harm pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

### **Minimization of Take (Reasonable and Prudent Measures)<sup>3</sup>**

1. All construction activity within giant garter snake habitat (aquatic habitat and adjacent upland habitat within 200 feet of aquatic habitat) shall be conducted between May 1 and October 1. This is considered the active season of the giant garter snake and direct impacts are lessened because snakes may actively avoid danger if adequately warmed. However, even active snakes may remain immobile in response to threats when vegetative cover is available in a likely attempt to rely on their cryptic coloring to avoid detection; this scenario necessitates intervention by a biological monitor (see Measure 3). Danger is posed to giant garter snakes during their inactive over-wintering period because cool temperatures impair rapid movement and resulting escape. Between October 1 and May 1, giant garter snakes typically utilize underground burrows or crevices where they have a greater susceptibility to harm resulting from ground disturbance or excavation. If the project proponent determines that it will not be able to complete the proposed project prior to October 1, the resource agencies should be contacted no later than September 1 to determine actions necessary to minimize the potential for adverse effects.
2. Construction personnel shall participate in a worker environmental awareness program. Under this program, workers shall be informed about the potential presence of giant garter snakes and habitat associated with the species and that unlawful take of the animal or destruction of its habitat is a violation of the

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<sup>3</sup> This list is provided for guidance only. Appropriate and specific measures should be determined following the selection of a final project schedule, the development of a formal project description, and in consultation with U.S. Fish and Wildlife Service, California Department of Fish and Game, and local environmental resource agencies.

### **APPENDIX 3. SAMPLE OF STANDARD MINIMIZATION AND AVOIDANCE MEASURES FOR THE GIANT GARTER SNAKE**

state or federal Endangered Species Acts. Prior to construction activities, a qualified biologist approved by the resource agencies shall instruct all construction personnel about: (1) the life history of the snake; (2) the importance of irrigation canals, marshes and wetlands, and seasonally flooded areas to the snake; and (3) the terms and conditions of environmental permitting. As needed, training shall be conducted in Spanish for Spanish language speakers.

3. Within 24-hours prior to commencement of construction activities, the site shall be inspected by a qualified biologist who is approved by the resource agencies. The biologist will provide the agencies with a field report form documenting the monitoring efforts within 24-hours of commencement of construction activities. The monitoring biologist shall be present during construction for the duration of the project. If a snake is encountered during construction activities, the monitoring biologist shall have the authority to stop construction activities until appropriate corrective measures have been completed or it is determined that the snake will not be harmed. Of particular concern is the risk of the snake to entanglement with any of the erosion control materials. Any silt curtains, silt fencing, and erosion control wattles shall be regularly inspected-for entanglement or entrapment of the snake. Giant garter snakes encountered entering the project area shall be allowed, if they are able, to move away from construction activities and the action area on their own. Capture and relocation of trapped or injured individuals shall be attempted only by personnel or individuals with the necessary state and federal permits. The project biologist shall be required to report any incidental take to the resource agencies immediately. The project area shall be re-inspected whenever a lapse in construction activity of three days or greater has occurred.
4. Clearing of wetland vegetation will be confined to the minimal area necessary to excavate toe of bank for riprap or fill placement. Excavation of channel for removal of accumulated sediments will be accomplished by equipment located on and operated from the top of the bank, with the least interference practical for aquatic vegetation and terrestrial retreats.
5. Movement of heavy equipment to and from the project site shall be restricted to established roadways to minimize habitat disturbance.
6. Snake habitat shall be designated as Environmentally Sensitive Areas and shall be flagged by a qualified biologist approved by the Service and avoided by all construction personnel. Should installation of an exclusion fence occur, the fence shall be inspected before the start of each work day and maintained by the contractor until completion of the project. The fence may be removed only when the construction of the project is completed.
7. During construction operations, the number of access routes, number and size of staging areas, and the total area of the proposed project activity will be limited to the minimum necessary. Routes and boundaries will be clearly

### **APPENDIX 3. SAMPLE OF STANDARD MINIMIZATION AND AVOIDANCE MEASURES FOR THE GIANT GARTER SNAKE**

demarcated. Movement of heavy equipment to and from the project area will be restricted to established roadways to minimize habitat disturbance.

8. After completion of construction activities, any temporary fill and construction debris will be removed and, wherever feasible, disturbed areas will be restored to pre-project conditions. Restoration work may include replanting native emergent vegetation.
9. During construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies will be restricted to the designated construction staging areas which will be greater than 200 feet from the edge of the snake aquatic habitat.
10. The applicant will include a copy of all environmental permits within its construction documents making the primary contractor responsible for implementing all requirements and obligations included within the permits and to educate and inform all other contractors involved in the project as to the requirements of the permits.

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## **APPENDIX C**

# **HISTORIC PROPERTY IDENTIFICATION REPORT**

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# **Country Acres Solar Project**

## Historic Property Identification Report

Sacramento Municipal Utility District

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## Summary of Findings

This Historic Property Identification Report (HPIR) presents the results of a historical assessment completed by AECOM for the Sacramento Municipal Utility District (SMUD) Country Acres Solar Project (the “project”) in compliance with the provisions of the California Environmental Quality Act (CEQA) and National Historic Preservation Act (NHPA). CEQA requires public agencies to assess the impacts of their projects on historical resources. Section 106 of the NHPA requires federal agencies to consider the effects of their undertakings on historic properties and give the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The proposed project would be a federal undertaking for the purposes of Section 106. This HPIR was prepared in partial fulfillment of CEQA and Section 106 requirements.

As part of this HPIR, AECOM conducted archival research and completed surveys to identify cultural resources within the project’s Area of Potential Effects, and conducted initial consultation with the Native American Heritage Commission. AECOM also conducted a cultural resources records search at the North Central Information Center and of the California Historical Resources Information System, housed at California State University, Sacramento; and completed supplemental research with various organizations. SMUD is conducting Native American and interested party outreach.

Background research, Native American and interested parties outreach, literature review, and field survey identified two cultural resources in the study area. These consist of P-31-003280 an electrical transmission line and P-31-006131 a maintained and well-used county road (Base Line Road). Both were recommended not eligible for inclusion the National Register and California Register. Therefore, a finding of “No Historic Properties Affected” is recommended for the project.

## Preparers

This HPIR has been prepared and reviewed by the following principal investigators, who meet the Secretary of the Interior’s Professional Qualifications Standards (SOIPQS) (62 Federal Register 33708-33723):

- Diana Ewing was principal investigator for archaeology and conducted the field survey. She has a BA degree in Anthropology (Archaeology) from the University of California, Davis; has an MA degree in Anthropology (Archaeology) from the University of Nevada, Las Vegas, (earned in California); and has more than 10 years of experience in northern and coastal California, the Alaskan Arctic, Arizona, and Nevada. She meets the SOIPQS for work in archaeology.
- Richard Deis, RPA (Register of Professional Archaeologists) provided senior guidance and input for this study. He has an MA degree in Anthropology from California State University, Sacramento and has more than 30 years of professional archaeological experience in California and Nevada. Mr. Deis has evaluated hundreds of archaeological and built environment resources and has drafted and implemented numerous historic property management and treatment plans. He meets the SOIPQS for work in archaeology.

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Appendix A Records Search Results Summary Letter

Appendix B Previous Investigations and Documented Resources (Confidential)

Appendix C Native American Heritage Commission Consultation

Appendix D AB 52 Consultation

Appendix E Section 106 Native American Consultation

## Acronyms and Abbreviations

AB	Assembly Bill
AC	alternating current
AFB	Air Force Base
APE	Area of Potential Effects
B.P.	before present
ca.	circa
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CRHR	California Register of Historical Resources
DC	direct current
HPIR	Historic Property Identification Report
KMZ	Keyhole Markup Language (file extension)
kV	kilovolt(s)
MLD	Most Likely Descendent
NAHC	Native American Heritage Commission
NCIC	North Central Information Center
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
OHP	Office of Historic Preservation
PRC	Public Resources Code
PV	photovoltaic
SHPO	State Historic Preservation Officer
SMUD	Sacramento Municipal Utility District
SOIPQS	Secretary of the Interior's Professional Qualifications Standards
SRFCP	Sacramento River Flood Control Project
SSBMI	Shingle Springs Band of Miwok Indians
SSFL	Sacramento Suburban Fruit and Land
TCP	tribal cultural property
TCR	tribal cultural resource
THPO	Tribal Historic Preservation Officer
UAIC	United Auburn Indian Community
USACE	U.S. Army Corps of Engineers
WAPA	Western Area Power Administration
Wilton	Wilton Rancheria

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## Undertaking Description

The Sacramento Municipal Utility District (SMUD) is proposing to construct and operate a new photovoltaic (PV) solar power and battery storage renewable energy generation facility (hereinafter the “project”) in southwestern Placer County.

The project would be located on approximately 1,300 acres of property in southwestern Placer County just west of the City of Roseville, north of Baseline Road between Watt Avenue and South Brewer Road on several parcels.

The Country Acres Solar Project includes construction and operation of a PV solar power and battery storage facility and interconnection facilities, including a generation substation, switch station, and interconnection lines, that would provide new power production capacity of up to 344 megawatts delivered at the point of interconnection with the grid managed by SMUD. The total project site encompasses up to 1,300 acres, and would generally be comprised of PV solar modules, foundation piles, racking, direct current (DC) collection, alternating current (AC) collection, fencing, roads, inverters, medium voltage transformers, an interconnection line between the generation substation and switch station, battery storage equipment, and interconnection lines to the existing SMUD transmission system. During construction, a temporary construction trailer/office complex and staging areas would be established. During operation, the proposed project would plan to include an operations facility. At the end of the project’s life (anticipated to be 30 to 35 years or more), the site would be decommissioned.

The project would have an underground network of AC power cables that would connect the array transformers to a medium voltage combining switchgear. This switchgear would connect, via an overhead or underground collection system, to the proposed generation substation. When an overhead line is used, it would be supported by wooden or steel poles approximately 30 to 40 feet tall. These lines will follow existing infrastructure easements or access roads when feasible. The onsite substation would then transform the final voltage to connect the project power to the existing SMUD transmission system.

The project would have an onsite substation with one or more generation step-up transformers, breakers, buswork, protective relaying, meters, Site Control Center building, backup power, associated substation equipment, and a dedicated perimeter fence. The substation would be constructed and operated to step up the voltage of the electricity generated from the PV arrays or stored in the battery energy storage system (BESS). The substation site would be improved with compacted materials and foundations to support electrical equipment and supporting infrastructure.

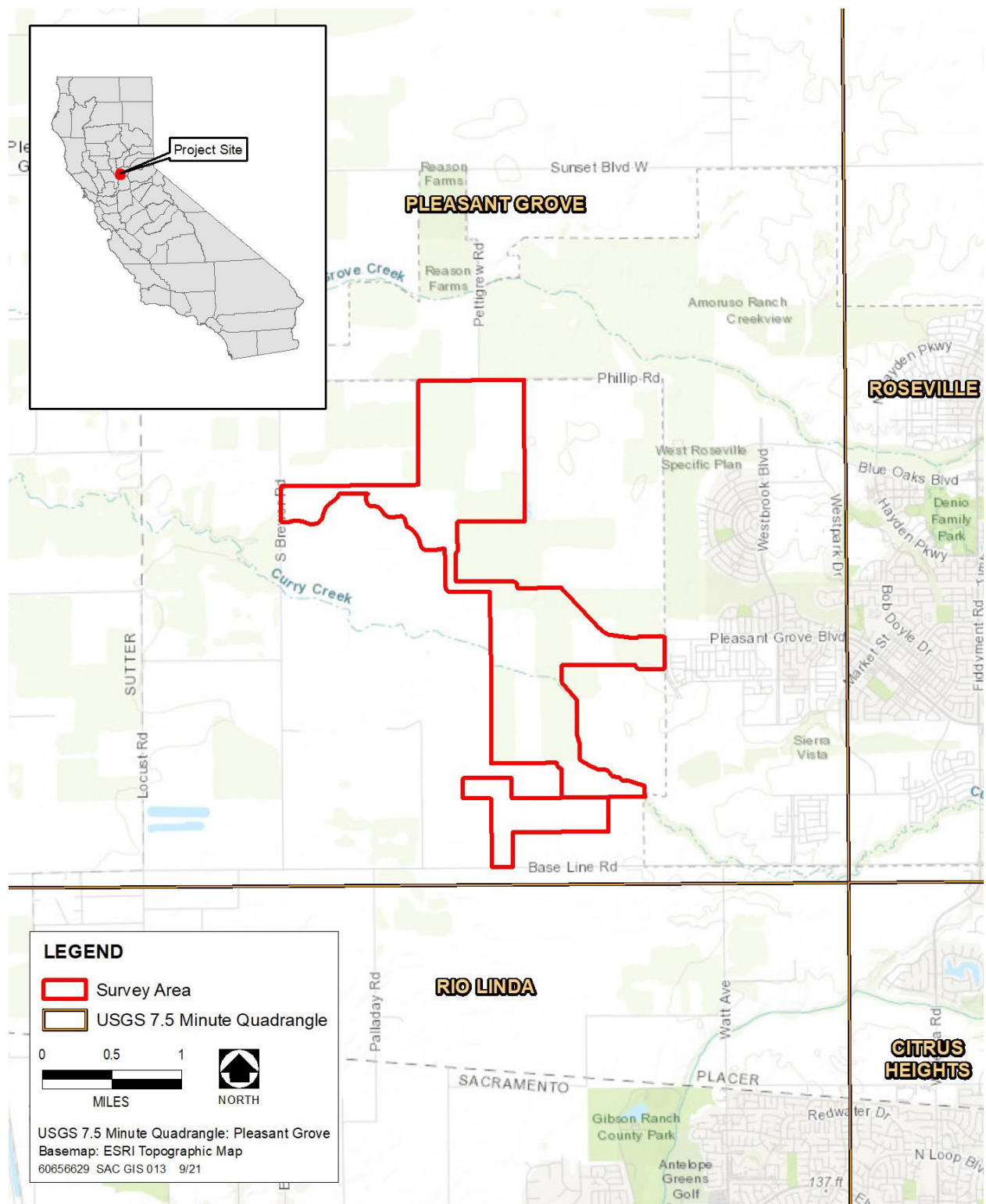
Limited grading and vegetation removal is proposed along the access roads, at the location of the inverters and transformers, at the BESS yard, the generation substation, and switching station. Aside from these areas, vegetation removal would generally not occur where solar panels would be installed in areas currently in grassland. Vegetation removal would occur in areas currently planted in almonds. Other site improvements would consist of the installation of a temporary 12-kilovolt line to provide power at staging yards, removal of current agricultural operations such as irrigation for orchards, and removal or relocation underground of existing 12-kilovolt lines providing power to wells.

## Project Location

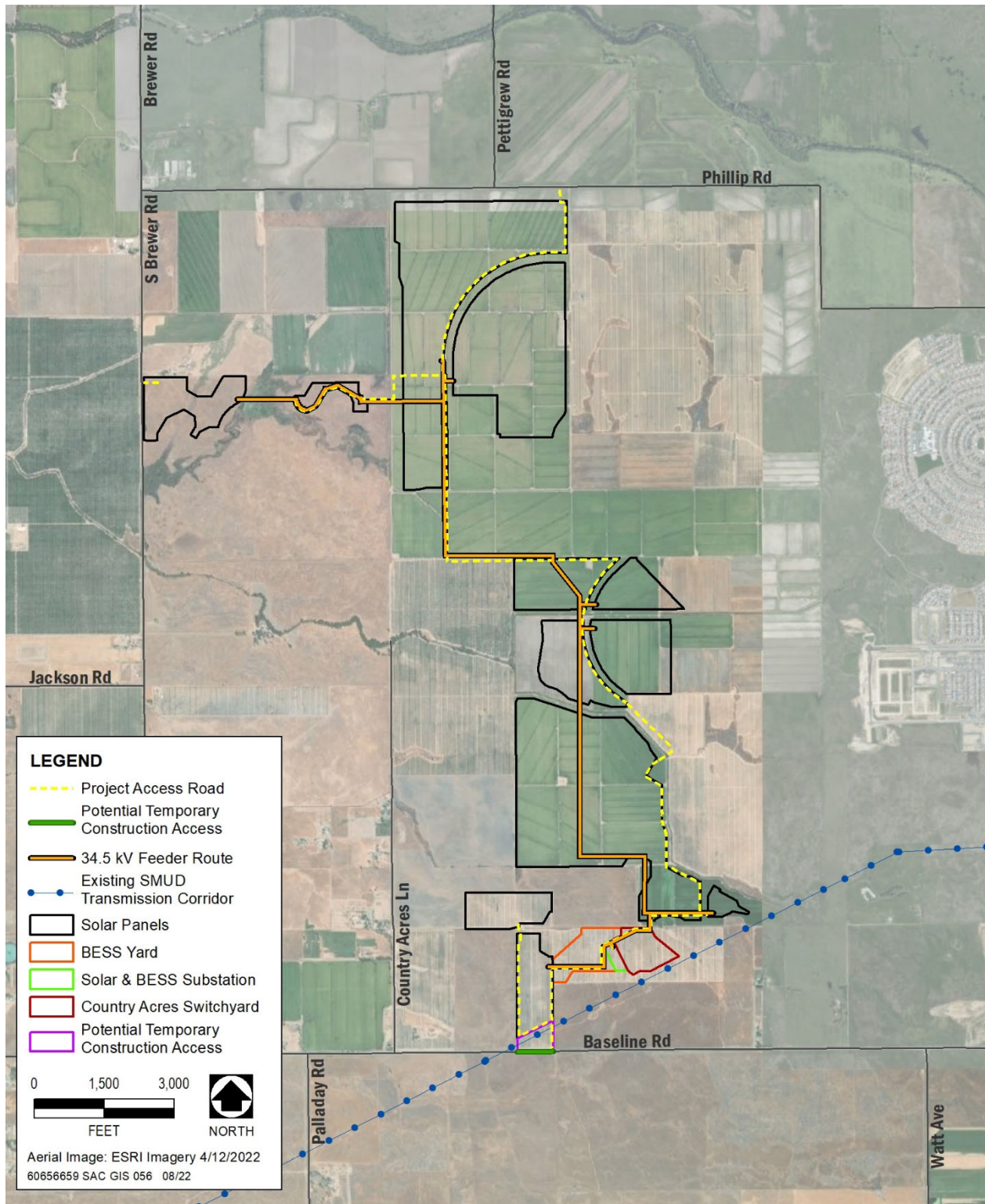
**The Area of Potential Effects (APE) is within Township 11N, Range 05E, Sections 16, 17, 20, 21, 22, 27, 28, 33, and 34 as depicted on the Pleasant Grove U.S. Geological Survey (USGS) 7.5-minute quadrangle. It consists of leased agricultural parcels used for rice and almond production in southwestern Placer County, California. The study area is generally bounded by Baseline Road to the south, S Brewer Street to the west, Phillip Road to the north, and the Westpark neighborhood of Roseville to the east (Figure 1)**

Figure 2. The elevation of the site ranges between approximately 58 and 100 feet above sea level. The majority of the region is privately owned and developed for agricultural, industrial, residential, and transportation uses. Surrounding land uses include rice fields and almond orchards; urban development; and open space areas with seasonal wetland, riparian, and annual grassland vegetation.





**Figure 1. Study Area**



**Figure 2. Project Site – Area of Potential Effects**

## Area of Potential Effects

The APE, as defined in 36 Code of Federal Regulation (CFR) Part 800.16(d), is “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.”

Elements of the project, depicted in Figure 2, could be subject to permitting and/or approval authority of other agencies. As the lead agency pursuant to CEQA, SMUD is responsible for considering the adequacy of the draft environmental impact report and determining whether the project should be approved. The project would also be subject to compliance with Section 404 of the Clean Water Act (CWA) for discharge of fill to Waters of the U.S. and would require obtaining a Section 404 permit from the U.S. Army Corps of Engineers (USACE). Based upon federal involvement, the project would be subject to compliance with Section 106 of the National Historic Preservation Act (NHPA).

## Cultural Context

This chapter describes the prehistoric and historic settings of the study area for the undertaking.

### Prehistoric Context

In an attempt to unify the various hypothesized cultural periods in California, Fredrickson (1993) proposed an all-encompassing scheme for cultural development, while acknowledging that these general trends may manifest themselves differently and some variation may exist between subregions. These general cultural periods (i.e., Paleo-Indian, Early, Middle and Late Archaic, and Emergent periods) are used in this document in connection with the North-Central Sierra Nevada chronology because of their relevancy to the lower foothill region of the project area, in the vicinity of Folsom.

The Late Pleistocene pattern and period (greater than 10,000 years before present [B.P.]) is practically nonexistent in the foothill and eastern Sacramento Valley. Sites CA-SAC-370 and CA-SAC-379, located near Rancho Murieta, produced numerous bifaces, cores, and raw materials from gravel strata estimated to be between 12,000 and 18,000 years in age. Early Holocene pattern and period (circa [ca.] 10,000–7000 B.P.) was first defined by Bedwell (1970) as a human adaptation to lake, marsh, and grassland environments that were prevalent at this time. Appearing after 11,000 years B.P., the tradition slowly disappeared ca. 8000–7000 B.P.

During the Archaic pattern and period (ca. 7000–3200 B.P.), the climate in the valleys and foothills of Central California became warmer and dryer, and millingsstones are found in abundance.

The Early and Middle Sierran pattern (ca. 3200–600 B.P.) evidences an expansion in use of obsidian, which is interpreted with reservation to indicate an increase in regional land use, and the regular use of certain locales. During this time, a much heavier reliance on acorns as a staple food was developed, supporting large, dense populations.

During the Late Sierran period (ca. 600–150 B.P.), archaeological village sites generally correspond to those identified in the ethnographic literature. Diagnostic artifacts include small contracting-stem points, clam shell disk beads, and trade beads that were introduced near the end of the period, marking the arrival of European groups (Beardsley 1954:77–79; Elsasser 1978:44; Fredrickson 1993).

### Ethnographic Context

The project area is situated within the traditional territory of the Nisenan. The language of the Nisenan, which includes several dialects, is classified within the Maiduan family of the Penutian linguistic stock. Kroeber (1925) recognized three Nisenan dialects: Northern Hill, Southern Hill, and Valley. The Nisenan territory included the drainages of the Yuba, Bear, and American Rivers, and the lower drainages of the Feather River, extending from the crest of the Sierra Nevada to the banks of the Sacramento River. According to Bennyhoff (1961:204–209), the southern boundary with the Miwok was probably a few miles

south of the American River, bordering a shared area used by both Miwok and Nisenan groups that extended to the Cosumnes River. It appears that the foothills Nisenan distrusted the valley peoples but had a mostly friendly relationship with the Washoe to the east. Elders recall intergroup marriage and trade, primarily involving the exchange of acorns for fish procured by the Washoe (Wilson 1972:33). The northern boundary has not been clearly established due to similarities in language with neighboring tribes (Wilson and Towne 1978:387–389).

Nisenan settlement locations depended primarily on elevation, exposure, and proximity to water and other resources. Permanent villages were usually located on low rises along major watercourses. Houses were domed structures measuring 10 to 15 feet in diameter and covered with earth and tule reeds or grass. Brush shelters were used in the summer and at temporary camps during food-gathering rounds. Larger villages often had semi-subterranean dance houses that were covered in earth and tule reeds or brush, with a central hole at the top to allow the escape of smoke, and an east-facing entrance. Another common village structure was the granary, which was used for storing acorns.

Several political divisions in the Nisenan territory, constituting tribelets, had headmen in the larger villages. However, the relative levels of influence in these larger population centers are unknown. All of these larger villages were located in the foothills. More substantial and permanent Nisenan villages generally were not established on the valley plain between the Sacramento River and the foothills, although this area was used as a rich hunting and gathering ground. One tribelet consisted of people occupying the territory between the Bear River and the Middle Fork American River (Wilson and Towne 1978). According to Kroeber (1925:831), the larger villages could have had populations exceeding 500 individuals, although small settlements consisting of 15 to 25 people and extended families were common.

The Nisenan occupied permanent settlements from which specific task groups set out to harvest the seasonal bounty of flora and fauna provided by the rich valley environment. The Valley Nisenan economy involved riparian resources, in contrast to the Hill Nisenan, whose resource base consisted primarily of acorn and game procurement. The only domestic plant was native tobacco (*Nicotiana* sp.), but many wild species were closely husbanded. The acorn crops from the blue oak (*Quercus douglasii*) and black oak (*Q. kelloggii*) were carefully managed resources. Acorns were stored in granaries in anticipation of winter. Deer, rabbit, and salmon were the chief sources of animal protein in the aboriginal diet, but many insect and other animal species were taken when available (Wilson and Towne 1978:389).

The decimation of the Nisenan culture in the nineteenth century as a result of European colonization, coupled with a reluctance to discuss Nisenan spiritual beliefs and practices, makes it difficult to describe these practices in any detail. However, historic records document a number of observances and dances, some of which are still performed today, that were important ceremonies in early historic times. The Kuksu Cult, the basic religious system noted throughout Central California, appeared among the Nisenan. Cult membership was restricted to those initiated in its spirit and deity-impersonating rites. However, the Kuksu Cult was only one of several levels of religious practice among the Nisenan. Various dances associated with mourning and the change of seasons were also important. One of the last major additions to Nisenan spiritual life occurred sometime shortly after 1872 with a revival of the Kuksu Cult as an adaptation to the Ghost Dance religion (Wilson and Towne 1978). Today, Nisenan descendants are reinvesting in their traditions and represent a growing and thriving community.

Following documentation by the Department of Interior for the existence of a separate, cohesive band of Maidu and Miwok Indians, occupying a village on the outskirts of the City of Auburn in Placer County, the United States acquired land in trust for the Auburn Band in 1917 near the City of Auburn and formally established a reservation, known as the Auburn Rancheria. Tribal members continued to live on the reservation as a community despite great adversity.

However, in 1967, the United States terminated federal recognition of the Auburn Band, and, in 1970, President Nixon declared the policy of termination a failure. In 1976, both the United States Senate and House of Representatives expressly repudiated this policy in favor of a new federal policy entitled Indian Self-Determination.



In 1991, surviving members of the Auburn Band reorganized their tribal government as the United Auburn Indian Community and requested that the United States formally restore their federal recognition. In 1994, Congress passed the Auburn Indian Restoration Act, which restored the Tribe's federal recognition. The Act provided that the Tribe may acquire land in Placer County to establish a new reservation.

Today, Nisenan descendants and other tribes are reinvesting in their traditions and represent a growing and thriving community that is actively involved in defining their role as stewards of their ancestors' sites including the identification of tribal cultural resources (TCRs). TCRs provide the backdrop to religious understanding, traditional stories, knowledge of resources such as varying landscapes, bodies of water, animals and plants, and self-identity. Knowledge of place is central to the continuation and persistence of culture, even if former Nisenan and Miwok occupants live removed from their traditional homeland. Consulting tribes view these interconnected sites and places as living entities; their associations and feeling persist and connect with descendant communities.

Specifically, United Auburn Indian Community (UAIC), a federally recognized Tribe comprised of both Miwok and Maidu (Nisenan) Tribal members are traditionally and culturally affiliated with the project area. The Tribe has a deep spiritual, cultural, and physical ties to their ancestral land and are contemporary stewards of their culture and landscapes. The Tribal community represents a continuity and endurance of their ancestors by maintaining their connection to their history and culture. It is the Tribe's goal to ensure the preservation and continuance of their cultural heritage for current and future generations.

## **Historical Context**

The historic era in California began with Spanish colonization and is often divided into three distinctive chronological and historic periods: the Spanish or Mission Period (1542–1821), the Mexican or Rancho Period (1821–1848), and the American Period (1848–present). After Mexican independence in 1821, Spain transferred its lands to the newly established country of Mexico. The Mexican Period was also a time when large parcels of land, known as ranchos, were granted to trusted Mexican citizens, many of whom were Americans who had converted to Catholicism and married the children of Mexican nationals, or had otherwise become Mexican citizens to promote settlement in California and encourage agricultural and ranching enterprises.

More than 800 rancho grants were bestowed during the Mexican Period throughout California. The study area was originally part of the 44,374.42-acre Rancho del Paso Mexican land grant. The study area is located in an agricultural area largely undeveloped until the early twentieth century. Rancho del Paso (granted 1844, patented 1858) is in present-day Sacramento on the north side of the American River (Cowan 1956; Kyle et al. 2002:302–303). The United States took control of California after the Mexican-American War in 1848 with the signing of the Treaty of Guadalupe Hidalgo. California became a state in 1850, and the development patterns in California during the late nineteenth and early twentieth centuries were characterized by agricultural ventures, ranching, mining, and settlement.

The project area is in southwest Placer County near the Sutter County line and northwest of the city of Roseville. The project area was historically part of large tracts of undeveloped land along various creeks in the region that were purchased to create large farms and ranches starting in the mid-1850s. Much of southwest Placer County was eventually comprised of large tracts of land owned by early settlers including the Fiddymont family, Stephen A. Boutwell, William Dunlap, James Kaseberg, and others. Stock raising sheep and cattle, and wheat and grain farming were the primary land use in the mid-to-late nineteenth century in southwestern Placer County. The development of railroads through the Sacramento Valley in the 1860s and 1870s lead to further development of the region and the creation of the railroad-centered communities of Roseville and Lincoln (City of Roseville 2016:3-37; Southern Placer Regional Transportation Authority 2007: 4-2 to 4-3).

Into the twentieth century, agriculture remained as the region's primary economy as the community of Roseville emerged as the shipping and trading center for southern Placer County. The Southern Pacific Railroad relocated its major locomotive terminal from Rocklin to Roseville in 1909, transforming Roseville into one of the largest railroad centers in the country. A year later, Roseville incorporated and by 1910 had a population of 2,600 becoming the largest city in the county. Population growth in Placer County was

relatively slow until World War II and into the post-war period as growth within the greater Sacramento metropolitan spread into surrounding communities. Between 1940 and 1960, Roseville's population more than doubled from 6,600 to 13,400; however, the project area in southwest Placer County remained rural and sparsely populated. Expansion of the state highway system in the post-World War II period, including the completion of State Route 65 in 1971 connecting the communities of Roseville, Rocklin, and Lincoln that were already experiencing rapid growth in the 1960s, impacted the rural character of southern Placer County. Initially suburban housing and commercial developments occurred southeast of the project area around the city of Roseville; however, suburban residential development spread west and northwest from Roseville and toward the project area beginning in the 1990s and continues to the present day abutting the east side of the project area. Today, the project area remains sparsely populated with some rural residential development, but the majority of the land use is devoted to rice, almond trees, and other agricultural uses (City of Roseville 2016: 3-37; Southern Placer Regional Transportation Authority 2007: 4-2 to 4-3; US Census 2011; Historicaerials.com 2021).

## **Literature Review**

A cultural resources records search of the project site and vicinity was conducted by the North Central Information Center (NCIC) of the California Historical Resources Information System (or CHRIS) on April 6, 2021 (NCIC File No SAC-21-27). The records search was conducted to obtain background information regarding previous resources or studies that have been reported within and in the vicinity of the project site, and to obtain existing information that may contribute to the proposed project's cultural sensitivity assessment. Documentation of the cultural resources records search results is provided in Appendix A.

The search included the project site and a 0.25-mile radius. The results were used to determine whether known cultural resources have been recorded at or adjacent to the project site, and to assess the cultural sensitivity of the area. The records search included reviews of maps listing previously conducted cultural resource studies in the area, and historic General Land Office (or GLO) maps.

Site records and previous studies were accessed for the project APE and a 0.25-mile radius in the Pleasant Grove, California USGS 7.5-minute quadrangle. The following references also were reviewed:

- National Register of Historic Places (NRHP)
- California Register of Historical Resources (CRHR)
- Office of Historic Preservation (OHP) Historic Property Data File (April 2012)
- California State Historical Landmarks (OHP 1996)
- California Inventory of Historic Resources (California Department of Parks and Recreation 1976)
- California Points of Historical Interest (OHP 1992)

A series of cultural resources investigations have occurred in portions of the APE and within 0.25 miles of the APE over the years,

AECOM requested a records search at the NCIC, search of the Native American Heritage Commission (NAHC) Sacred Lands Files, and archaeological pedestrian survey of the proposed solar fields to comply with both Section 106 of the NHPA and CEQA requirements as part of this project.

## **Previous Investigations**

Seventeen cultural resource investigations have been conducted within portions of the current project (Table 1), and an additional six studies have been conducted within 0.25 miles of the project (Table 2). The locations of these studies are presented in Appendix B.



**Table 1. Previous Cultural Resources Inventories within the APE**

NCIC Report Number	Year	Author(s)	Report Title	Documented Resources
355	1986	P. Michelsen; Far Western Anthropological Research Group Inc.	An Archeological Reconnaissance of a 14 Mile Long Transmission Line Corridor Between the Elverta Street Substation, Sacramento County, and the Berry Street Substation, Placer County, California.	None
396	1979	Ann Peak; Peak & Associates Inc.	Cultural Resource Assessment of Sacramento Municipal Utility District's Project C, Phase I, 230kV Transmission Line, Tower No. 355, Placer County to Elverta Substation, Sacramento County, California	None
2807	2000	Windmiller, Ric, Dan Osanna, and Donald Napoli	Phase I Inventory and Overview of Cultural Resources, Placer Vineyards Specific Plan, Placer County, California	None within 0.25 miles of APE
6571	2005	Windmiller, Ric	Placer Vineyards Specific Plan: Updated Cultural Resources Study Placer County, California (See report 2484 for initial report)	None within 0.25 miles of APE
6898	2005	Sean Jensen; Genesis Society	Archaeological Inventory Survey Proposed Regional University Development Project, c. 2,400 Acres near Roseville, Placer County, CA	None within 0.25 miles of APE
7130	2002	Brian Hatoff and R. Egherma; AECOM formerly URS	Roseville Energy Facility Cultural Resources	P-31-003280 within APE
7607	2004	Peter Jensen	Archaeological Inventory Survey, Proposed De La Salle University Development Project	None
7726	2006	ECORP	Cultural Resources Survey Report, Sierra Vista Specific Plan, Placer County, California, Project 2005-147	None within 0.25 miles of APE
8967	2007	Sharon A. Waechter, Stephen Wee, and Cynthia Toffelmier; Far Western Anthropological Research Group Inc.	Cultural Resources Inventory for the Sacramento River Water Reliability Study, Sacramento and Placer Counties, California	None within 0.25 miles of APE
9138	2007	Marcos Guerrero; ECORP	Cultural Resources Survey Report, Sierra Vista Specific Plan- Chan Property, Placer County, California, Project 2005- 147	None
9188	2002	Wendy J. Nelson and Kimberley Carpenter; Far Western Anthropological Research Group Inc.	Cultural Resources Survey for Right-of-Way Maintenance Along the Western Area Power Administration Transmission Lines Volumes I, II, and III	None within 0.25 miles of APE
9568	2001	Windmiller, Ric	Phase 1 Cultural Resources Inventory Property 12 Placer Vineyards Specific Plan Placer County California	P-31-3504 within 0.25 miles of APE
10319	2008	Wohlgeumth, Eric, Laura Leach-Palm, Sharon A. Waechter, Mary L. Maniery, Cindy Baker, and Stephen Wee; Far Western Anthropological Research Group, Inc.; PAR Environmental Services, Inc.; JRP Historical Consulting	Cultural Resources Survey for the PG&E Line 407 Project, Placer, Sacramento, Sutter and Yolo Counties, California Volume I	P-31-003310 within 0.25 miles of APE
12443	2016	Megan Webb and Stephen Pappas; ECORP Consulting, Inc.	Cultural Resources Inventory Report for 1,040 Acres of the 1,940-acre Placer Vineyards Infrastructure Phase 1A, Placer County, California	P-31-003280 and P-31-006131 within APE; P-31-003504 and P-31-003310 within 0.25 miles of APE
12459	2016	Megan Webb and Stephen Pappas; ECORP Consulting, Inc.	Cultural Resources Evaluation Plan for the Placer Vineyards Infrastructure Phase 1A, Placer County, California	P-31-006131 within APE
12653	2016	Megan Webb and Jeremy Adams; ECORP Consulting, Inc.	Test Program Results and Evaluation for Cultural Resources, Placer Vineyards Infrastructure Phase 1a, Placer County, California	P-31-006131 within APE
12654	2018	Megan Webb; ECORP Consulting, Inc.	Supplemental Cultural Resources Inventory and Evaluation Report, Placer Vineyards Infrastructure Phase 1A Permit Area, Placer County, California	None within 0.25 miles of APE

Note: All reports are on file at the North Central Information Center

Source: North Central Information Center 2021, data compiled by AECOM 2021

APE = Area of Potential Effects

NCIC = North Central Information Center

PG&E = Pacific Gas & Electric Company

**Table 2. Previous Cultural Resources Inventories within 0.25 Miles of the APE**

NCIC Report Number	Year	Author(s)	Report Title	Documented Resources
2484	2000	Windmiller, Ric, Dan Osanna, and Donald Napoli	Phase I Inventory and Overview of Cultural Resources, Placer Vineyards Specific Plan, Placer County, California	None within 0.25 miles of APE
7625	2002	Mark Hale; AECOM formerly URS Corporation	Archaeological Reconnaissance of the 1,329-acre Reason Farms, for the City of Roseville, Placer County, California	None within 0.25 miles of APE
10297	2009	Stephen Pappas; ECORP Consulting Inc	Cultural Resources Survey and Evaluation Report Sierra Vista Specific Plan - Conley Property	P-31-3739 within 0.25 miles of APE
11048	2009	Dwight Simons; Tremaine & Associates, Inc	Archaeological Survey Report, Replacement of the Brewer Bridge (19C-0104) at Branch of Curry Creek, Placer County, CA	None within 0.25 miles of APE
11357	2013	Lisa Westwood, Jeremy Adams, and Stephen Pappas; ECORP Consulting Inc	Cultural Resources Inventory and Evaluation Report Placer Vineyards 7 Placer County, California ECORP Project No. 2013-088	P-31-3310 within 0.25 miles of APE
11447	2007	Douglas Davy; CH2M Hill	Cultural Resources Inventory for the Sacramento Area Voltage Support Supplemental Environmental Impact Statement	P-31-6193 within 0.25 miles of APE

Note: All reports are on file at the North Central Information Center

Source: North Central Information Center 2021, data compiled by AECOM 2021

APE = Area of Potential Effects

Two previously recorded resources are located within the project area (Table 3), and another six previously documented cultural resources have been identified within 0.25 miles of the project area (Table 4). The locations of these resources are depicted in Appendix B.

**Table 3. Previously Recorded Cultural Resources within APE**

Primary Number	Type	Age	Description	NRHP Eligibility
P-31-3280	Structure	Historic	WAPA Transmission Line	Not eligible
P-31-6131	Roadway	Historic	Baseline Road	Not eligible

APE = Area of Potential Effects

NRHP = National Register of Historic Places

WAPA = Western Area Power Administration

One of the previously documented resources (P-31-003280) is an electrical transmission line and the other (P-31-006131) is a maintained and well-used county road (Base Line Road).

P-31-003280 is historically identified as a Western Area Power Administration (WAPA) transmission line that extends from the Elverta power station to the Roseville power station and was constructed by the federal government in 1952. Initially, the transmission line was recorded by JRP in 2001 and was recommended not eligible for inclusion in the NRHP. In 2006, Mark A. Beason confirmed that the transmission line was not eligible for inclusion in the NRHP.

P-31-006131 is a two-lane paved historic road alignment that, while having maintained the integrity of its original alignment, lacks integrity and was recommended as not eligible for inclusion in the NRHP by ECORP in 2015.

With the exception of an isolated biface fragment (P-31-3310) all of the previously observed resources within 0.25 miles of the APE are from the historic era, and appear to reflect land use associated with agriculture and ranching.

**Table 4. Previously Recorded Cultural Resources within 0.25 Miles of APE**

Primary Number	Type	Description	NRHP Eligibility
P-31-1255	Historic	Refuse	Unevaluated
P-31-3310	Prehistoric	Isolated obsidian biface fragment	Not eligible
P-31-3504	Historic	Irrigation pipe	Unevaluated
P-31-3739	Historic	Isolated metal canister	Not eligible
P-31-6193	Historic	Corral and cattle loading feature	Unevaluated

APE = Area of Potential Effects

NRHP = National Register of Historic Places

### **Native American Heritage Commission**

The NAHC was contacted by AECOM via email on February 2, 2021, for a Sacred Lands File & Native American Contacts List Request. The NAHC responded via email on February 11, 2021, with negative results and attached a list of Native American tribes that may have knowledge of cultural resources in the project area.

The NAHC also recommended the following be provided to Native American tribes:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:
  - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE, such as known archaeological sites;
  - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
  - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the APE; and
  - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.
2. The results of any archaeological inventory survey that was conducted, including:
 

Any report that may contain site forms, site significance, and suggested mitigation measures. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code Section 6254.10.
3. The result of the Sacred Lands File (SFL) check conducted through the Native American Heritage Commission, which was negative.
4. Any ethnographic studies conducted for any area including all or part of the potential APE; and
5. Any geotechnical reports regarding all or part of the potential APE.

### **Tribal Consultation**

#### **CEQA – AB 52**

Pursuant to Public Resources Code 21090.3.1(b)(1), tribal notifications were sent out to participating tribes (Shingle Springs Band of Miwok Indians, Lone Band of Miwok Indians, Wilton Rancheria, & United Auburn Indian Community) on August 25 and 26, 2021. Correspondence included a project description, and supporting graphic depicting the project location. Written correspondence was received from Shingle Springs Band of Miwok Indians (SSBMI) Wilton Rancheria (Wilton) and the UAIC.

SMUD received a letter via email from SSBMI on September 23, 2021 requesting consultation, which was acknowledged on the same day by SMUD, and added the request to the bimonthly meeting on

September 27, 2021. As requested by SSBMI at the AB 52 meeting on September 27, 2021 SMUD provided SSBMI with a KMZ of the project location. On October 13, 2021 SSBMI was notified via email to participate in a site visit during the week of November 8th, 2021. No response was received from SSBMI.

UAIC confirmed receipt of AB 52 notification on August 25, 2021 and requested consultation in an email message on September 14, 2021. On September 21, 2021, SMUD acknowledged receipt of request for consultation, updated UAIC on the status of the cultural studies and provided information for site visit, which was conducted by UAIC on November 8, 2021. Travis Young, UAIC representative conducted the site visit with SMUD personnel and stated that he had no major concerns and would recommend spot monitoring in areas with heavy grading (substation, switch station) to the UAIC Tribal Historic Preservation Officer (THPO).

In addition, UAIC provided language regarding inadvertent/unanticipated discoveries to be included in the mitigation measure for Tribal Cultural Resources. This language is included in Mitigation Measure 3-18-1.

Wilton sent a letter via email on September 23, 2021 requesting consultation. SMUD acknowledged receipt of request at the monthly meeting on September 28, 2021 at which time Wilton requested a site visit. SMUD representatives met with Wilton representative Vanessa Cruz on November 10, 2021. Because of unsafe conditions due to recent rains the visit could not be completed and was rescheduled for some time in the spring. Vanessa had no major concerns and stated that she would recommend to the THPO that UAIC's request for spot monitoring at the location of the substation/switch station areas would be sufficient.

Ione did not respond to the AB 52 notification letter.

### **Section 106 of the National Historic Preservation Act**

In partial fulfillment of Section 106 requirements, the USACE will conduct government to government consultation with Native American Tribes.

### **Interested Party Outreach**

No additional interested parties were identified for further outreach.

### **Regulatory Context**

#### **National Register of Historic Places Evaluation Criteria**

Section 106 requires that effects on historic properties be taken into consideration in any federal undertaking. The process contains five steps: (1) initiating the Section 106 process; (2) identifying historic properties; (3) assessing adverse effects; (4) resolving adverse effects; and (5) implementing stipulations in an agreement document.

Section 106 affords the Advisory Council on Historic Preservation and the State Historic Preservation Officer (SHPO), as well as other consulting parties, a reasonable opportunity to comment on any undertaking that would adversely affect historic properties listed in or eligible for NRHP listing. SHPOs administer the national historic preservation program at the state level, review NRHP nominations, maintain data on historic properties that have been identified but not yet nominated, and consult with federal agencies during Section 106 review.

The NRHP uses the following eligibility criteria (36 CFR Section 60.4) to evaluate significance of properties that:

- A. are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. are associated with the lives of persons significant to our past; or

- C. 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. have yielded, or may be likely to yield, information important in prehistory or history.

Section 101(d)(6)(A) of the NHPA allows properties of traditional religious and cultural importance to a Native American tribe to be determined eligible for NRHP inclusion. In addition, a broader range of tribal cultural property (TCP) also is considered and may be determined eligible for or listed in the NRHP. TCPs are places associated with the cultural practices or beliefs of a living community that (a) are rooted in that community's history; and (b) are important in maintaining the continuing cultural identity of the community. In the NRHP programs, "culture" is understood to mean the traditions, beliefs, practices, lifeways, arts, crafts, and social institutions of any community, be it an Indian tribe, a local ethnic group, or the nation as a whole.

### **California Environmental Quality Act**

CEQA offers directives regarding impacts on historical resources and unique archaeological resources. Generally, CEQA states that if implementation of a project would result in significant environmental impacts, then public agencies should determine whether such impacts can be substantially lessened or avoided through feasible mitigation measures or feasible alternatives. This general mandate applies equally to significant environmental effects related to certain cultural resources.

Only significant cultural resources (e.g., "historical resources" and "unique archaeological resources") need to be addressed. The State CEQA Guidelines define a "historical resource" as "a resource listed or eligible for listing in the California Register of Historical Resources" (CEQA Guidelines, Section 15064.5, Subdivision [a][1]; see also Public Resources Code (PRC) Sections 5024.1, 21084.1). A historical resource may be eligible for inclusion in the CRHR, as determined by the State Historical Resources Commission or the lead agency, if the resource:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; or
2. is associated with the lives of persons important in our past; or
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; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

In addition, a resource is presumed to constitute a "historical resource" if it is included in a "local register of historical resources" unless "the preponderance of evidence demonstrates that it is not historically or culturally significant" (CEQA Guidelines, Section 15064.5, Subdivision [a][2]). The State CEQA Guidelines require consideration of unique archaeological sites (Section 15064.5; see also PRC Section 21083.2). A "unique archaeological resource" is defined as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, a high probability exists that it meets any of the following criteria (PRC 21083.2):

1. contains information needed to answer important scientific research questions and a demonstrable public interest exists in that information; or
2. has a special and particular quality, such as being the oldest of its type or the best available example of its type; or
3. is directly associated with a scientifically recognized important prehistoric or historic event or person.

If a cultural resource does not meet the criteria for inclusion in the CRHR but meets the definition of a unique archaeological resource as outlined in Section 21083.2 of the PRC, it is entitled to special protection or attention under CEQA. Treatment options under Section 21083.2 of CEQA include activities that preserve such resources in place, in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation or study in place without excavation and curation

(if the study finds that the artifacts would not meet one or more of the criteria for defining a “unique archaeological resource”).

The State CEQA Guidelines require that excavation activities be stopped whenever human remains are uncovered, and that the county coroner be called to assess the remains. If the county coroner determines that the remains are those of Native Americans, the NAHC must be contacted within 24 hours. At that time, Section 15064.5(d) of the State CEQA Guidelines directs the lead agency to consult with the appropriate Native Americans, as identified by the NAHC, and directs the lead agency (or project applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains. Sacramento County would be responsible for compliance with CEQA.

### **Assembly Bill 52**

Assembly Bill (AB) 52, passed in 2014, amends sections of CEQA relating to Native Americans. AB 52 established a new category of cultural resources, named TCRs, and states that a project that may cause a substantial adverse change in the significance of a TCR may have a significant effect on the environment. Section 21074 was added to the PRC to define TCRs, as follows:

- (a) “TCRs” are either of the following:
  - (1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
    - (A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
    - (B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
  - (2) 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.
- (b) A cultural landscape that meets the criteria of subdivision (a) is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.
- (c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a “non-unique archaeological resource” as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

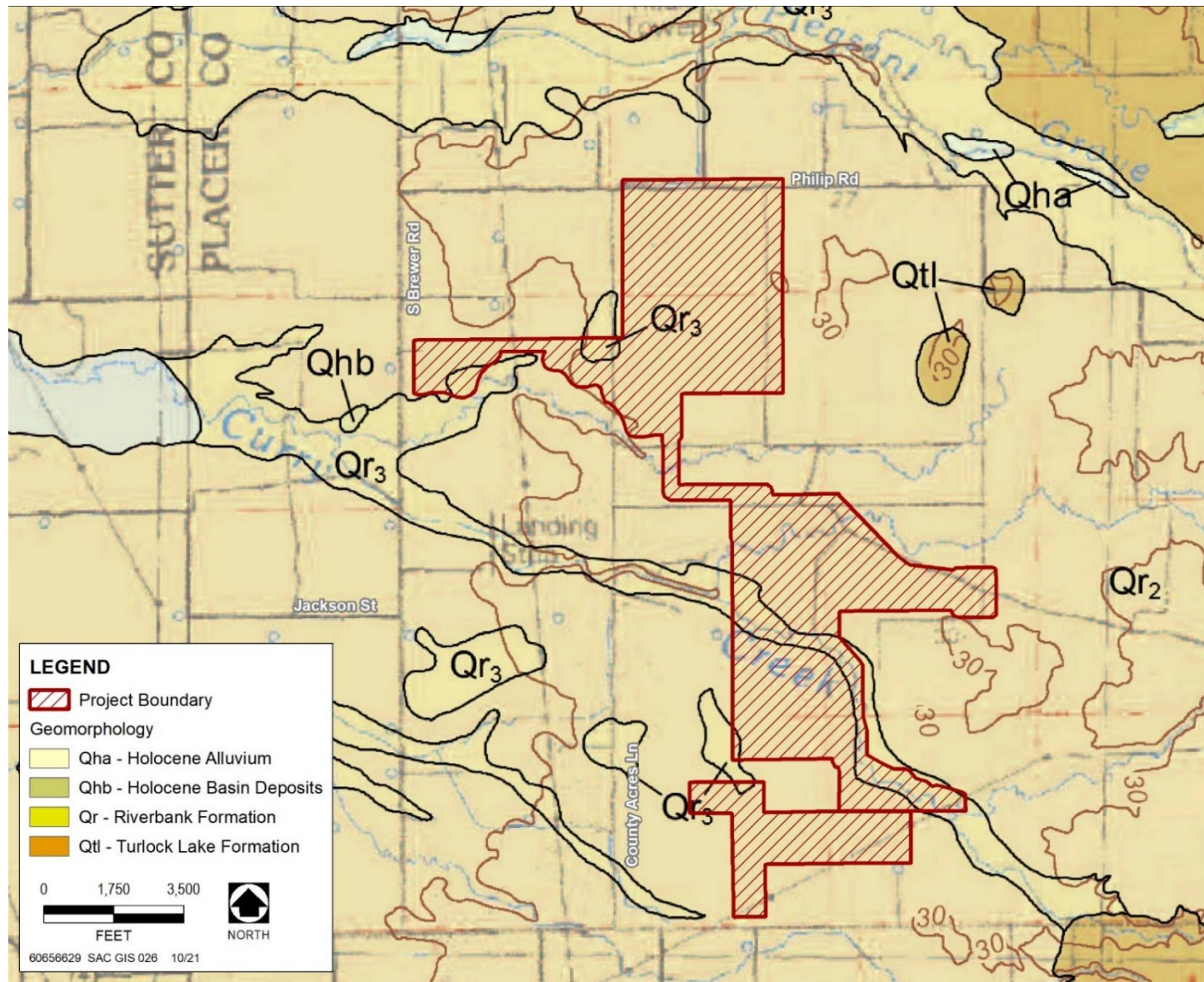
Per AB 52, the lead agency must begin consultation with any tribe that traditionally or culturally is affiliated with the geographic area. In addition, AB 52 includes time limits for certain responses regarding consultation, as follows:

- within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice;
- after provision of the formal notification by the public agency, the California Native American tribe has 30 days to request consultation; and
- the lead agency must begin consultation process within 30 days of receiving a California Native American tribe’s request for consultation.

## Geoarchaeological Sensitivity Analysis

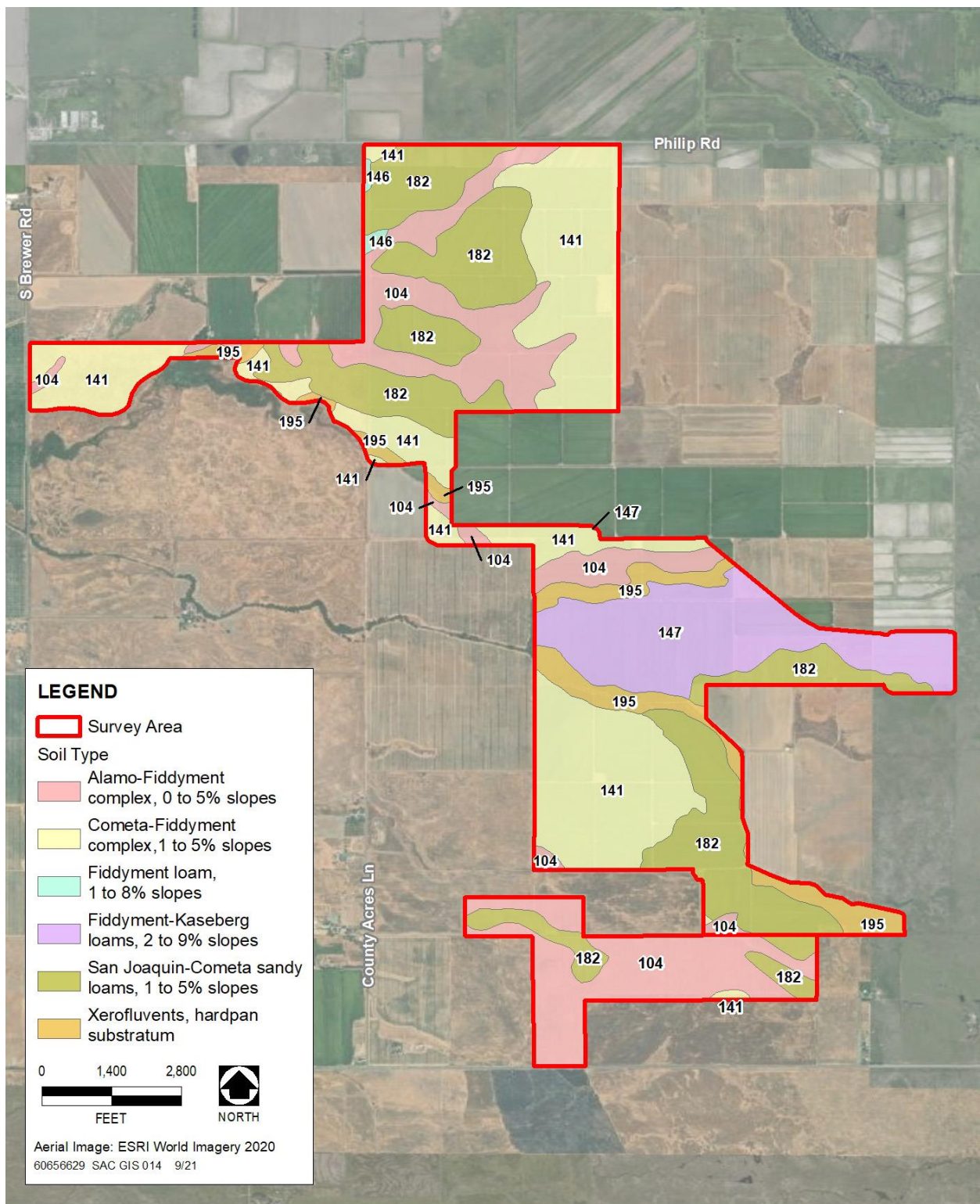
- Geomorphically, the project area is situated on higher elevation portions of the Pleistocene-age Riverbank Formation that is drained by several arms of the incised and seasonal Curry Creek. The younger unit of the Riverbank Formation is mapped along the drainages (Figure 3). Sediments in the Riverbank Formation consist of weathered reddish gravel, sand, and silt that form alluvial terraces and fans. Estimates place the age of the Riverbank Formation between 130,000 and 450,000 years B.P. (Helley and Harwood 1985). Due to the age of these geologic units, there is little to no potential for harboring buried archaeological resources.
- Age designations for the geomorphic mapping in Figure 3 are generally supported by comparison with U.S. Department of Agriculture soils mapping for the area (Soil Survey Staff 2021). Approximately 93% of the project area is mapped as San Joaquin, Cometa, Fiddymont, Kaseberg, and Alamo soil series complexes (Figure 4). All of these soil series have been demonstrated through radiocarbon dating to have been formed during the Pleistocene epoch (Meyer and Rosenthal 2008). These age designations are further supported by the typical soil profiles for these series, which include multiple argillic horizons, sesquioxide accumulations, and duripans/hardpans, all of which are indicative of the long time these sediments have been exposed at the surface and subjected to pedogenic processes.
- The exception to these areas with demonstrably old surface soils are the limited areas along the creek corridors that are mapped as Xerofluvents (Figure 4). In the Sacramento area, Xerofluvent soils are typically found along active creek margins and have been radiocarbon dated to be latest Holocene to modern in age (Meyer and Rosenthal 2008). However, within the current project area, these Xerofluvent series soils are also designated as containing a hardpan substratum (Soil Survey Staff 2021), which suggests that the underlying sediment is part of the Pleistocene-age Riverbank Formation, with younger organics and perhaps shallow near-surface sediment accumulation occurring as a result of minor overbank deposition from Curry Creek.
- In general, due to the very old age of the surficial alluvial landforms, the majority of the study area should be considered to have very low sensitivity for buried archaeological resources. Pleistocene-age landforms have little potential for harboring buried archaeological resources as they developed prior to human migration into North America (ca. 14,000 B.P.). While prehistoric sites can be found on such landforms they cannot be found in subsurface contexts. Although local areas of fill material such as constructed levees, may obscure archaeological deposits at the surface of these older landforms, these areas are not considered aerially expansive enough to completely obscure such a deposit. Some evidence of surficial archaeological sites located below levees would be expected to be visible outside of the fill prism of the levee. However, Pleistocene surfaces buried below younger Holocene sediments do have a potential for containing archaeological deposits.
- The lack of mapped Holocene-age deposits on the Quaternary geology mapping of the project area suggests that Holocene-age sediments, if present along Curry Creek, are likely very limited and thus not included at the 1:100,000 scale of the geologic map (Figure 3). Given the very small portion of the project area that is mapped as Xerofluvent soil series, and the likelihood that Holocene-age sedimentation is very limited in these areas, suggests that any substantial archaeological deposit would likely be at least partially visible at the surface. As such, it does not appear that exploratory subsurface archaeological identification efforts—for example, mechanically excavated test pits or direct-push continuous sampling cores—are warranted at this time. However, if archaeological resources are identified at the surface in proximity to any of the drainages, then additional subsurface investigation may be warranted to determine if a subsurface component is present.





**Figure 3. Geomorphic Mapping**





**Figure 4. Soil Mapping**

## Field Inventory and Findings

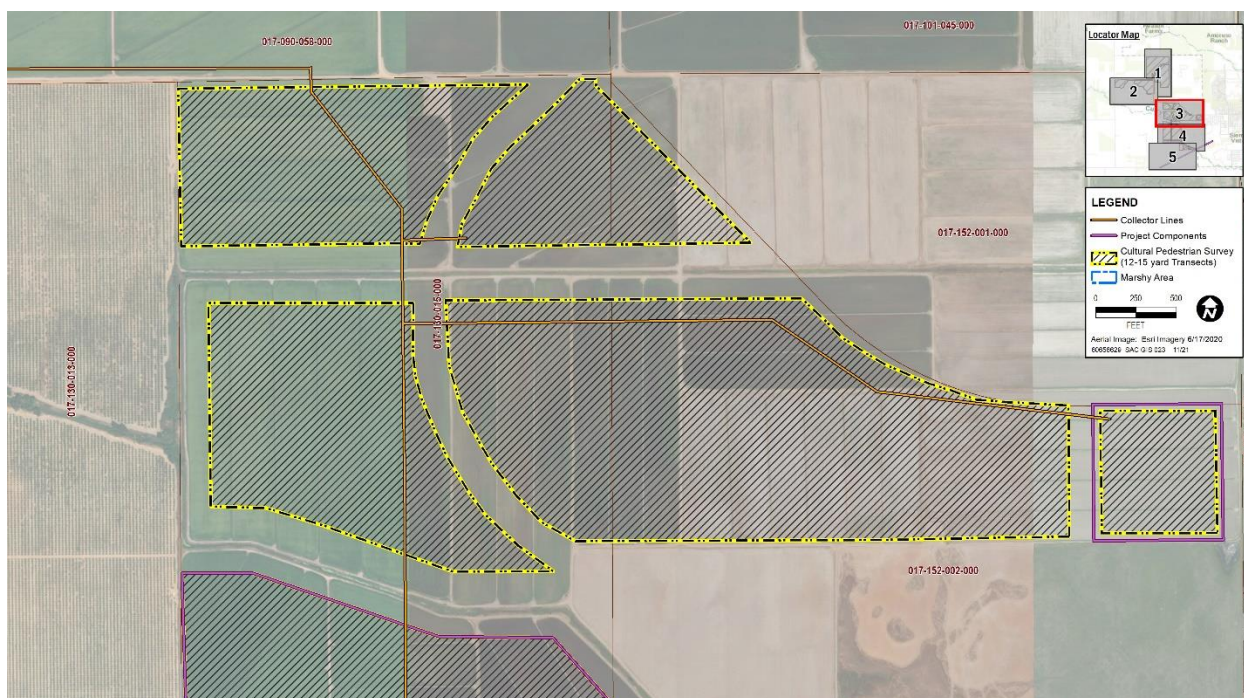
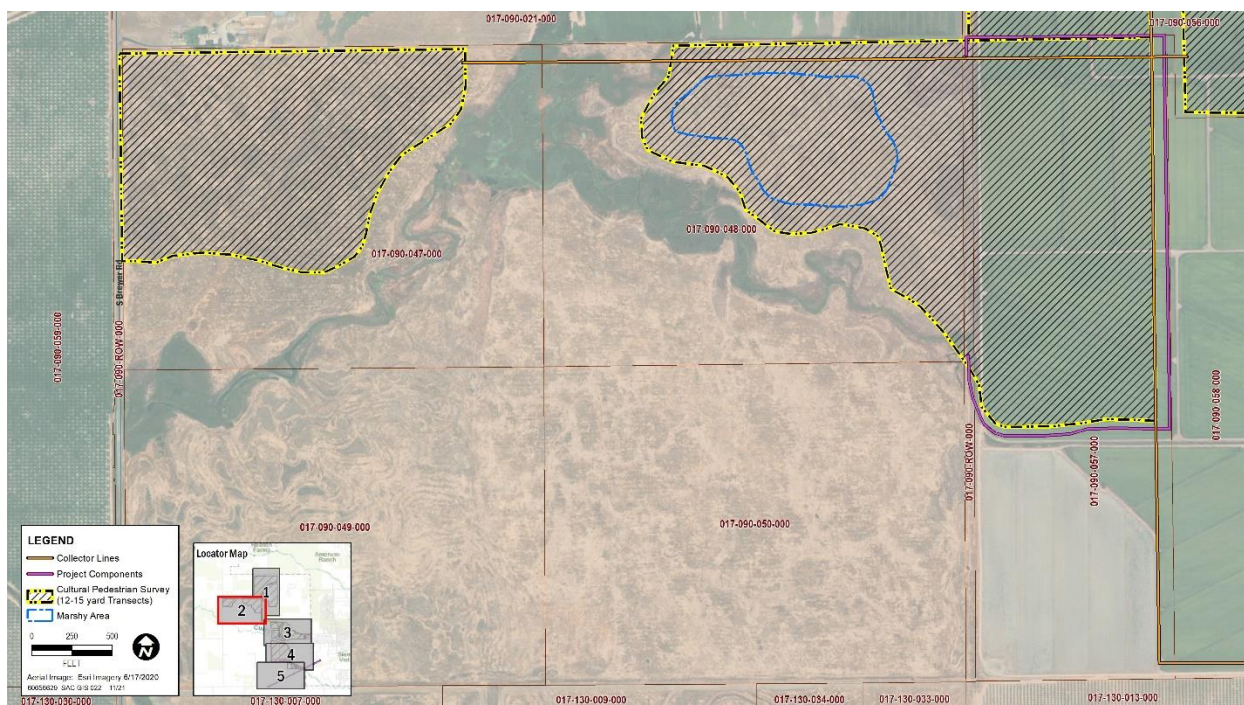
Pedestrian survey utilizing approximately 12- to 15-yard transects was conducted in April, July, and August of 2021. The initial pedestrian survey was conducted in April and March by AECOM Archaeologists Diana Ewing and Michaela Mauriello, and covered disked rice paddies that had been laser leveled in the 1970s and in production for a minimum of 40 years. The initial areas covered are illustrated in Figure 5 through Figure 8 and are the locations of the proposed solar panel installation. Because the area had been disked in preparation for planting, soils were 100% visible in most locations (Figure 9). The area illustrated in Figure 3 was fallow and had weeds and vegetation covering approximately 80% of the soil surface. A marshy area was located in the eastern half of the Figure 5 and covered approximately a quarter of the map where survey was not possible due to ground saturation (Figure 10). Where the soil was dry enough, boot scrapes and trowel scrapes were done randomly to expose soils. No cultural material was observed. The eastern portion of parcel 017-152-002-000 (Figure 7) was subjected to survey, however it was subsequently deleted from the project (APE), which is depicted in Figure 2.

In July, an additional three parcels were added to the survey (Figure 11). These three parcels consisted of young almond orchards. The pedestrian survey of these new parcels also utilized approximately 12- to 15-yard transects. Surface visibility in these three parcels averaged 80% to 90% (Figure 12). Diana Ewing conducted the pedestrian survey of these three parcels in July and August of 2021. No historic or prehistoric cultural material was observed during the pedestrian survey.

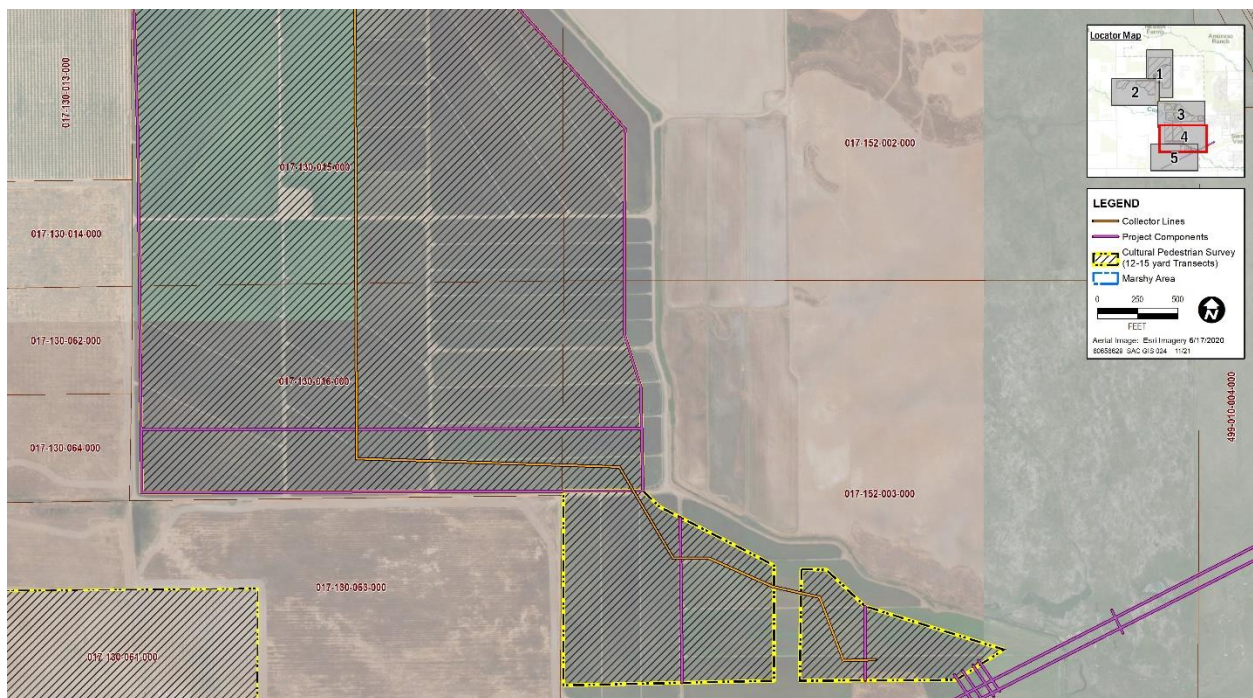


**Figure 5. Aerial View of Rice Fields (APN 017-090-024-000)**









**Figure 8. Aerial View of Rice Fields (APNs 017-130-015-000, 017-130-016-000 and 017-152-003-000)**

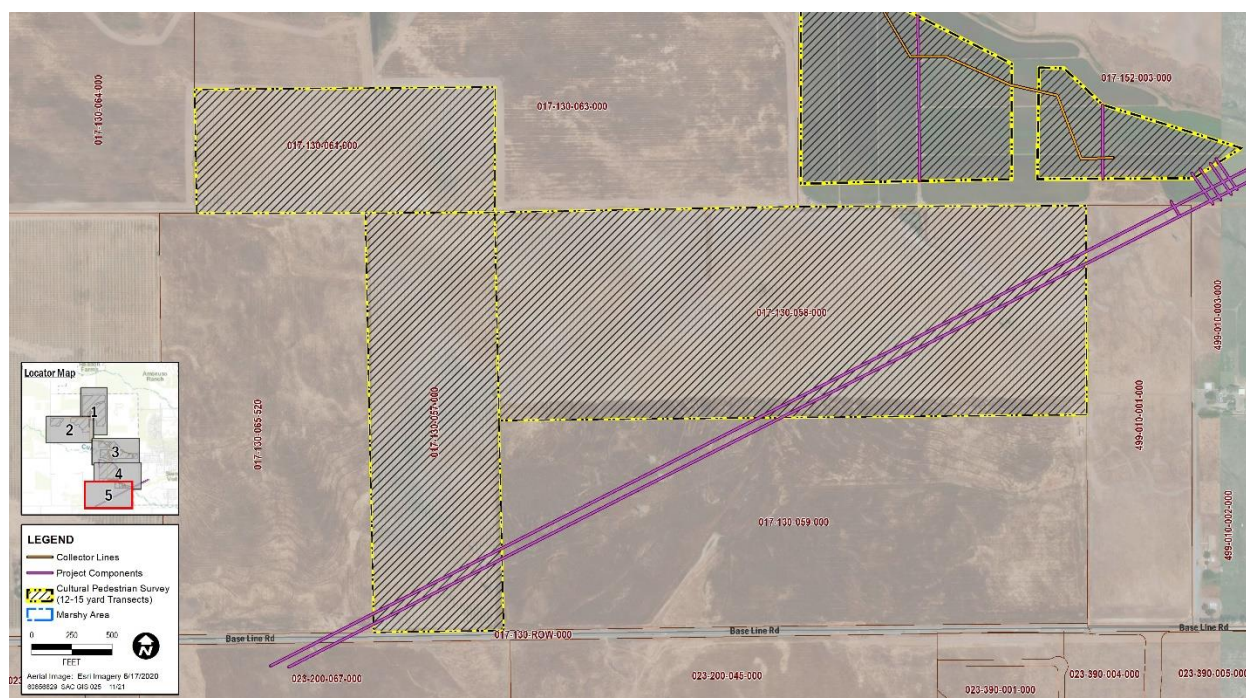


**Figure 9. View of Disked Rice Field**





**Figure 10. View of Marshy Area**



**Figure 11. Aerial View of Almond Orchards (APNs 017-130-057-000, 017-130-058-000, and 017-130-061-000)**





**Figure 12. View of Almond Orchards**

## **Results and Recommendations**

Background research, Native American and interested parties outreach, literature review, and field survey identified no cultural resources in the study area. Therefore, a finding of “No Historic Properties Affected” is recommended for the project.

### **Unanticipated Finds**

Based on the results of the archival research and field survey, there is low to moderate potential that archaeological resources will be encountered during ground-disturbing activities for the proposed project.

During ground-disturbing activities necessary to implement the proposed project, if any prehistoric or historic subsurface archaeological resources are discovered, all work within 100 feet of the resources shall be halted and a qualified archaeologist shall be consulted within 24 hours to assess the significance of the find, according to CEQA Guidelines Section 15064.5, and implement, as applicable, CEQA Guidelines Sections 15064.5(d), (e), and (f).

If any find is determined to be a historic property per the NRHP or historical resource according to CEQA Guidelines Section 15064.5, representatives from SMUD and the qualified archaeologist will meet to determine the appropriate avoidance measures or other appropriate mitigation. Cultural resources shall be recorded on appropriate Department of Parks and Recreation forms, and all significant cultural materials recovered shall be, as necessary and at the discretion of the qualified archaeologist and in consultation with the local Native American community if the discovery is prehistoric in age, subject to scientific analysis, professional curation, and documentation according to professional standards. If it is determined that the proposed development or infrastructure project could damage a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines), mitigation shall be implemented in accordance with Section 21083.2 of the California Public Resources Code and CEQA Guidelines Section 15126.4, with a preference for preservation in place. Work may proceed on other parts of the project site while mitigation for historical resources or unique archaeological resources is being

carried out. Preservation in place may be accomplished by planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement.

If avoidance is not feasible, the qualified archaeologist shall develop and oversee the execution of a treatment plan. The treatment plan shall include, but shall not be limited to, data recovery procedures based on location and type of archaeological resources discovered and a preparation and submittal of report of findings to the Northwest Information Center of the California Historical Resources Information System. Data recovery shall be designed to recover the significant information the archaeological resource is expected to contain, based on the scientific/historical research questions that are applicable to the resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable resource questions. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by project proponents' actions. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practical.

Although a low potential would exist, the possibility of encountering human remains cannot be discounted. Section 7050.5 of the California Health and Safety Code states that it is a misdemeanor to knowingly disturb a human burial. If human remains are encountered, project work would stop in the vicinity of the remains and, as required by law, the Placer County Coroner would be notified immediately. An archaeologist also would be contacted to evaluate the find. If the human remains were determined of Native American origin, the coroner would need to notify the NAHC within 24 hours of that determination. Pursuant to PRC 5097.98, the NAHC, in turn, would immediately contact a Most Likely Descendent (MLD). The MLD would have 48 hours to inspect the site and recommend treatment of the remains. The landowner would be obligated to work with the MLD in good faith, to find a respectful resolution to the situation and entertain all reasonable options regarding the descendants' preferences for treatment.

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# **Appendix A Records Search Results Summary Letter**

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4/6/2021

NCIC File No.: PLA-21-27

Diana Ewing  
AECOM  
2020 L Street, Suite 400  
Sacramento, CA 95811

Re: SMUD County Acres Solar/60656629 Task ODC

The North Central Information Center received your records search request for the project area referenced above, located on the Pleasant Grove USGS 7.5' quad. The following reflects the results of the records search for the project area and a 1/4-mi radius.

As indicated on the data request form, the locations of resources and reports are provided in the following format: ☒ custom GIS maps ☐ shapefiles

Recorded resources within project area:	P-31-3280 P-31-6131
Recorded resources outside project area, within radius:	P-31-1255 P-31-3310 P-31-3504 P-31-3739 P-31-6193
Known reports within project area:	355 396 2807 6571 6698 7130 7607 7726 8967 9138 9188 9568 10319 12443 12459 12653 12654
Known reports outside project area, within radius:	2484 7625 10297 11048 11357 11447

**Resource Database Printout (list):**

☐ enclosed ☒ not requested ☐ nothing listed/NA

**Resource Database Printout (details):**

☒ enclosed ☐ not requested ☐ nothing listed/NA

**Resource Digital Database Records:**

☐ enclosed ☒ not requested ☐ nothing listed/NA

**Report Database Printout (list):**

☐ enclosed ☒ not requested ☐ nothing listed/NA

**Report Database Printout (details):**

☒ enclosed ☐ not requested ☐ nothing listed/NA

**Report Digital Database Records:**

☐ enclosed ☒ not requested ☐ nothing listed/NA

**Resource Record Copies:**

☒ enclosed ☐ not requested ☐ nothing listed/NA

**Report Copies:**

☒ enclosed ☐ not requested ☐ nothing listed/NA

**Built Environment Resources Directory:**      ☒ enclosed   ☐ not requested   ☐ nothing listed/NA

**Archaeological Determinations of Eligibility:**   ☐ enclosed   ☐ not requested   ☒ nothing listed/NA

**CA Inventory of Historic Resources (1976):**   ☐ enclosed   ☐ not requested   ☒ nothing listed/NA

**Caltrans Bridge Survey:**                              ☐ enclosed   ☒ not requested   ☐ nothing listed/NA

**Ethnographic Information:**                           ☐ enclosed   ☒ not requested   ☐ nothing listed/NA

**Historical Literature:**                                 ☐ enclosed   ☒ not requested   ☐ nothing listed/NA

**Historical Maps:**                                        ☐ enclosed   ☒ not requested   ☐ nothing listed/NA

**Local Inventories:**                                    ☐ enclosed   ☒ not requested   ☐ nothing listed/NA

**GLO and/or Rancho Plat Maps:**                   ☐ enclosed   ☒ not requested   ☐ nothing listed/NA

**Shipwreck Inventory:**                              ☐ enclosed   ☒ not requested   ☐ nothing listed/NA

**Soil Survey Maps:**                                    ☐ enclosed   ☒ not requested   ☐ nothing listed/NA

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, it is possible that not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the California Historical Resources Information System (CHRIS) Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Sincerely,

Paul Rendes, Coordinator  
North Central Information Center

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# **Appendix B Previous Investigations and Documented Resources (Confidential)**

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# **Appendix C Native American Heritage Commission Consultation**

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## Local Government Tribal Consultation List Request

### Native American Heritage Commission

1550 Harbor Blvd, Suite 100  
West Sacramento, CA 95691  
916-373-3710  
916-373-5471 – Fax  
[nahe@nahe.ca.gov](mailto:nahe@nahe.ca.gov)

#### Type of List Requested

- ☐ CEQA Tribal Consultation List (AB 52) – *Per Public Resources Code § 21080.3.1, subs. (b), (d), (e) and 21080.3.2*
- ☐ General Plan (SB 18) - *Per Government Code § 65352.3.*

#### Local Action Type:

\_\_\_ General Plan \_\_\_ General Plan Element \_\_\_ General Plan Amendment  
\_\_\_ Specific Plan \_\_\_ Specific Plan Amendment \_\_\_ Pre-planning Outreach Activity

#### Required Information

Project Title: \_\_\_\_\_

Local Government/Lead Agency: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Street Address: \_\_\_\_\_

City: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Email: \_\_\_\_\_

#### Specific Area Subject to Proposed Action

County: \_\_\_\_\_ City/Community: \_\_\_\_\_

#### Project Description:

#### Additional Request

- ☐ Sacred Lands File Search - *Required Information:*

USGS Quadrangle Name(s): \_\_\_\_\_

Township: \_\_\_\_\_ Range: \_\_\_\_\_ Section(s): \_\_\_\_\_





## NATIVE AMERICAN HERITAGE COMMISSION

December 29, 2021

CHAIRPERSON  
Laura Miranda  
Luiseño

VICE CHAIRPERSON  
Reginald Pagaling  
Chumash

PARLIAMENTARIAN  
Russell Attebery  
Karuk

COMMISSIONER  
William Mungary  
Paiute/White Mountain  
Apache

COMMISSIONER  
Isaac Bojorquez  
Ohlone-Costanoan

COMMISSIONER  
Sara Dutschke  
Miwok

COMMISSIONER  
Buffy McQuillen  
Yokayo Pomo, Yuki,  
Nomlaki

COMMISSIONER  
Wayne Nelson  
Luiseño

COMMISSIONER  
Stanley Rodriguez  
Kumeyaay

EXECUTIVE SECRETARY  
Christina Snider  
Pomo

NAHC HEADQUARTERS  
1550 Harbor Boulevard  
Suite 100  
West Sacramento,  
California 95691  
(916) 373-3710  
[nahc@nahc.ca.gov](mailto:nahc@nahc.ca.gov)  
[NAHC.ca.gov](http://NAHC.ca.gov)

Diana Ewing  
AECOM

*Submitted via Electronic Mail*  
*Via Email to: [diana.r.ewing@aecom.com](mailto:diana.r.ewing@aecom.com)*

Re: Native American Consultation, Pursuant to Senate Bill 18 (SB18), Government Codes §65352.3 and §65352.4, as well as Assembly Bill 52 (AB52), Public Resources Codes §21080.1, §21080.3.1 and §21080.3.2, SMUD County Acres Solar/60656629 Task ODC, Placer County.

Dear Ms. Ewing:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties or projects.

Government Codes §65352.3 and §65352.4 require local governments to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of avoiding, protecting, and/or mitigating impacts to cultural places when creating or amending General Plans, Specific Plans and Community Plans.

Public Resources Codes §21080.3.1 and §21080.3.2 requires public agencies to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of avoiding, protecting, and/or mitigating impacts to tribal cultural resources as defined, for California Environmental Quality Act (CEQA) projects.

The law does not preclude local governments and agencies from initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction. The NAHC believes that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

Best practice for the AB52 process and in accordance with Public Resources Code §21080.3.1(d), is to do the following:

*Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.*

The NAHC also recommends, but does not require that lead agencies include in their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential affect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:
  - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE, such as known archaeological sites;
  - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
  - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the APE; and
  - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.
2. The results of any archaeological inventory survey that was conducted, including:
  - Any report that may contain site forms, site significance, and suggested mitigation measures.

All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code Section 6254.10.
3. The result of the Sacred Lands File (SFL) check conducted through the Native American Heritage Commission was negative.
4. Any ethnographic studies conducted for any area including all or part of the potential APE; and
5. Any geotechnical reports regarding all or part of the potential APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event, that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: [Katy.Sanchez@nahc.ca.gov](mailto:Katy.Sanchez@nahc.ca.gov)

Sincerely,

*Katy Sanchez*

Katy Sanchez  
Associate Environmental Planner

Attachment

**Native American Heritage Commission  
Native American Contacts List  
December 21, 2021**

Colfax-Todds Valley Consolidated Tribe  
Clyde Prout, Chairperson  
P.O. Box 4884  
Auburn, CA 95604  
miwokmaidu@yahoo.com  
(916) 577-3558

Miwok  
Maidu

Wilton Rancheria  
Jesus G. Tarango Jr., Chairperson  
9728 Kent Street  
Elk Grove, CA 95624  
jtarango@wiltonrancheria-nsn.gov  
(916) 683-6000 Office  
(916) 683-6015 Fax

Miwok

Shingle Springs Band of Miwok Indians  
Regina Cuellar, Chairperson  
P.O. Box 1340  
Shingle Springs, CA 95682  
rcuellar@ssband.org  
(530) 387-4970 Office  
(530) 387-8067 Fax

Miwok  
Maidu

Tsi Akim Maidu  
Don Ryberg, Chairperson  
NO CONTACT INFORMATION

Maidu

United Auburn Indian Community of the Auburn Rancheria  
Gene Whitehouse, Chairperson  
10720 Indian Hill Road  
Auburn, CA 95603  
bguth@auburnrancheria.com  
(530) 883-2390 Office  
(530) 883-2380 Fax

Maidu  
Miwok

Washoe Tribe of Nevada and California  
Serrell Smokey, Chairperson  
919 Highway 395 North  
Gardnerville, NV 89410  
Serrell.smokey@washoetribe.us  
(775) 265-8600 Office  
(775) 265-6240 Fax

Washoe

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# Appendix D AB 52 Consultation

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# NAHC Letter

## Response to NAHC Letter

AECOM	NAHC Response
Submitted request to NAHC requesting a list of tribes with traditional lands or cultural places located within the boundaries of the project and a Sacred Lands File (SFL) check	NAHC responded in a letter dated 12-29-21. They provided a list of tribes with traditional lands or cultural places located within the boundaries of the project and indicated that the result of the Sacred Lands File (SFL) check conducted through the Native American Heritage Commission was negative.

# Shingle Springs Letter



August 26, 2021

Shingle Springs Band of Miwok Indians  
Regina Cuellar, Chairperson  
P.O. Box 1340  
Shingle Springs, CA 95682

Subject: Notification Under AB52 – SMUD Country Acres Solar Project

Dear Ms. Cuellar,

In accordance with California Public Resources Code Section 21080.3.1 (AB 52) and the Shingle Springs Bank of Miwok Indians' August 24, 2020 letter request for formal notification of and information regarding SMUD-led projects within the Rancheria's geographic area of traditional and cultural affiliation, you are hereby notified that the Sacramento Municipal Utility District (SMUD) is proposing to prepare an Environmental Impact Report for the Country Acres Solar Project (Project).

SMUD is proposing to construct and operate a new photovoltaic (PV) solar facility located on leased lands in southwestern Placer County. The project consists of three developmental areas just west of the city of Roseville, totaling around 1,300 acres of vacant grassland and agricultural (rice fields) parcels with scattered seasonal wetlands and drainages. As shown on the attached maps, the project area includes a northern and southern portion of PV panels connected by collection lines, and substation, switch yard, and battery storage facilities located south of the southern portion of PV panels.

SMUD is in the planning phase that includes the preparation of a preliminary site layout and design. The site may accommodate up to a 344 megawatt (MW) solar facility, however, SMUD expects that the site will likely accommodate a smaller MW capacity due to wetland and other constraints on the land. The facility size and design will be influenced by the wetland delineation and biological analysis. In addition to the solar facility, the project will include an interconnection to SMUD's 230 kilovolt (kV) electrical infrastructure, thus requiring interconnection facilities to be built as part of the project. Battery energy storage systems will also be included as part of the project.

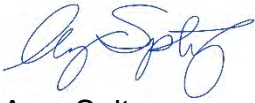
SMUD is committed to working with you to identify and minimize or avoid impacts to Tribal Cultural Resources (as defined under California Public Resources Code Section 21074) important to the Shingle Springs Bank of Miwok Indians. Your assistance in identifying such potential resources will help SMUD avoid and protect them. We



understand that the locations of these resources are sensitive and SMUD will have appropriate staff and consultants available to work with you during consultation to ensure confidentiality and awareness. Resource locations will not be disclosed in public documents and will be kept confidential as provided for under California Government Code 6254.10.

If you have any questions, please feel free to contact me by telephone at (916) 732-5384 or via e-mail at [amy.spitzer@smud.org](mailto:amy.spitzer@smud.org).

Sincerely,

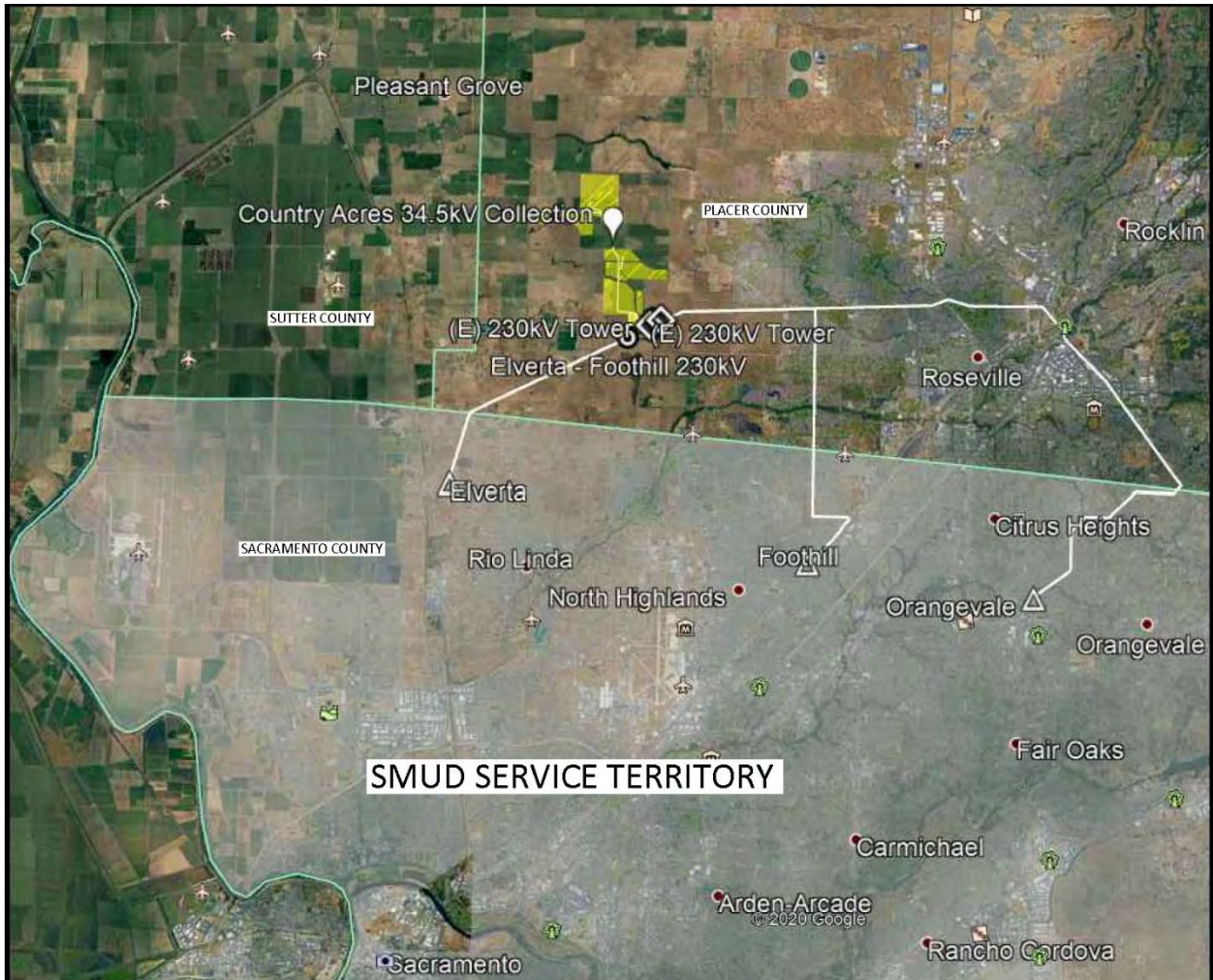


Amy Spitzer  
Environmental Specialist

Attachment

cc: Patrick Durham, SMUD  
Emily Bacchini, SMUD  
Ammon Rice, SMUD  
Joe Schofield, SMUD  
Kara Perry, Shingle Springs  
James Sarmento, Shingle Springs  
Daniel Fonesca, Shingle Springs

**ATTACHMENT 1  
PROJECT SITE EXHIBIT**

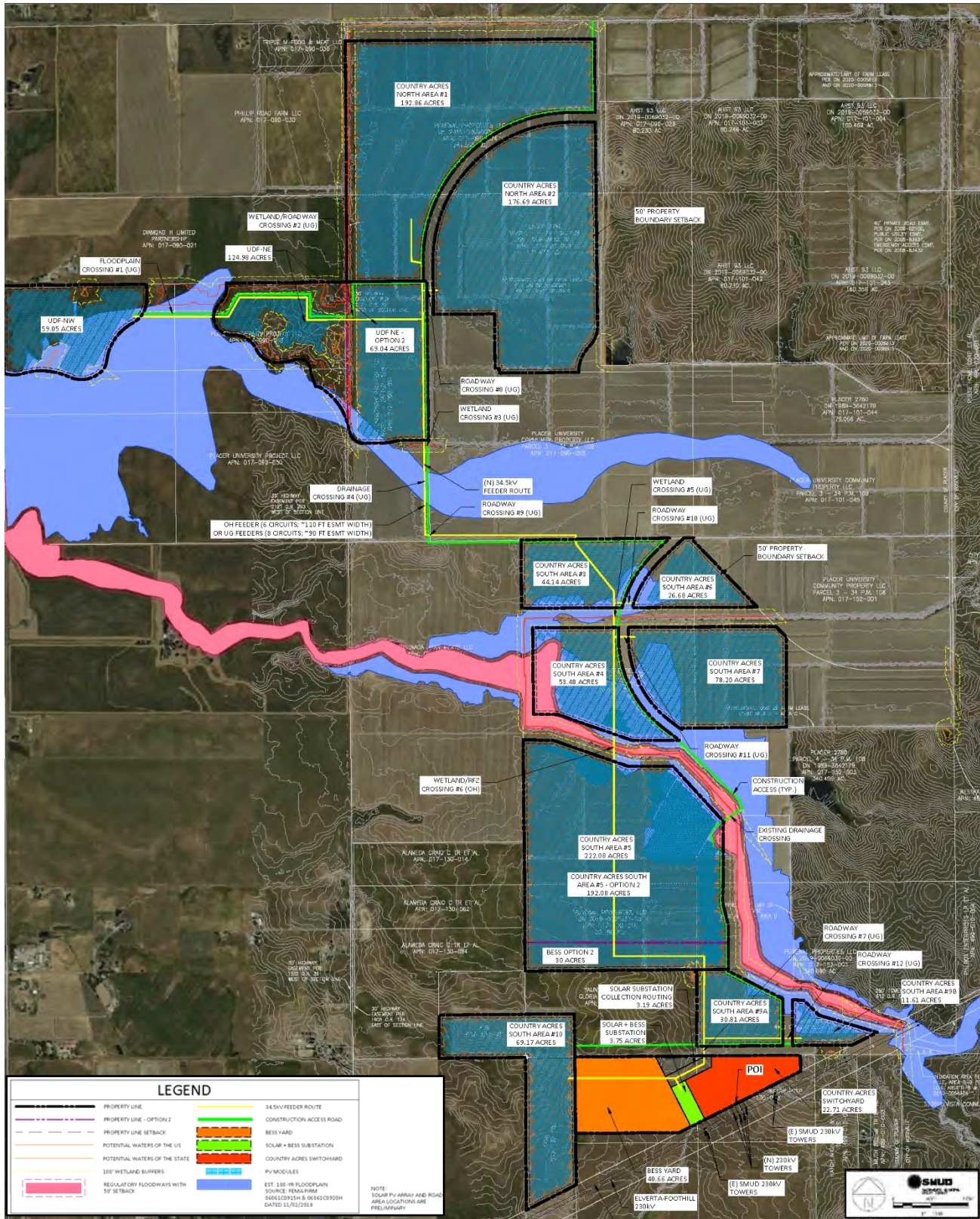


SITE LOCATION: 38°46'11.96"N, 121°24'58.42"W

**VICINITY MAP**



# ATTACHMENT 2 PRELIMINARY SOLAR PV LAYOUT



## Response to Shingle Springs Letter

SMUD	Shingle Springs Response
8/26/21: AB 52 notificaton letter sent	9/23/21: Sent letter via email requesting consultation
9/23/21: Acknowledged request for consultation. Added item to bimonthly meeting on 9/27/21.	9/27/21: Requested a KMZ of the project location/layout at regular AB52 meeting.
9/27/21: Sent project location KMZ to Kara Perry	
10/13/21: Sent an email to Kara Perry inviting representatives from Shingle Springs to participate in the site visit. Requested availability during the week of November 8th.	No response.

# **Shingle Springs Band of Miwok Indians**





## Shingle Springs Band of Miwok Indians

Shingle Springs Rancheria (Verona Tract), California

5281 Honpie Road • Placerville, CA 95667

(530) 698-1400 • shinglespringsrancheria.com

### CULTURAL RESOURCES

September 22, 2021

SMUD

Amy Spitzer

6201 S Street, P.O. Box 15830

Sacramento, CA 95852-0830

Dear Amy Spitzer,

The Most Likely Descendant, Daniel Fonseca would like to initiate consultation process with you in regard to the SMUD Country Acres Solar Project in Placer County. Among other things, we would like this consultation to address the cultural and historic resource issues, pursuant to the regulations implementing Section 106 of the National Historic Preservation Act and Assembly Bill 52.

Prior to meeting we would like to request any and all completed record searches and/or surveys that were done in/around the project area up to and including environmental, archaeological and cultural reports.

Please let this letter serve as a formal request for the Shingle Springs Band Of Miwok Indians to be added as a consulting party in identifying any Tribal Cultural Properties (TCPs) that may exist within the project's Area of Potential Effects (APE).

Please contact Kara Perry, Site Protection Manager, (530) 488-4049, [kperry@ssband.org](mailto:kperry@ssband.org), to schedule a consultation pursuant to Section 106 of the NHPA and AB 52.

Sincerely,

Daniel Fonseca

Tribal Historic Preservation Officer (THPO)

Most Likely Descendant (MLD)

# UAIC Letter



August 26, 2021

United Auburn Indian Community of the Auburn Rancheria  
Gene Whitehouse, Chairperson  
10720 Indian Hill Road  
Auburn, CA 95603

Subject: Notification Under AB52 – SMUD Country Acres Solar Project

Dear Mr. Whitehouse,

In accordance with California Public Resources Code Section 21080.3.1 (AB 52) and the United Auburn Indian Community (UAIC) of the Auburn Rancheria's November 23, 2015 letter request for formal notification of and information regarding SMUD-led projects within the UAIC's geographic area of traditional and cultural affiliation, you are hereby notified that the Sacramento Municipal Utility District (SMUD) is proposing to prepare an Environmental Impact Report for the Country Acres Solar Project (Project).

SMUD is proposing to construct and operate a new photovoltaic (PV) solar facility located on leased lands in southwestern Placer County. The project consists of three developmental areas just west of the city of Roseville, totaling around 1,300 acres of vacant grassland and agricultural (rice fields) parcels with scattered seasonal wetlands and drainages. As shown on the attached maps, the project area includes a northern and southern portion of PV panels connected by collection lines, and substation, switch yard, and battery storage facilities located south of the southern portion of PV panels.

SMUD is in the planning phase that includes the preparation of a preliminary site layout and design. The site may accommodate up to a 344 megawatt (MW) solar facility, however, SMUD expects that the site will likely accommodate a smaller MW capacity due to wetland and other constraints on the land. The facility size and design will be influenced by the wetland delineation and biological analysis. In addition to the solar facility, the project will include an interconnection to SMUD's 230 kilovolt (kV) electrical infrastructure, thus requiring interconnection facilities to be built as part of the project. Battery energy storage systems will also be included as part of the project.

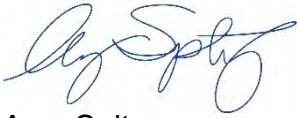
SMUD is committed to working with you to identify and minimize or avoid impacts to Tribal Cultural Resources (as defined under California Public Resources Code Section 21074) important to the UAIC. Your assistance in identifying such potential resources



will help SMUD avoid and protect them. We understand that the locations of these resources are sensitive and SMUD will have appropriate staff and consultants available to work with you during consultation to ensure confidentiality and awareness. Resource locations will not be disclosed in public documents and will be kept confidential as provided for under California Government Code 6254.10.

If you have any questions, please feel free to contact me by telephone at (916) 732-5384 or via e-mail at [amy.spitzer@smud.org](mailto:amy.spitzer@smud.org).

Sincerely,

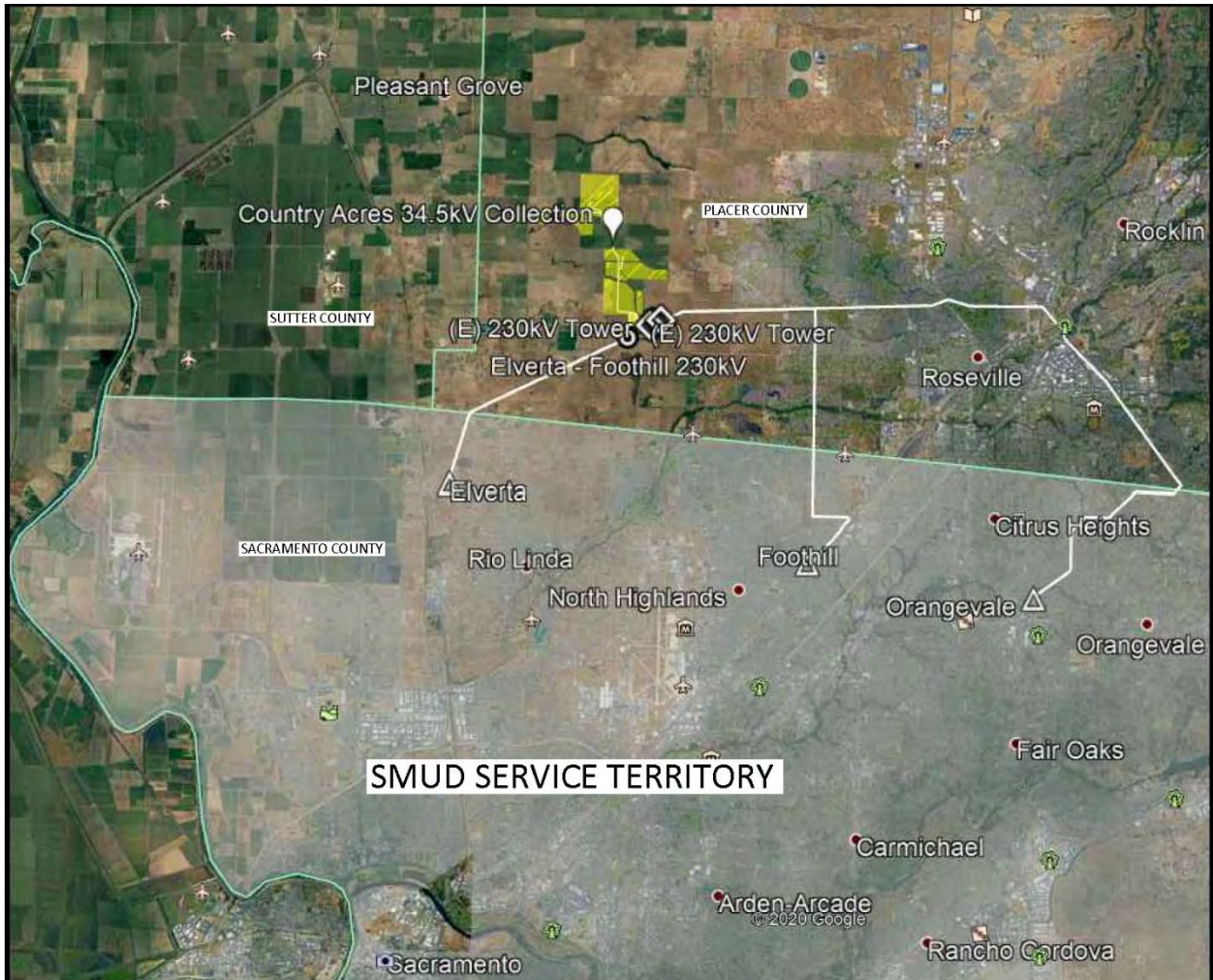


Amy Spitzer  
Environmental Specialist

Attachment

cc: Patrick Durham, SMUD  
Emily Bacchini, SMUD  
Ammon Rice, SMUD  
Joe Schofield, SMUD  
Anna Starkey, UAIC

**ATTACHMENT 1  
PROJECT SITE EXHIBIT**

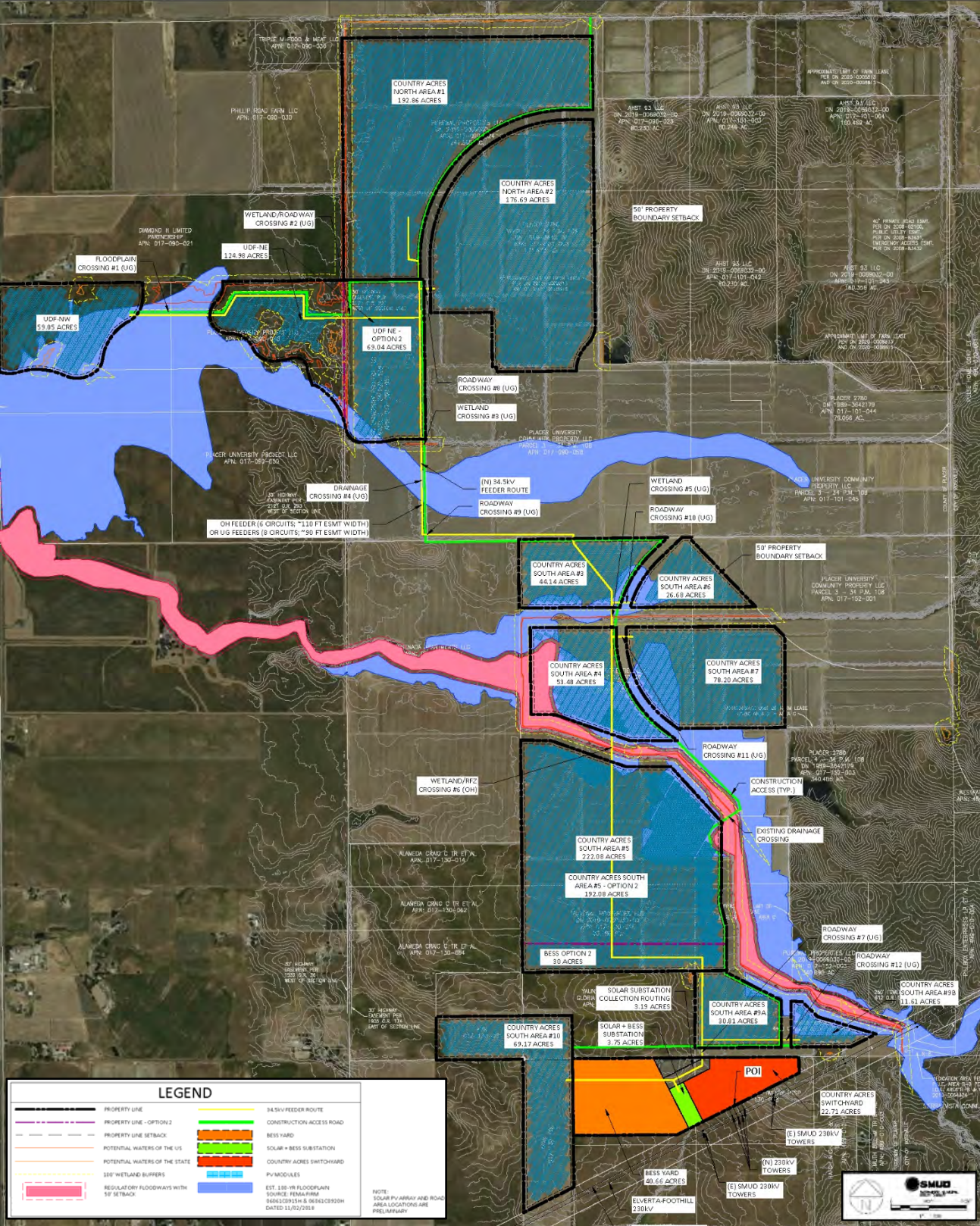


SITE LOCATION: 38°46'11.96"N, 121°24'58.42"W

**VICINITY MAP**



# ATTACHMENT 2 PRELIMINARY SOLAR PV LAYOUT



**From:** [Anna Starkey](#)  
**To:** [Amy E. Spitzer](#)  
**Cc:** [Anna Cheng](#); [Travis Young](#); [Joshua Stewart](#)  
**Subject:** [EXTERNAL] AB52: SMUD Country Acres Solar Project  
**Date:** Tuesday, September 14, 2021 3:41:23 PM  
**Attachments:** [image001.png](#)

---

**CAUTION:** This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Ms. Spitzer,

On behalf of the United Auburn Indian Community, Tribal Historic Preservation Department, thank you for the notification and opportunity to consult on the SMUD County Acres Solar Project. UAIC would like to consult on this project.

Has a cultural resources survey been completed for this project? If so, may we please review the results. UAIC would like to conduct a survey for the identification of tribal cultural resources in the project area and are happy to accompany the archaeologists if a survey has yet to occur. Please coordinate with Travis or Joshua (cc'd) for the survey.

Kind regards,  
Anna Starkey

*The United Auburn Indian Community is now accepting electronic consultation request, project notifications, and requests for information! Please fill out and submit through our website. Do not mail hard copy letters or documents. <https://auburnrancheria.com/programs-services/tribal-preservation> **Bookmark this link!***



**Anna M. Starkey, M.A., RPA**  
Cultural Regulatory Specialist  
Tribal Historic Preservation Department| UAIC  
10720 Indian Hill Road  
Auburn, CA 95603  
Direct line: (916) 251-1565 | Cell: (530) 863-6503  
[astarkey@auburnrancheria.com](mailto:astarkey@auburnrancheria.com) | [www.auburnrancheria.com](http://www.auburnrancheria.com)

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Nothing in this e-mail is intended to constitute an electronic signature for purposes of the Electronic Signatures in Global and National Commerce Act (E-Sign Act), 15, U.S.C. §§ 7001 to 7006 or the Uniform Electronic Transactions Act of any state or the federal government unless a specific statement to the contrary is included in this e-mail.

## UAIC Letter

SMUD	UAIC Response
8/25/21: AB52 notificaton letters sent	8/25/21: Confirmation of AB52 notification received
	9/14/2021: UAIC rep Anna Starkey sent email requesting consultation
9/21/21: Acknowledged request for consultation. Updated UAIC on status of the cultural studies and site visit. Anticipate Oct/Nov timeframe for site visit.	9/22/21: Sent out a general timeline of availability for site visit.
10/13/21-10/21/21: Back and forth communication with UAIC and Wilton Rancheria about schedule for site visit. Settled on two separate dates due to tribal representative availability.	
10/22/21: Scheduled site visit for 11/8/21.	
11/8/21: Met onsite with tribal representative Travis Young.	11/8/21: No major concerns after site visit. Travis will recommend only spot monitoring in areas with heavy grading (substation, switch station) to THPO.

# Wilton Letter





August 26, 2021

Wilton Rancheria  
Raymond Hitchcock, Chairperson  
9415 Rancheria Drive  
Wilton, CA 95693

Subject: Notification Under AB52 – SMUD Country Acres Solar Project

Dear Mr. Hitchcock,

In accordance with California Public Resources Code Section 21080.3.1 (AB 52) and the Wilton Rancheria's December 20, 2016 letter request for formal notification of and information regarding SMUD-led projects within the Rancheria's geographic area of traditional and cultural affiliation, you are hereby notified that the Sacramento Municipal Utility District (SMUD) is proposing to prepare an Environmental Impact Report for the Country Acres Solar Project (Project).

SMUD is proposing to construct and operate a new photovoltaic (PV) solar facility located on leased lands in southwestern Placer County. The project consists of three developmental areas just west of the city of Roseville, totaling around 1,300 acres of vacant grassland and agricultural (rice fields) parcels with scattered seasonal wetlands and drainages. As shown on the attached maps, the project area includes a northern and southern portion of PV panels connected by collection lines, and substation, switch yard, and battery storage facilities located south of the southern portion of PV panels.

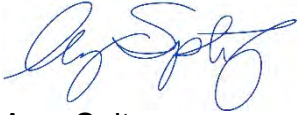
SMUD is in the planning phase that includes the preparation of a preliminary site layout and design. The site may accommodate up to a 344 megawatt (MW) solar facility, however, SMUD expects that the site will likely accommodate a smaller MW capacity due to wetland and other constraints on the land. The facility size and design will be influenced by the wetland delineation and biological analysis. In addition to the solar facility, the project will include an interconnection to SMUD's 230 kilovolt (kV) electrical infrastructure, thus requiring interconnection facilities to be built as part of the project. Battery energy storage systems will also be included as part of the project.

SMUD is committed to working with you to identify and minimize or avoid impacts to Tribal Cultural Resources (as defined under California Public Resources Code Section 21074) important to the Wilton Rancheria. Your assistance in identifying such potential resources will help SMUD avoid and protect them. We understand that the

locations of these resources are sensitive and SMUD will have appropriate staff and consultants available to work with you during consultation to ensure confidentiality and awareness. Resource locations will not be disclosed in public documents and will be kept confidential as provided for under California Government Code 6254.10.

If you have any questions, please feel free to contact me by telephone at (916) 732-5384 or via e-mail at [amy.spitzer@smud.org](mailto:amy.spitzer@smud.org).

Sincerely,



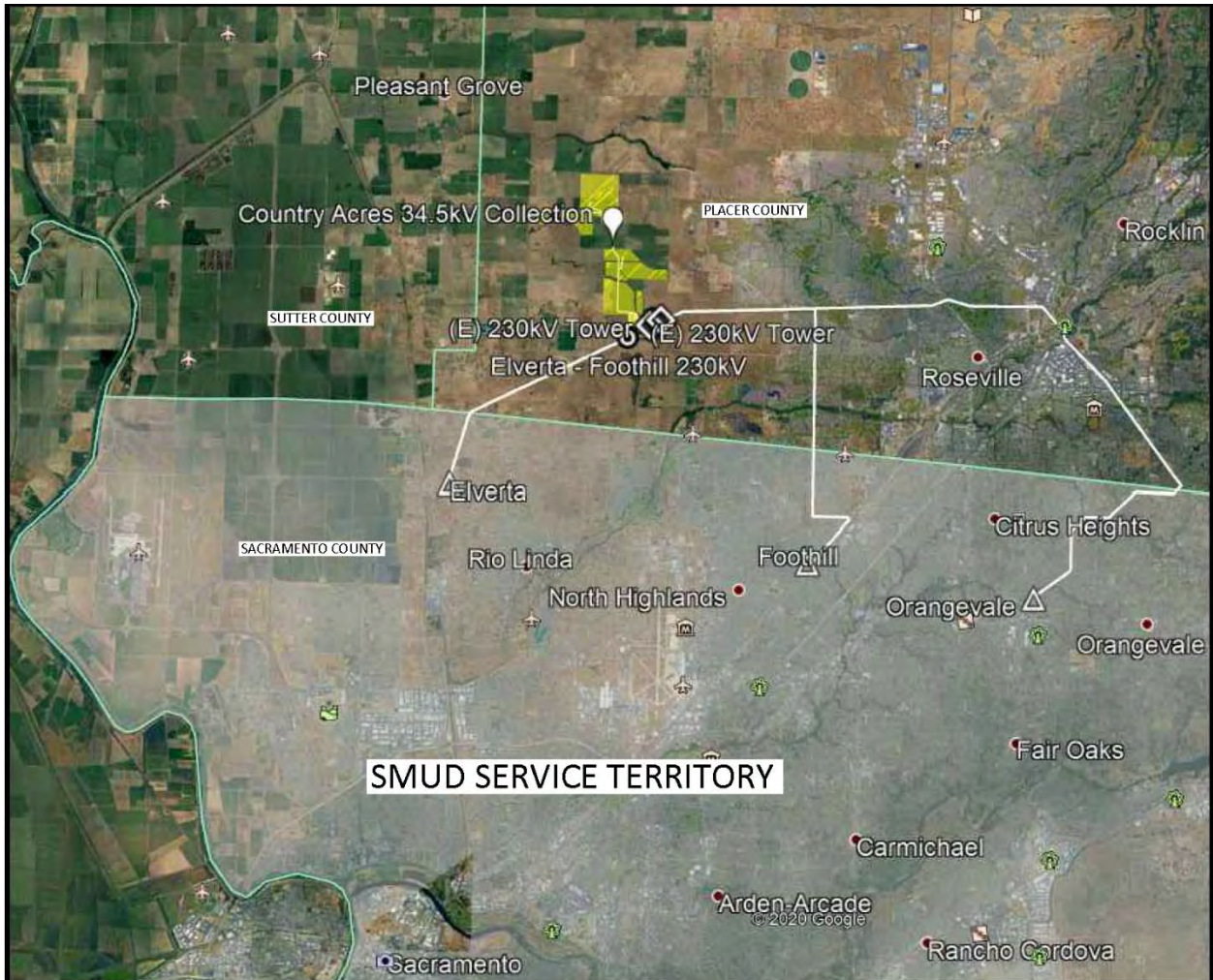
Amy Spitzer  
Environmental Specialist

Attachment

cc: Patrick Durham, SMUD  
Emily Bacchini, SMUD  
Ammon Rice, SMUD  
Joe Schofield, SMUD  
Mariah Mayberry, Wilton Rancheria  
Herbert "Lou" Griffin, Wilton Rancheria



**ATTACHMENT 1  
PROJECT SITE EXHIBIT**

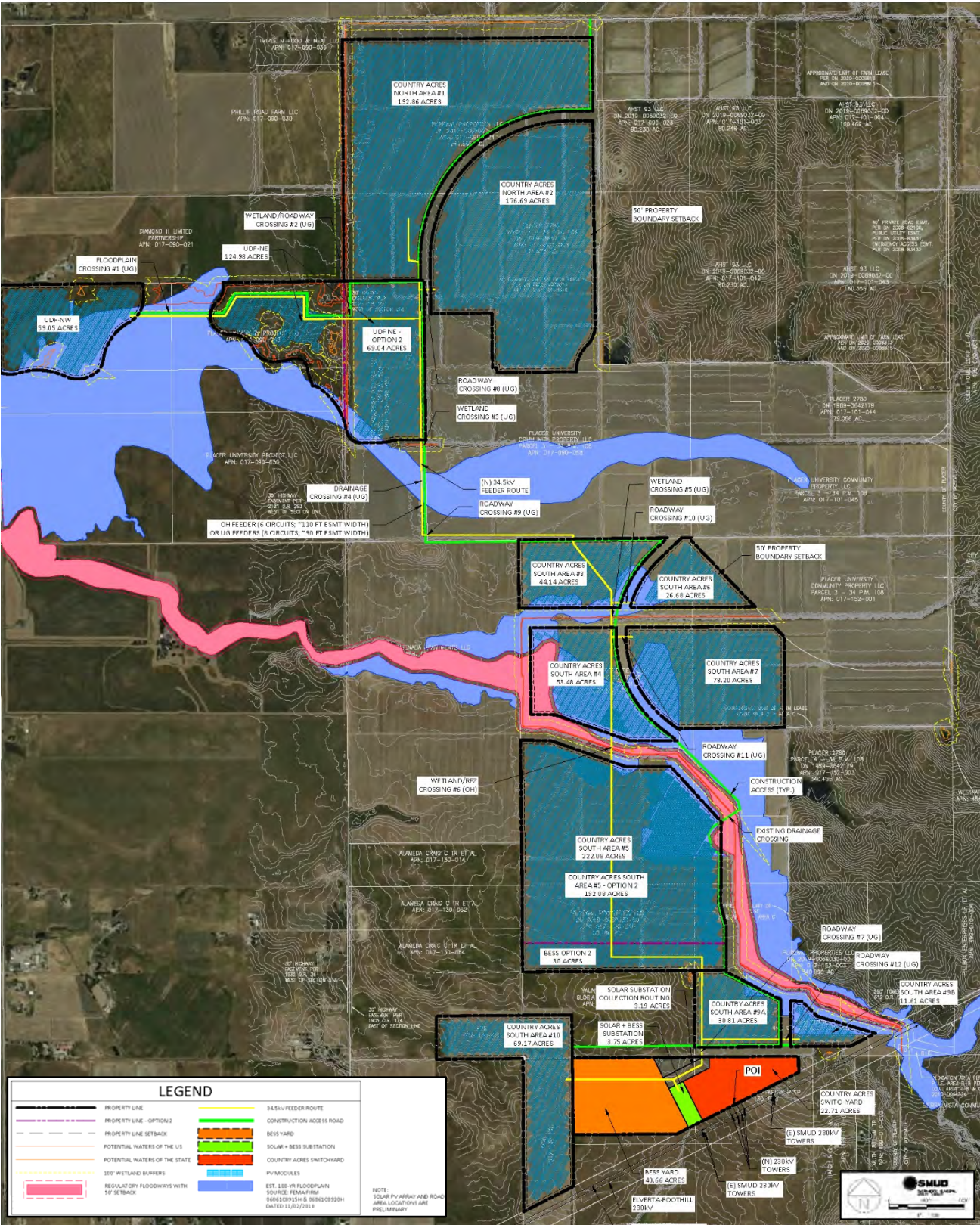


SITE LOCATION: 38°46'11.96"N, 121°24'58.42"W

**VICINITY MAP**



# **ATTACHMENT 2 PRELIMINARY SOLAR PV LAYOUT**





September 23, 2021

SMUD  
6201 S Street, Mail Stop, B209  
P.O. Box 15830  
Sacramento, CA 95852

RE: Country Acres Solar Project

Dear Amy Spitzer,

This letter constitutes a formal request for tribal consultation under the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code section 21080.3.1 subdivisions (b), (d) and (e)) for the mitigation of potential project impacts to tribal cultural resource for the above referenced project. Wilton Rancheria (Tribe) requested formal notice and information for all projects within your agency's geographical jurisdiction on July 1, 2015 and received notification on August 26, 2021 regarding the above referenced project.

The Tribe requests consultation on the following topics checked below, which shall be included in consultation if requested (Public Resources Code section 21080.3.2, subd. (a):

- ☒ Alternatives to the project
- ☒ Define the Applicant (Lead Agency)
- ☒ Project funding
- ☒ Recommended mitigation measures
- ☒ Significant effects of the project
- ☒ Native American Inspector present during ground disturbance

The Tribe also requests consultation on the following discretionary topics checked below (Public Resources Code section 21080.3.2, subd. (a):

- ☒ Type of environmental review necessary
- ☒ Significance of tribal cultural resources, including any regulations, policies or standards used by your agency to determine significance of tribal cultural resources.
- ☒ Significance of the project's impacts on tribal cultural resources
- ☒ Project alternatives and/or appropriate measures for preservation or mitigation that we may recommend, including, but not limited to:

(1) Avoidance and preservation of the resources in place, pursuant to Public Resources Code section 21084.3, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks or other open space, to incorporate the resources with culturally appropriate protection and management criteria.



(2) Treating the resources with culturally appropriate dignity considering the tribal cultural values and meaning of the resources, including but not limited to the following:

- a. Protecting the cultural character and integrity of the resource.
- b. Protection the traditional use of the resource; and
- c. Protecting the confidentiality of the resource.

(3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

(4) Protecting the resource.

Additionally, the Tribe would like to receive any cultural resources assessments or other assessments that have been completed on all or part of the project's area of potential effect (APE), and area surrounding the APE including, but not limited to:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:
  - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE;
  - Copies of all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response.
  - If the probability is low, moderate, or high that cultural resources are in the APE or surrounding the APE.
  - Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the potential APE or surrounding the APE; and
  - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.
    - ✦ The Tribe requests to be present at any survey conducted on the Applicants behalf.
2. The results of any archaeological inventory survey that was conducted, including:
  - Any reports that may contain site forms, site significance, and suggested mitigation measures.
  - Any reports or inventories found under the Native American Graves Protection and Repatriation Act.
    - ✦ All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code Section 6254.10. All Wilton Rancheria correspondences shall be kept under this confidential section and only shared between the Tribe and lead agency.
3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission. The request form can be found at [http://www.nahc.ca.gov/slf\\_request.html](http://www.nahc.ca.gov/slf_request.html). USGS 7.5-minute quadrangle name, township, range, and section required for the search.

4. Any ethnographic studies conducted for any area including all or part of the potential APE or areas surrounding the APE; and
5. Any geotechnical reports regarding all or part of the potential APE or areas surrounding the APE.
  - The Tribe shall be notified before any geotechnical testing is planned. Geotechnical testing has potential to impact Tribal Cultural Resources and should be part of this consultation.
6. Aerial Map of the APE that depicts infrastructure, utility and/or trenching routes, enter and exit routes for equipment, staging areas, and any other proposed ground disturbance.
7. A diagram of known soil types with depths of each type i.e., borrowed soils, fill, or Native soils.

The information gathered will provide us with a better understanding of the project and will allow the Tribe to compare your records with our database.

We would like to remind your agency that CEQA Guidelines section 15126.4, subdivision (b)(3) states that preservation in place is the preferred manner of mitigating impacts to archaeological sites. Section 15126.4, subd. (b)(3) of the CEQA Guidelines has been interpreted by the California Court of Appeal to mean that “feasible preservation in place must be adopted to mitigate impacts to historical resources of an archaeological nature unless the lead agency determines that another form of mitigation is available and provides superior mitigation of impacts.” *Madera Oversight Coalition v. County of Madera* (2011) 199 Cal.App.4<sup>th</sup> 48, disapproved on other grounds, *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4<sup>th</sup> 439.

Please contact the Cultural Preservation Department, via email at [cpd@wiltonrancheria-nsn.gov](mailto:cpd@wiltonrancheria-nsn.gov) to set up a meeting.

Sincerely,

Wilton Rancheria

## Response to Wilton Letter

SMUD	Wilton Response
8/26/21: AB 52 notificaton letter sent	9/23/21: Sent letter via email requesting consultation
9/28/21: At monthly meeting, acknowledged receipt of request for consultation.	9/28/21: Requested site visit at monthly meeting.
10/13/21-10/21/21: Back and forth communication with UAIC and Wilton Rancheria about schedule for site visit. Settled on two separate dates due to tribal representative availability.	
10/22/21: Scheduled site visit for 11/10/21	
11/10/21: Met onsite with tribal representative Vanessa Cruz. Had to cut the site visit short due to unsafe/muddy conditions. Offered to reschedule for later in the spring.	11/10/21: No major concerns about impacts to TCRs. Vanessa stated that she would recommend to the THPO that UAIC's request for spot monitoring in substation/switch station areas is sufficient.

# **Ione Letter**



August 26, 2021

Lone Band of Miwok Indians  
Sara Dutschke Setshwaelo, Chairperson  
9252 Bush Street  
Plymouth, CA 95669

Subject: Notification Under AB52 – SMUD Country Acres Solar Project

Dear Ms. Setshwaelo,

In accordance with California Public Resources Code Section 21080.3.1 (AB 52) and the Lone Band of Miwok Indians' (IBMI) December 11, 2019 letter request for formal notification of and information regarding SMUD-led projects within the IBMI's geographic area of traditional and cultural affiliation, you are hereby notified that the Sacramento Municipal Utility District (SMUD) is proposing to prepare an Environmental Impact Report for the Country Acres Solar Project (Project).

SMUD is proposing to construct and operate a new photovoltaic (PV) solar facility located on leased lands in southwestern Placer County. The project consists of three developmental areas just west of the city of Roseville, totaling around 1,300 acres of vacant grassland and agricultural (rice fields) parcels with scattered seasonal wetlands and drainages. As shown on the attached maps, the project area includes a northern and southern portion of PV panels connected by collection lines, and substation, switch yard, and battery storage facilities located south of the southern portion of PV panels.

SMUD is in the planning phase that includes the preparation of a preliminary site layout and design. The site may accommodate up to a 344 megawatt (MW) solar facility, however, SMUD expects that the site will likely accommodate a smaller MW capacity due to wetland and other constraints on the land. The facility size and design will be influenced by the wetland delineation and biological analysis. In addition to the solar facility, the project will include an interconnection to SMUD's 230 kilovolt (kV) electrical infrastructure, thus requiring interconnection facilities to be built as part of the project. Battery energy storage systems will also be included as part of the project.

SMUD is committed to working with you to identify and minimize or avoid impacts to Tribal Cultural Resources (as defined under California Public Resources Code Section 21074) important to the IBMI. Your assistance in identifying such potential resources will help SMUD avoid and protect them. We understand that the locations of these



resources are sensitive and SMUD will have appropriate staff and consultants available to work with you during consultation to ensure confidentiality and awareness. Resource locations will not be disclosed in public documents and will be kept confidential as provided for under California Government Code 6254.10.

If you have any questions, please feel free to contact me by telephone at (916) 732-5384 or via e-mail at [amy.spitzer@smud.org](mailto:amy.spitzer@smud.org).

Sincerely,

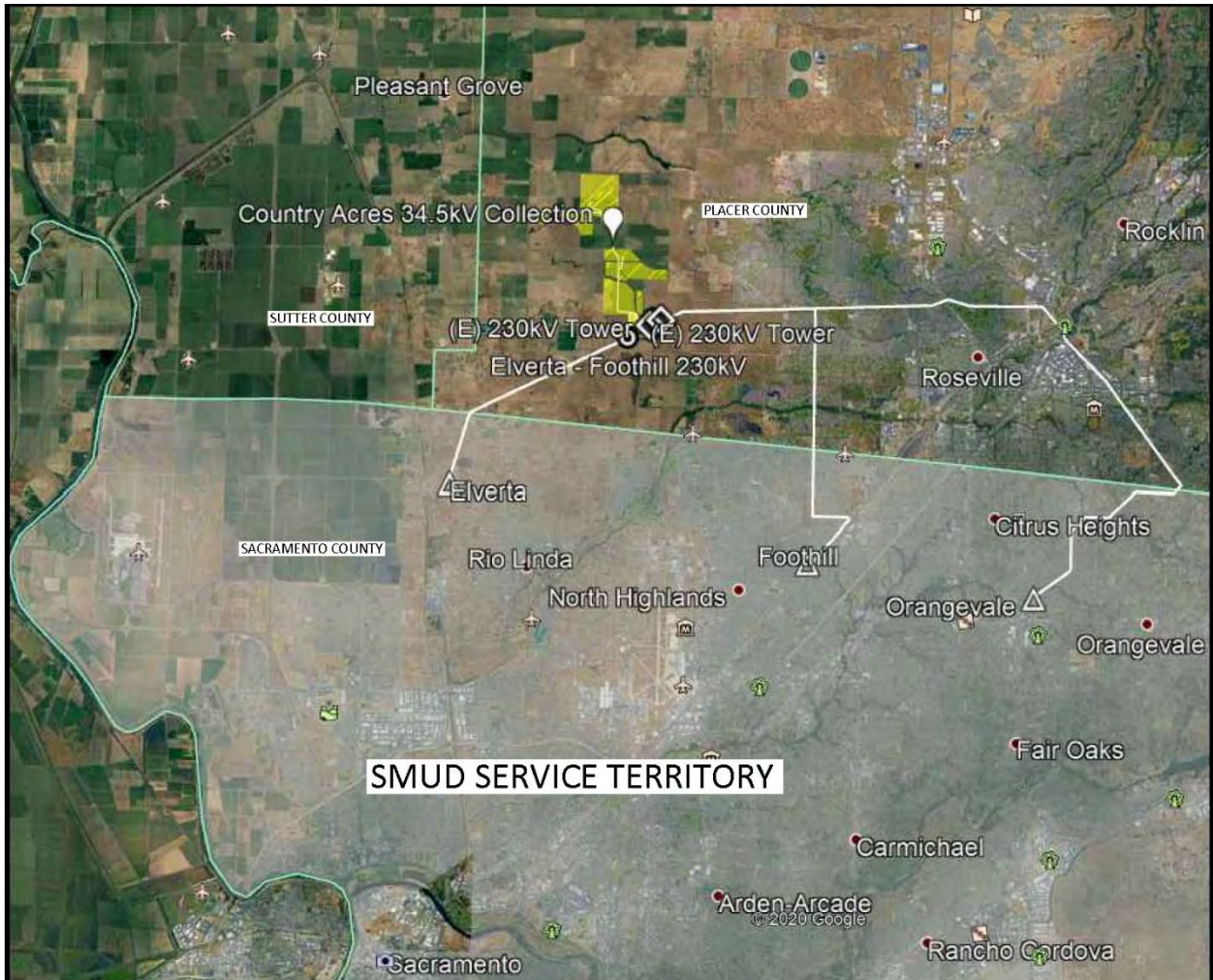
A handwritten signature in blue ink, appearing to read 'Amy Spitzer', with a stylized, cursive script.

Amy Spitzer  
Environmental Specialist

Attachment

cc: Patrick Durham, SMUD  
Emily Bacchini, SMUD  
Ammon Rice, SMUD  
Joe Schofield, SMUD  
Jereme Dutschke, IBMI  
Cultural Committee, IBMI

**ATTACHMENT 1  
PROJECT SITE EXHIBIT**

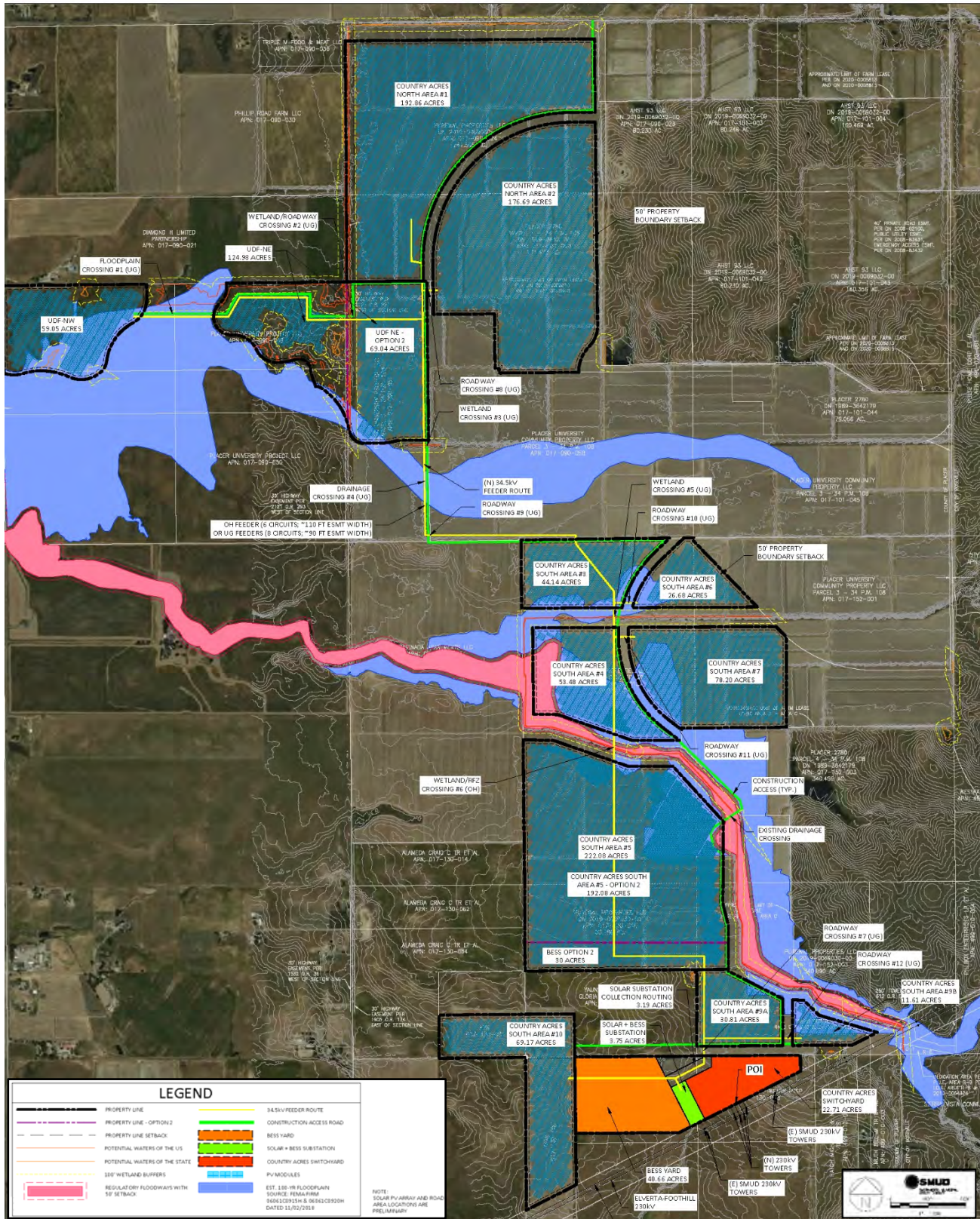


SITE LOCATION: 38°46'11.96"N, 121°24'58.42"W

**VICINITY MAP**



# ATTACHMENT 2 PRELIMINARY SOLAR PV LAYOUT



## Response to Ione Letter

SMUD	Ione Response
8/26/21: AB 52 notificaton letter sent	No response received as of 9/26/21.

---

# Appendix E Section 106 Native American Consultation

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Pending Completion by SMUD.

**APPENDIX D**  
**WATER SUPPLY ASSESSMENT AND**  
**PRELIMINARY HYDROLOGY REPORT**

---

# **Sacramento Municipal Utility District Country Acres Solar Project Water Supply Assessment**

---

July 25, 2022



Powering forward. Together.







# Sacramento Municipal Utility District Country Acres Solar Project Water Supply Assessment

Lead Agency:

Sacramento Municipal Utility District  
6201 S Street  
Sacramento, CA 95817  
or  
P.O. Box 15830  
Sacramento, CA 95852-0830  
Attn: Amy Spitzer, Environmental Specialist, Environmental Services  
(916) 732-5384 or [amy.spitzer@smud.org](mailto:amy.spitzer@smud.org)

Prepared by:

AECOM  
2020 L Street, Suite 300  
Sacramento, CA 95811  
Contact: Jody Fessler  
(916) 414-5800

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## ACRONYMS AND OTHER ABBREVIATIONS

AB	Assembly Bill
AFY	acre-feet per year
BESS	battery energy storage system
CAW	California American Water
CEQA	California Environmental Quality Act
CIMIS	California Irrigation Management Information System
DWR	California Department of Water Resources
ET <sub>o</sub>	crop evapotranspiration
eWRIMS	Electronic Water Rights Information Management System
GSAs	groundwater sustainability agencies
K <sub>c</sub>	crop coefficient
MGD	million gallons per day
ET <sub>c</sub>	evapotranspiration for a specific crop
PCWA	Placer County Water Agency
PV	photovoltaic
SB	Senate Bill
SGMA	Sustainable Groundwater Management Act
SMUD	Sacramento Municipal Utility District
SWRCB	State Water Resources Control Board

## 1 INTRODUCTION

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### 1.1 PURPOSE OF THE DOCUMENT

California Water Code §10910 (also known as Senate Bill (SB) 610 or the Water Supply Assessment statute) requires as part of the approval for certain types of projects, a specific analysis of whether there is a sufficient water supply available to serve the proposed project. Per the statute, a water supply assessment is required for development projects that are both subject to the California Environmental Quality Act (CEQA) and considered a “project” under California Water Code §10912. For new industrial facilities, a project is defined as a proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area. Because the Country Acres Solar Project (proposed project) would be considered a “project” under California Water Code §10912(a)(5), it is subject to SB 610 requirements including preparation of a water supply assessment.

This water supply assessment has been prepared in accordance with California Water Code §10910 *et seq.* to identify water demands for the proposed project and identify if there is sufficient supplies to serve the project demand over the next 30 years.

### 1.2 PROJECT BACKGROUND

Sacramento Municipal Utility District (SMUD) proposes to build and operate the proposed project: a photovoltaic (PV) solar power and battery storage renewable energy generation facility interconnected to SMUD’s transmission grid in southwestern Placer County, California. Project components include PV solar panels, battery storage facilities, and interconnection facilities including a generation substation, switch station, and interconnection lines to the existing SMUD transmission system. SMUD plans to purchase the solar power generated from the renewable energy generation facility through a contract with a third party, who would design, construct and operate the project. The Project is proposed to support SMUD’s 2030 Zero Carbon Plan.

The project would be located on up to approximately 1,170 acres of land in rural, western Placer County, California, west of the City of Roseville, north of Baseline Road and east of South Brewer Road (Figure 1). The project area encompasses several parcels and includes a northern segment and a southern segment connected by an easement for access and collection lines. Up to 910 acres of land would be leased by SMUD and up to 225 acres of land would be purchased by SMUD for the project. The remainder of the approximately 1,170 acres includes the easements for access and collection lines.

Existing land uses within the project area include agricultural rice fields and almond orchards, and some annual non-native grassland with seasonal wetlands. Existing agricultural land use on the project site is described in Table 1. Irrigation wells exist throughout the project site. These wells are powered either via overhead electrical distribution lines, diesel, or propane fuel.

**Table 1. Existing Land Use**

Land Cover Type	Project Area (acres)	Impact Footprint (acres)
Rice Field	872.8	829.8
Almond Orchard	131.5	110.2
Irrigated Pasture	0.03	0.02
Non-Agricultural Lands	165.6	93.6
<b>Total Area</b>	<b>1,169.9</b>	<b>1,033.6</b>
Note: The impact footprint is based on overlay of 10% design features and a map of habitat types prepared in support of CEQA compliance; as presented in the biological resources section of the Draft EIR for the project.		

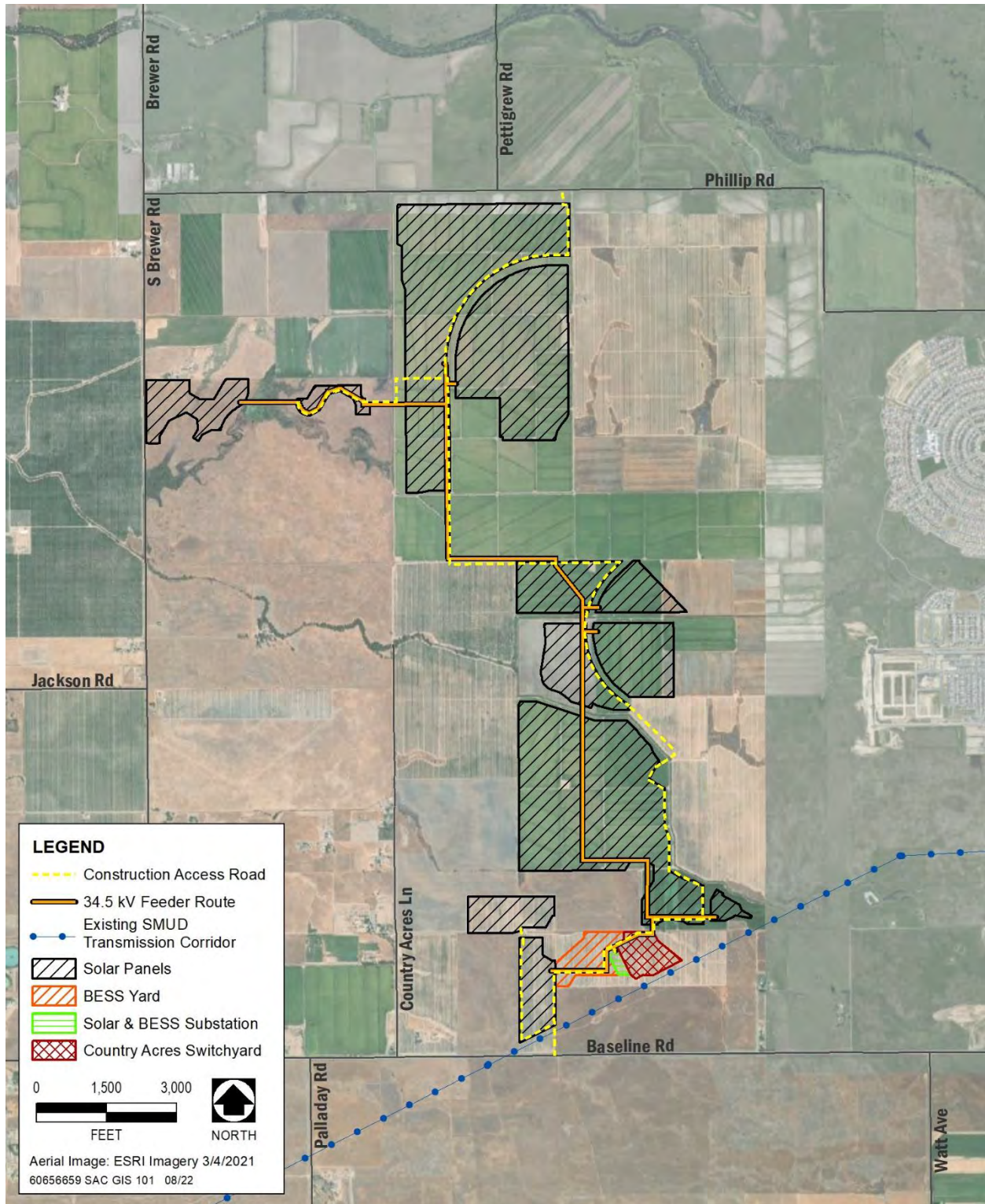
While much of the project area is currently in agricultural production (rice, orchards), seasonal wetlands, cattail marsh, vernal pools, drainages, riparian vegetation, and creeks also occur within the project area. Curry Creek is the drainage that bisects the project area. Curry Creek and many of the other drainages and creeks in the area have been channelized and exhibit perennial or near-perennial hydrology as influenced by adjacent rice field and pasture irrigation practices.

Construction of the project would take approximately 18 months to 2 years to complete. Initial mobilization would include preparing and constructing site access road improvements, removal of existing agricultural operations, establishing temporary construction trailers and sanitary facilities, preparing construction staging areas, and preparing access areas near existing onsite wells. Once site mobilization is complete, construction of the PV solar panels, battery storage facilities, and interconnection facilities would commence.

Once construction is complete, the project would operate seven days per week. One regular onsite employee may be required, and some personnel may visit the site to monitor, maintain, and if needed, repair, the system. Both the switch station and the substation are planned with site control center buildings. The buildings would be less than 3,600 square feet in size and include restrooms connected to a septic system. Access to potable water would be either via treated groundwater or water delivery, if needed.

Compatible agricultural activities such as grazing and/or pollinator habitat would be integrated into the solar operations. Water would be needed to establish pollinator habitat and/or for use in stock watering.

At the end of the project's useful life (anticipated to be 30 years or more), the project will be decommissioned. Currently, standard decommissioning practices include dismantling and repurposing, salvaging/recycling, or disposing of the solar energy improvements, and site stabilization. Additional environmental analysis will be conducted prior to decommissioning, when future land use of the site is known.



**Figure 1. Site Location Map with Proposed Project Elements**

## 2 PROJECT WATER DEMAND

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### 2.1 CONSTRUCTION WATER DEMAND

Water would be used during construction for the following activities:

- Dust control,
- Compaction/backfill,
- Pouring concrete foundations for the inverter enclosures and transformers, the battery energy storage system (BESS), generation substation and switchyard components, and interconnection poles and for use at the associated concrete washout stations, and
- Potable water and sanitary facilities would be needed for the temporary construction office and the expected average workforce of 177 persons.

Water used for dust control and for compaction/backfill is expected to be sourced from onsite wells. Non-potable water for concrete foundations and concrete washout stations, and for temporary sanitary facilities, is expected to be trucked to the project site. Potable water for the temporary construction office and the construction work force is also expected to be trucked to the site.<sup>1</sup>

The primary water demand associated with construction would be for compaction and dust control. It is estimated that these construction activities would require approximately 100 acre-feet of non-potable water from on-site wells (see Appendix A).

### 2.2 OPERATION AND MAINTENANCE WATER DEMAND

Water would be used for the following operations and maintenance activities:

- PV panels may be periodically washed with water during project operation. To conservatively estimate potential panel washing operational water use, it is estimated that solar panels would be washed once per year in case of excessive soiling.
- The site control center buildings include restrooms connected to a septic system. Water for the site control buildings is expected to be sourced from onsite wells. Landscaping at the site control center buildings is not anticipated at this time.
- In addition, pumped groundwater would likely be needed to support compatible agricultural activities such as grazing and/or pollinator habitat.

The primary water demand during operation and maintenance of the project is expected to be the PV panel washing. It is estimated that 5 acre-feet of water will be used for washing the solar

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<sup>1</sup> For the purposes of a water supply assessment, hauled water is not considered as a source of water (California Water Code §10910(i)).

panels once a year (estimate provided by SMUD). The project would either use water from existing on-site wells, or a new well would be installed for the project.

It is assumed that there would be two restrooms at the site control center buildings for use by the one regular onsite employee and by the personnel that would visit the site to monitor, maintain, and repair the system. Sanitary water use in industrial settings can be estimated at 10 to 25 gallons per person per shift or 20 and 35 gallons per day per employee for domestic demands (EPA 2021). Assuming a conservative average of two employees each using 35 gallons of water per day, estimated water use would be less than 0.1 acre-feet per year (AFY).

Groundwater is expected to be pumped to support limited agricultural activities such as grazing and/or establishment of pollinator habitat. Sheep grazing is one of the activities being considered in fenced areas near the solar arrays. Although sheep obtain most of their water requirements from forage consumption, stock watering of 0.5 to 1 gallons of water per head per day may also be needed (NRCS 1979). Assuming five ewes per acre over 1,033.6 acres with additional water requirements of 1 gallon per ewe per day, sheep supported on the solar fields would consume up to 5.8 AFY of pumped groundwater. It is assumed for the purpose of this analysis that up to 5.8 AFY of pumped groundwater would be used in a variety of future agricultural activities near the solar arrays.



### 3 WATER RESOURCE ANALYSIS

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This section provides a summary of the requirements for a water supply assessment; it describes the water resources in the project area including the surface water drainage basin and the regional groundwater basin; and it provides information from water resource management plans which characterize these water supplies.

#### 3.1 WATER SUPPLY ASSESSMENTS

This water supply assessment has been prepared in accordance with California Water Code §10910 *et seq.* to address the following questions.

- **Public water systems, §10910(b)-(c).** Is the project site within (or near) the service area for a public water system<sup>2</sup> that may supply water to the project?
  - Was the projected water demand associated with a proposed project accounted for in the most recently adopted urban water management plan?
  - If project demands were not accounted for in the urban water management plan, does the city, county, or public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses?
- **Entitlements, §10910(d)-(e).** Are there existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project?
  - How much water was received in prior years from the city, county, or public water systems (and will new infrastructure be required to deliver the water supply)?
  - Are there other public water systems or water service contract holders (which receive a water supply, or have existing water supply entitlements, water rights, or water service contracts) to the same source of water?
- **Groundwater, §10910(f).** Does the water supply for the proposed project include groundwater?
  - If so, information contained in the urban water management plan relevant to the identified water supply for the proposed project should be reviewed and groundwater basin or basins for the water supply should be described. The following information should be included: if the groundwater basin is adjudicated, overdrafted, or projected to be overdrafted, and if the groundwater sustainability agency has adopted a groundwater sustainability plan.
  - If groundwater is received from the city, county, or public water system, the amount and location of the groundwater pumping should be described, and the sufficiency of the groundwater to meet the projected water demand associated with the proposed project should be analyzed.

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<sup>2</sup> A "public water system" is for the provision of piped water to the public for human consumption.

Note that for the purposes of this analysis, hauled water is not considered as a source of water, consistent with California Water Code §10910(i).

## **3.2 WATER RESOURCES**

Regional water supplies are sourced from groundwater and surface water, with only a limited amount of recycled water/treated wastewater use in some urban areas. Most urban areas in Placer County (other than for the city of Lincoln) use surface water for their primary needs and only use groundwater during emergency, drought, or other conditions. Most agricultural areas have both surface water and groundwater supplies and conjunctively use these resources. As discussed below, water supplies within the project area are almost exclusively sourced from the groundwater basin.

### **3.2.1 Surface Water**

The project site is within the Sacramento River Basin which covers approximately 26,500 square miles and is bounded by the Sierra Nevada to the east, the Coast Ranges to the west, the Cascade Range and Trinity Mountains to the north, and the Sacramento-San Joaquin Delta to the south. The primary tributaries to the Sacramento River are the Pit, Feather, and American Rivers. The project site is located within the southern portion of the basin in an area which has eastside drainages that discharge to the Sacramento River between its confluence with the Feather and American Rivers. The northern portion of the project site drains to Curry Creek and the southern end of the project site drains towards the Natomas East Main Drainage Canal (also referred to as Steelhead Creek).

The Steelhead Creek watershed encompasses approximately 25,000 acres in the greater Sacramento metropolitan area including portions of southwestern Placer County and northeastern Sacramento County. The southern portion of the project site drains towards an unnamed tributary to the Natomas East Main Drainage Canal located south of Sankey Road. The Natomas East Main Drainage Canal flows south from Sutter County into Sacramento County to a point just north the American River, where it turns west and discharges into the Sacramento River immediately upstream from its confluence with the American River.

The Curry Creek subwatershed encompasses approximately 10,200 acres in Placer and Sutter counties. Curry Creek discharges into the Pleasant Grove Creek Canal west of the project site and approximately 0.5 mile south of Pleasant Grove Creek in Sutter County. Water in the Pleasant Grove Creek Canal flows north, where it discharges into the Natomas Cross Canal (which flows southwest), and then discharges into the Sacramento River near Verona. Curry Creek was historically dry or very nearly dry in the summer months, but is now intermittent in some areas due to runoff from adjacent urban development and rice farming.

Curry Creek originates approximately 3 miles southeast of the project site in grassland habitat and flows west towards the project site as a relatively natural ephemeral drainage. The mainstem of Curry Creek flows through the middle portion of the project site in an east-west direction, where it is mapped as an intermittent drainage. Two other unnamed tributaries to Curry Creek enter and cross through the project site to the north, and like Curry Creek, they both originate to the east as ephemeral drainages (AECOM 2022).

There are approximately 20 water agencies, water districts, city/county water departments, and/or irrigation districts within the region that provide potable water to residents from supplies derived from surface and groundwater (or a combination of both). Irrigation districts typically provide surface water for agricultural use; they supply only a portion of the water needed for agriculture and the unmet demand is provided by privately owned wells. Surface water is brought into Placer County by water agencies through diversions from the American River from Folsom Reservoir; purchased water from the Yuba, Bear, and American rivers; and from water sourced from local surface waters derived principally from the Yuba River, Bear River, and Deer Creek watersheds (GEI 2021).

The project area is not within a service area for a water agency. The City of Roseville and California American Water (CAW) serve potable water to areas located north, east, and south of the project site and the South Sutter Water District provides agricultural supplies to areas west of the project site. The water used within the project area to flood existing rice fields and irrigate almond orchards is sourced from on-site wells that use groundwater. However, irrigated pastures that border the project area to the north and west appear to be irrigated by overland surface flow, with water pumped from a network of surface canals and ditches which are then allowed to sheet across the landscape toward annual grasslands (AECOM 2022).

### 3.2.2 Groundwater

The Sacramento Valley Groundwater Basin is the major groundwater basin in the Sacramento River hydrologic region. The project site is located near the center of the Sacramento Valley – North American Basin (North American Subbasin), Basin Code 5-021.64, which underlies northern Sacramento, southern Sutter, and western Placer counties. The subbasin is bounded by the Bear River on the north, the Feather River and Sacramento Rivers on the west, the American River on the south, and the Sierra Nevada foothills on the east. The subbasin encompasses approximately 535 square miles or approximately 342,000 acres of area. Placer, Sacramento, and Sutter counties each cover about one-third of the subbasin.

The North American Subbasin has one principal aquifer (some studies have indicated it includes both an upper and lower aquifer system). Sediments within the aquifer consist of alternating layers of clays, silts, sand, and gravel and although the freshwater bearing sand and gravel layers are not continuous, they are interconnected. Groundwater is recharged from surface infiltration and from inflow from adjacent groundwater subbasins. Recharge areas include those near the Sierra Nevada foothills; areas at some creeks, canals, and rivers; and general infiltration from the surface of the subbasin. Soils within the subbasin can contain claypans and hardpans which severely restrict infiltration; however, agricultural areas can provide large volumes of recharge where water is applied or ponded throughout the growing season (GEI 2021). More permeable soils can be found along local creeks and waterways including those present along the streambed of Curry Creek and its tributaries (NRCS 2022).

Groundwater in the subbasin is used for municipal, industrial, irrigation, domestic, stock watering, frost protection, and other purposes. There are about 3,800 domestic, agricultural, and/or municipal production wells in the subbasin. (Production wells have well casings greater than or equal to 4 inches and a total depth that is greater than or equal to 22 feet.) Most of the production wells in the subbasin are domestic wells, which are de-minimis extractors that pump less than 2 AFY (GEI 2021). There are also larger municipal wells that supply public water

systems. The subbasin is not adjudicated, nor are any of the surrounding groundwater subbasins.

Groundwater contours show a pumping depression in the central portion of the subbasin in Sacramento County that is currently about 20 to 30 feet below mean sea level. Groundwater flows radially toward this depression, from the fringes of the subbasin toward the center. This groundwater pumping depression developed in the 1960s due to agricultural and urban development, and lack of surface water supplies. Conjunctive use projects implemented since the mid-1990s have reversed the decline in groundwater levels; some areas have had substantial recoveries in groundwater elevations (up to 10 to 20 feet). The central groundwater pumping depression has stabilized, with groundwater levels declining during dry periods and recovering during wet periods (GEI 2021).

Historical land subsidence was documented in the early 1990s. Benchmark surveys showed about 0.3 feet of subsidence in some areas most likely due to groundwater levels declining during the 1950s through 1970s. However, since the 1990's, land subsidence has been negligible (GEI 2021).

Total dissolved solids, iron and manganese, arsenic, chromium (total and hexavalent), and nitrate concentrations are currently being monitored on a regional basis within the subbasin to evaluate general water quality conditions. In general, the quality of groundwater in the subbasin is suitable for nearly all uses with the exception of localized water quality issues (GEI 2021).

### 3.2.3 Recycled Water

Both the cities of Roseville and Lincoln are using recycled water and are planning to increase this use in the future. A portion of the treated wastewater from five wastewater treatment plants in the region is reused for irrigation of beltways, golf courses, and some agriculture along with some water features at golf courses. Recycled water is not a potential source of water supply to the project area.

## 3.3 WATER RESOURCES MANAGEMENT PLANS AND WATER SUPPLY ANALYSIS

This section includes a discussion of regional water resources management plans, including the groundwater sustainability plan and urban water management plans for the region. Conditions in the groundwater subbasin are further described, as is projected future water supplies.

### 3.3.1 North American Subbasin Groundwater Sustainability Plan

The Sustainable Groundwater Management Act (SGMA) was passed in 2014. It was created to facilitate sustainable management of groundwater supplies and empower local agencies to adopt groundwater sustainability plans. The SGMA requires that each high and medium priority groundwater basin is operated to a sustainable yield, balancing natural and artificial groundwater recharge with groundwater use, to ensure undesirable results such as chronic lowering of groundwater levels, loss of storage, water quality impacts, land subsidence, and impacts to hydraulically connected streams do not occur. The SGMA is considered part of the

statewide, comprehensive California Water Action Plan which includes water conservation, water recycling, expanded water storage, safe drinking water, and wetlands and watershed restoration.

California's groundwater basins are classified into one of four categories – high-, medium-, low-, or very low-priority – based on components identified in California Water Code §10933(b). Basin priority determines which provisions of the SGMA apply to the basin. The California Department of Water Resources (DWR) determined that the North American Subbasin (which includes the project site) is a high priority basin that is not in a state of critical overdraft.

The SGMA also requires that local agencies form one or more groundwater sustainability agencies (GSAs) and that the agencies located within high- or medium-priority basins adopt groundwater sustainability plans. The West Placer GSA was formed in 2017 to implement the SGMA in west Placer County. The west Placer GSA consists of four public agencies with water management or land use authority in Placer County – County of Placer, City of Roseville, City of Lincoln, and Placer County Water Agency – all of which are water purveyors. In addition, CAW, an investor-owned utility, also participates in the West Placer GSA.

The West Placer GSA and four other GSAs in Sutter, Placer, and Sacramento counties prepared the *North American Subbasin Groundwater Sustainability Plan* (GEI 2021) – a guidance document that explains how the basin will be managed sustainably over a 20-year timeframe. The groundwater sustainability plan defines the sustainable yield of the basin, identifies what would constitute undesirable results, and identifies what projects and actions will be implemented to avoid undesirable results. The North American Subbasin Groundwater Sustainability Plan was adopted by the five GSAs in the subbasin (Reclamation District 1001, Sacramento Groundwater Authority, South Sutter Water District, Sutter County GSA, and West Placer GSA) and was submitted to DWR in January 2022.

The North American Subbasin Groundwater Sustainability Plan provides estimates of current and projected conditions in the subbasin based on the Cosumnes-South American-North American model, a surface and groundwater numerical model that integrates the groundwater aquifer with surface hydrologies, land surface processes, and operations. Riverine inflows from the Bear, Feather, Sacramento, and American rivers were quantified by the model. Local tributaries were also accounted for including Racoon Creek, East Side Canal, Auburn Ravine, Pleasant Grove Creek, Pleasant Grove Creek Canal, Cross Canal, Natomas East Drain, Dry Creek, Magpie Creek, Arcade Creek, Buffalo Creek, and Alder Creek. Inputs and outputs from the land surface system include precipitation, surface water supply, and groundwater supply, as well as evapotranspiration, runoff to the stream system, return flows to the stream system, deep percolation, and other outflows. These surface processes contributed to the overall water balance for the groundwater system.

Water budgets were determined for the following scenarios:

- **Recent Operations.** Actual/historical conditions were simulated for water years 2009 to 2018 (a 10-year period). This modeling was used to evaluate the availability and reliability of past surface water supplies, the aquifer response, and trends in demands relative to water year type. Note that hydrologic conditions were drier during this 10-year period than the long-term average – eight of the ten water years were below normal, dry, or critical.

- **Current Conditions.** Current land and water use conditions were simulated using historical hydrologic conditions over water years 1970 to 2019 (a 50-year period) to analyze the long-term effects of current land and water use practices on groundwater conditions and to estimate inflows and outflows for the groundwater subbasin.
- **Future Conditions** with and without climate change. Future land and water use conditions were simulated using hydrologic data from water years 1970 to 2019 (a 50-year period) to assess future subbasin conditions. Future projected conditions include changes to land use, water supplies, and agricultural and urban demand. Climate change conditions were also modeled.

The modeling of current and future conditions considers the water budget from a long-term average annual basis to facilitate the assessment of long-term water supply reliability. This is in contrast to annual inflows and the outflows which change to a large degree based on water year type. In wet years, precipitation meets more of the water demand and greater recharge occurs from precipitation and stream flow. In dry years, more groundwater is pumped to meet the agricultural demand not met by precipitation and less recharge occurs from precipitation and stream flow. This contributes to an increase in groundwater storage in wet years and a decrease in dry years. Further, many water agencies practice conjunctive use, using more surface water in wet years and more groundwater in dry years to optimize their water supplies. While agricultural demand for applied water increases in dry years due to lack of precipitation, agricultural surface water supplies remain relatively consistent in most non-critical years (GEI 2021).

Table 2 shows annual average supply and demand by water year type and change in groundwater storage over the 29-year period from 1990 to 2018. This modeling indicates that there has been a net increase in groundwater storage during wet, above normal, and below normal years and a net deficit in groundwater storage in dry and critically dry years. The magnitude of the change in groundwater storage also differs by water year type. Major losses in groundwater storage occurred during critically dry years and substantial gains occurred during wet years. Table 2 also shows the more recent 10-year period between 2009 and 2018 which had two critically dry, two dry, and four below normal years, but still had net gains in groundwater storage.

Table 3 shows long-term annual average inflows and outflows to the groundwater subbasin and the average annual change in groundwater storage; also shown are the more recent operations between 2009 and 2018 as a basis for comparison. The results for future projections include planned growth and land use changes for forecasted conditions with and without climate change. This modeling indicates that the subbasin is currently within balance and projected conditions with climate change would result in only a slight imbalance. The subbasin currently has a surplus of water, which is consistent with measurements of groundwater levels rising in the central portions of the subbasin. This surplus groundwater condition would continue into the future but in lesser amounts. When future conditions are modeled with a central tendency climate change scenario, the subbasin is found to be in a modest overdraft.

**Table 2. Historical Supply and Demand for the North American Subbasin**

Supply and Demand	Wet	Above Normal	Below Normal	Dry	Critical	Recent Operations (2009-2018)
<b>Water Demand (AFY)</b>						
Agricultural demand	417,300	431,800	434,300	449,600	436,000	410,800
Urban demand	212,600	223,800	213,900	218,900	197,300	184,500
Other	3,500	3,500	5,700	4,300	4,100	7,500
<b>Total Demand</b>	<b>633,400</b>	<b>659,100</b>	<b>653,900</b>	<b>672,800</b>	<b>637,400</b>	<b>602,800</b>
<b>Water Supply (AFY)</b>						
Agricultural surface water use	215,500	233,900	211,300	213,100	181,900	189,900
Urban surface water use	116,500	126,400	126,600	133,800	110,700	117,900
Agricultural groundwater use	181,200	177,300	202,400	215,900	233,500	200,300
Agricultural residential groundwater use	20,600	20,600	20,600	20,600	20,600	20,600
Urban groundwater use	96,100	97,400	87,300	85,100	86,600	66,600
Groundwater for remediation	3,500	3,500	5,700	4,300	4,100	7,500
<b>Total Supply</b>	<b>633,400</b>	<b>659,100</b>	<b>653,900</b>	<b>672,800</b>	<b>637,400</b>	<b>602,800</b>
<b>Average Annual Change in Groundwater Storage (AF)</b>	<b>102,300</b>	<b>29,300</b>	<b>12,600</b>	<b>(7,300)</b>	<b>(66,400)</b>	<b>31,800</b>

Source: GEI 2021

Note: AFY = acre-feet per year

**Table 3. North American Subbasin's Average Annual Water Budget**

Groundwater Inflow/Outflow Sources	Recent Operations (2009-2018)	Current Conditions	Future Conditions	Future Conditions (with climate change)
<b>Inflows (AFY)</b>				
Deep percolation	177,500	183,500	167,400	161,000
Infiltration from streams	134,000	134,500	154,300	163,600
Groundwater injection	300	200	2,100	2,100
Other recharge (unlined canal seepage)	16,700	16,700	16,400	16,400
Subsurface inflow	54,600	49,900	53,600	56,300
<b>Total Inflow</b>	<b>383,000</b>	<b>384,700</b>	<b>393,800</b>	<b>399,500</b>
<b>Outflows (AFY)</b>				
Discharge to streams	44,400	53,000	46,300	41,600
Groundwater pumping	296,400	303,400	325,200	345,100
Subsurface outflow	10,500	13,700	16,800	16,200
Other flows	--	--	--	100
<b>Total Outflow</b>	<b>351,100</b>	<b>369,900</b>	<b>388,400</b>	<b>403,000</b>
<b>Average Annual Change in Groundwater Storage (AF)</b>	<b>31,800</b>	<b>14,900</b>	<b>5,400</b>	<b>(3,500)</b>

Source: GEI 2021

Note: AFY = acre-feet per year

The North American Subbasin Groundwater Sustainability Plan (GEI 2021) concludes that the subbasin is not experiencing any undesirable results and it is not projected to experience any within the 2042 planning horizon. Because there is some risk in the form of a modest groundwater overdraft of about 3,500 AFY when climate change is considered in the 50-year planning horizon, additional conjunctive use opportunities in the urban municipal supply distribution systems have been identified to avoid future potential undesirable results related to lowering of groundwater levels and depletion of groundwater storage. One of the conjunctive use projects being considered can resolve the deficit and has a net benefit of reducing groundwater pumping by 5,000 AFY. In addition, urban water purveyors have been planning for the completion of a groundwater bank which will increase the use of the subbasin as a storage reservoir.

Although the proposed project is not directly accounted for in the groundwater sustainability modeling, regional long-term changes in land use and water demands (e.g., reductions in agricultural lands and agricultural water demands) are part of the future condition projections.

While the current and projected conditions shown in Table 3 use the same hydrologic period in the modeling, the runoff and percolation conditions differ due to the impact of land conversion from agricultural and native lands to urban land uses. Agricultural water supplies decline due to reduced irrigated acreage. Reduced agricultural uses and native lands results in lower levels of evapotranspiration and return flow from these areas. Urban growth results in increases in urban demand and urban water supplies. Increased urban land and water use increase urban evapotranspiration, urban return flow, and runoff (GEI 2021).

Because the proposed project would reduce irrigated acreage, agricultural demands would decrease. This change in land use would not, however, be associated with a corresponding increase in urban demands, as predicted in the model. Therefore, a net increase in groundwater storage is expected with the proposed project beyond what is predicted above for future conditions.

### 3.3.2 Western Placer County Groundwater Management Plan

California Water Code §10753 encourages local public agencies/water purveyors to voluntarily adopt formal plans to manage groundwater resources within their jurisdictions. In 2007, the City of Roseville, the City of Lincoln, Placer County Water Agency, and CAW developed the *Western Placer County Groundwater Management Plan* (MWH 2007) in accordance with SB 1938 and Assembly Bill (AB) 3030. This groundwater management plan was a planning tool for groundwater management in the region. It describes groundwater conditions, water use, and groundwater management objectives for west Placer County and provides a “baseline” document for agencies seeking grant funds from the State of California. This plan has recently been replaced by the North American Subbasin Groundwater Sustainability Plan adopted for the region.

### 3.3.3 Urban Water Management Plans

Although they do not serve the project area, the City of Roseville and CAW both have water service areas near the project site. Urban water suppliers that provides over 3,000 acre-feet of water annually or serves more than 3,000 service connections are required to submit an urban



water management plan. These plans report on the progress that urban water suppliers are making in meeting their water use efficiency targets, provide estimates of current and projected water demands, describe current and projected water sources, describe water management actions that improve supply reliability, and provide an evaluation of the sufficiency of supplies to meet the forecasted demands under both normal and drought conditions.

The City of Roseville's *2020 Urban Management Plan* (Water Works Engineers, LLC 2021) describes the City's water supplies and customer demands in its service area. The City of Roseville has more than 46,100 service connections and supplies more than 30,000 acre-feet of water annually to its customers. The City obtains surface water from Folsom Lake through wholesale purchase primarily from the United States Bureau of Reclamation and has additional water contracts with Placer County Water Agency (PCWA) and San Juan Water District. Raw water is conveyed to the City's water treatment plant and is then distributed through the City's 600 miles of water mains to customers. The City also has eight wells, six of which are in service. The operable wells have a combined capacity of approximately 17,500 AFY or 15.6 million gallons per day (MGD). The City is planning to expand its groundwater program as a means to having a more robust water supply available in the event of a water shortage condition.

As part of the water management planning, a supply reliability and drought risk assessment was performed for a single-year and five-year consecutive drought period for both near-term and long-term conditions. Seasonal and climatic shortages in dry or critically dry years increase limitations on the volume of water the City receives from Folsom Lake. The supply and drought risk assessment indicates that there is a potential for minor shortages in the near-term extended drought scenario (on the 5<sup>th</sup> year of the drought) as well as a potential for shortages over the long-term in both single year and extended drought conditions. The highest level of deficiency identified was less than 8 percent of the annual demand, and was expected to be remedied by basic conservation measures.

CAW is a privately-owned public utility, a subsidiary of American Water. CAW's *2020 Urban Water Management Plan, Sacramento Main District* (Murrysmith 2021) describes the West Placer Public Water System service area, water supplies, and customer demands. The West Placer Public Water System has 1,390 municipal connections and supplies approximately 1,120 AFY (1 MGD) to primarily residential and commercial customers. CAW has wholesale water supply agreements with PCWA to supply up to 2 MGD of water supply for the service area. Additional supplies can also be purchased by CAW, as needed.

The West Placer Water System service area is primarily undeveloped and projected water use is expected to increase by about threefold over the next 20 years. The urban water management plan's water supply analysis assumes that additional conveyance capacity will be provided and PCWA will supply sufficient water to meet the entire demand within the West Placer System service area regardless of hydrologic conditions. This assumption is due to PCWA's estimate that there is sufficient water supplies available through the projected build-out conditions for the service area during a series of multiple dry year conditions (Murrysmith 2021).

### 3.3.4 Agricultural Water Management Plans

Agricultural water suppliers serving more than 25,000 irrigated acres (excluding recycled water deliveries) are required to adopt and submit an Agricultural Water Management Plan. These

plans contain reports on efficient water management practices, annual water budgets, system efficiency objectives, and water use efficiency estimates and they provide a drought plan.

The South Sutter Water District Agricultural Water Management Plan (MBK Engineers 2016) documents the district's efficient water management practices and provides information on water resources, water use, and water budgets for the district's service area. South Sutter Water District was formed in May 1954 to develop, store, and distribute surface water supplies for agricultural irrigation uses. These surface water supplies primarily originate from the Bear River with some supplies from local sloughs, creeks, and ravines (including Pleasant Grove Creek) that originate in the southeastern Sutter County and southwestern Placer County. South Sutter Water District covers 57,012 acres with approximately 85 percent of the area in rice production. Supplemental water is provided to landowners according to acreage. Most of the South Sutter Water District's customers are agriculture-based and often use private wells to obtain the majority of their water supplies.

## **4 COMPARISON OF SUPPLY AND DEMAND**

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This section provides a comparison of past and future water demands for the project area and compares those demands to projected regional supplies available over the 20-year and 50-year planning horizon.

### **4.1 EXISTING WATER USE**

#### **4.1.1 Water Rights, Water Supply Entitlements, and/or Water Service Contracts**

California law distinguishes between surface water and groundwater. With the exception of “subterranean streams flowing in known and definite channels,” if you use groundwater on land that is over the groundwater basin from which you took the water, you have an “overlying groundwater right.” Surface water rights are more complicated. Individuals can typically hold riparian rights or appropriative rights. A riparian water right is a right to use the natural flow of water on riparian land. Surface water use by individuals on non-riparian land is typically associated with appropriative rights (SWRCB 2022a).

The State Water Resources Control Board (SWRCB) issues water rights permits for appropriative rights. According to the SWRCB’s Electronic Water Rights Information Management System (eWRIMS) database, landowners within the vicinity of the project area have appropriative rights for diversions from tributaries to Curry Creek and/or the Natomas East Main Drain for the purposes of irrigation, stock watering, recreational use, fire protection, and in some cases, for domestic supplies and other incidental uses (SWRCB 2022b).

Existing water rights within the project area include the overlying groundwater rights associated with pumped groundwater used locally. Appropriative rights to surface water would not be used to serve the project during construction or operation and maintenance. In addition, no new water supply entitlements or water service contracts would be obtained for the project. The project area is outside of the existing service areas for nearby water agencies (for both irrigation and municipal supplies) and therefore it is unlikely that existing landowners have any water supply entitlements or water service contracts with the city, county, or public water systems.

#### **4.1.2 Existing Groundwater Wells**

Groundwater is currently pumped from onsite wells to meet agricultural demands within the project area. Existing agricultural land uses within the project area include agricultural rice fields and almond orchards. Approximately 830 acres of rice fields and 110 acres of almond orchards would be impacted by the proposed project (see Table 1). These rice fields and almond orchards would cease production during project operations. Existing rice fields are generally located in the northern and central portions of the project site while the southern extent of the project site consists entirely of almond orchards. All almond orchards in and adjacent to the project site are newly planted.



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Existing agricultural wells identified within the project area and immediate vicinity are identified  
in

Table 4 and shown in Figure 2. Groundwater Wells in the Project Area. In addition to the wells described in Table 4, there are other wells in the vicinity of the project area that are associated with residential use, irrigation, or groundwater observations which have been reported to DWR (DWR 2022a). Recent data from 2021 and 2022 have been reported from the observation wells owned by the South Sutter Water District and the City of Roseville (DWR 2022a).

Approximately one-third of the agricultural wells identified in

Table 4 serve agricultural lands that will no longer be in production during project operations (e.g., those located at northern or southern solar fields). As such, there would be substantial reductions in groundwater pumping at these onsite wells compared to existing practices.

Up to ten wells are expected to potentially be used during the operations and maintenance phase of the project. Onsite wells would be used to support PV panel washing and/or compatible agricultural activities. The Silver Streak wells are the two wells that are located in closest proximity to the switch station and the substation, which would have site control buildings with restrooms and sinks. One or both of these wells are expected to be used for domestic needs during project operations. For the purpose of this analysis, it is assumed that agricultural practices in adjacent parcels would be unaffected by the project and will continue into the future. In reality, the adjacent areas have been identified as potential Future Growth Area in the Placer County Conservation Plan and would likely undergo gradual urban development over the next 20 to 50 years.

**Table 4. Agricultural Wells in the Project Area and Vicinity**

Location (Well & APN)	Yield (gpm)	Horsepower (hp)	Source of Power	Notes
<b>Northern Solar Fields</b>				
Well 1 017-090-024	1,600	50	PGE 1010088722	This well is outside the project boundary and not intended for use by the Project.
Well 2 017-090-024	2,000	50	PGE 1010089309	Potentially used for construction water and PV panel washing
Well 3 017-090-056	1,200	NA	Diesel	Potentially used for construction water and PV panel washing
Well 19 017-090-056	NA	50	PGE 1009994085	This well is outside the project boundary and not intended for use by the Project.
Well 20 017-090-056	NA	NA	PGE 1009917768	Potentially used for construction water and PV panel washing
Well 21 017-090-056	1,700	NA	Diesel	Potentially used for construction water and PV panel washing
Well 23 017-090-024	1,260	50	PGE 1010093349	This well is outside the project boundary and not intended for use by the Project.
<b>Southern Solar Fields</b>				
Well 5 017-130-015	1,540	50	PGE 1010091138	Potentially used for construction water and PV panel washing
Well 6 017-130-015	1,500	50	PGE 1010091143	Potentially used for construction water and PV panel washing
Well 7 017-152-003	1,260	75	PGE 1010091141	This well is outside the project boundary and not intended for use by the Project.
Well 10 017-130-015	1,500	50	PGE 1006474345	This well is outside the project boundary and not intended for use by the Project.
Well 11 017-130-016	NA	NA	PGE 1010091142	Potentially used for construction water and PV panel washing
Well 12 017-152-002	NA	50	PGE 1010091163	This well is inside the project boundary, however it is not intended for use by the Project.
Well 24 017-152-003	NA	NA	Diesel	Potentially used for construction water and PV panel washing
Silver Streak Well #1 017-130-061	800	60	NA	This well will potentially be used for construction water and O&M activities such as PV panel washing.
Silver Streak Well #2 017-130-061	NA	NA	Electric (PGE service unknown)	This well will potentially be used for construction water and O&M activities such as PV panel washing.
<b>Adjacent to Northern Fields</b>				
Well 4 017-090-057	1,240	60	PGE 1010024147	This well is outside the project boundary and not intended for use by the Project.
Well 16 017-101-043	1,400	60	PGE 1009848198	This well is outside the project boundary and not intended for use by the Project.
Well 17 017-101-004	1,260	50	PGE 1009848200	This well is outside the project boundary and not intended for use by the Project.
Well 18 017-101-003	1,200	50	PGE 1009983896	This well is outside the project boundary and not intended for use by the Project.
Well 22 017-090-056	NA	50	PGE 1009994079	This well is outside the project boundary and not intended for use by the Project.
Well 11219 017-090-017	NA	NA	NA	This well is outside the project boundary and not intended for use by the Project.
<b>Adjacent to Southern Fields</b>				
Well 8 017-152-002	2,000	60	PGE 1009983513	This well is outside the project boundary and not intended for use by the Project.
Well 9 017-152-002	1,480	75	PGE 1009917767	This well is outside the project boundary and not intended for use by the Project.
Well 13 017-101-045	1,200	50	PGE 1010033045	This well is outside the project boundary and not intended for use by the Project.
Well 14 017-101-045	1,140	50	PGE 1009847497	This well is outside the project boundary and not intended for use by the Project.
Well 15 017-101-044	1,200	50	PGE 1009847500	This well is outside the project boundary and not intended for use by the Project.

Source: SMUD 2022. NA = not available; hp = horsepower; gpm = gallons per minute

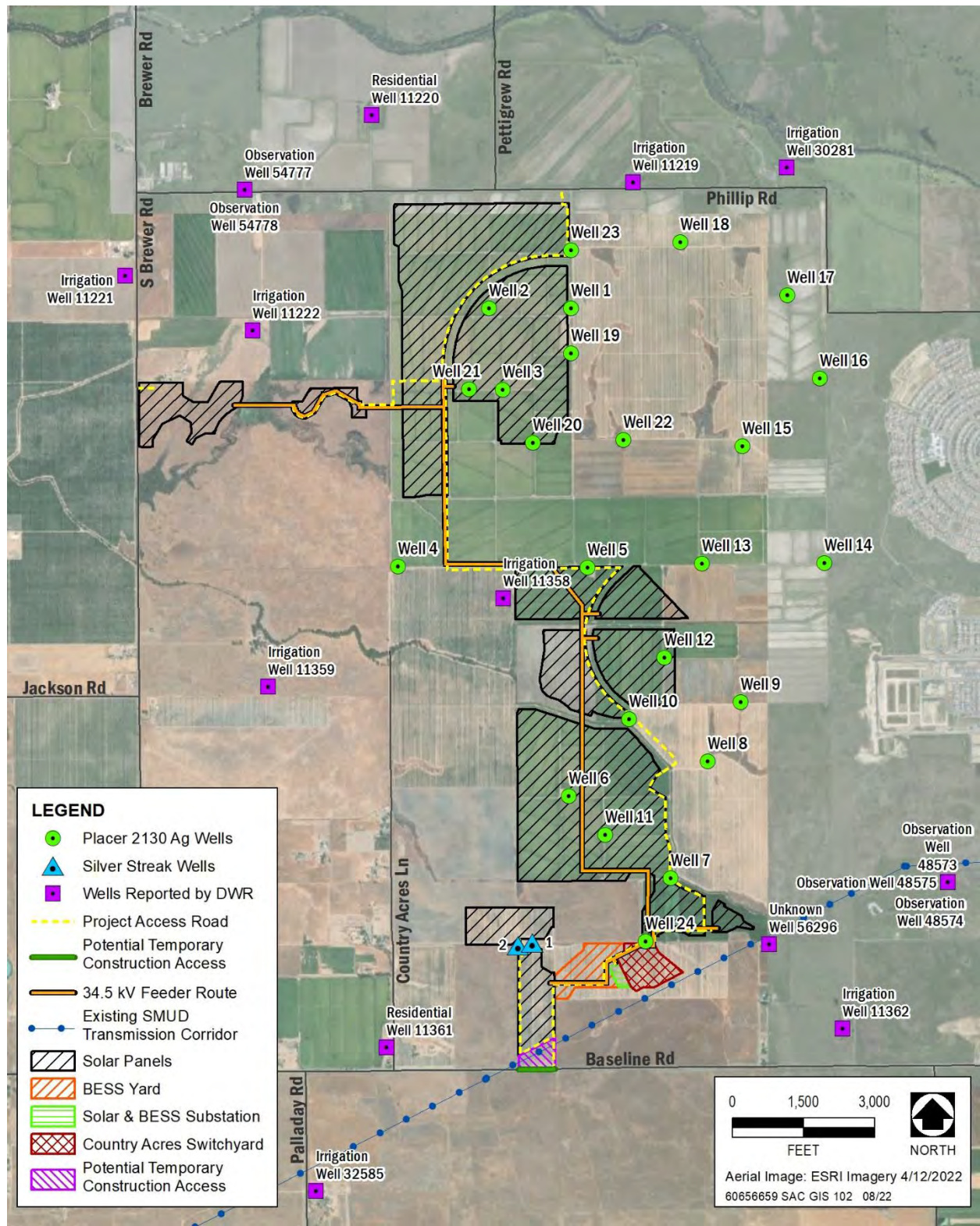
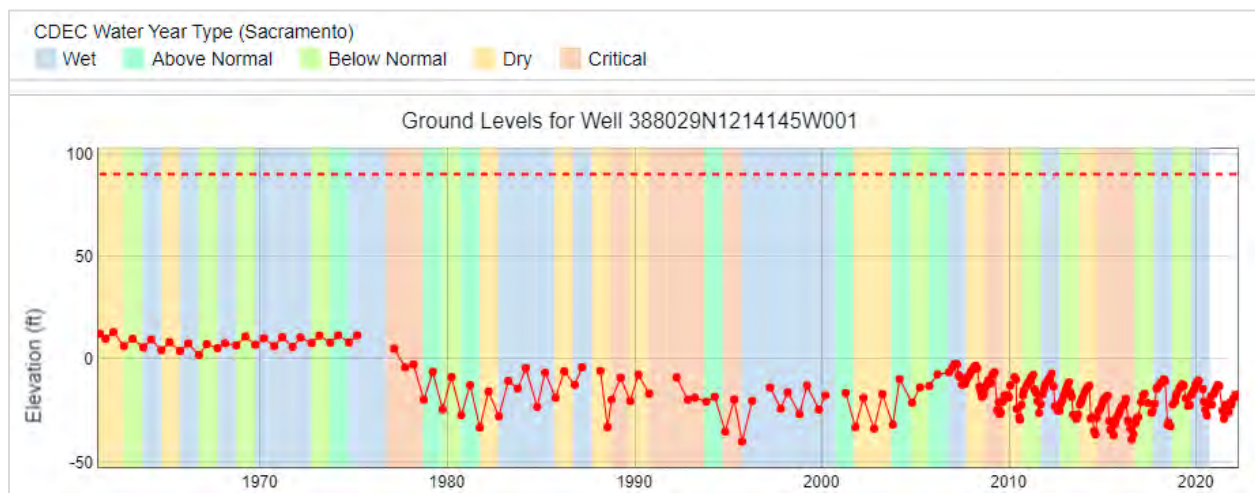


Figure 2. Groundwater Wells in the Project Area and Vicinity



Figure 3 shows the groundwater levels reported to DWR at irrigation well 11219, which is located within a parcel just north of the project site (see Figure 2). Groundwater levels decreased and annual variation increased in the late 1970s, suggesting increased groundwater pumping in the local area since that time. Groundwater levels have fluctuated over the last four decades. Since the 1980s, there have been multi-year declines in groundwater levels and meaningful recoveries. As discussed in Sections 3.2 and 3.3, groundwater levels can vary year-to-year in direct response to groundwater pumping for agricultural demands. Trends in groundwater levels also vary due to the location of the central groundwater pumping depression in the subbasin and due to changes in pumping during different water year types. As shown in Figure 3, water levels have decreased locally during extended periods of drought, but have also recovered during several wet and above normal years.



Source: DWR 2022b

**Figure 3. Groundwater Levels just North of the Project Area**

#### 4.1.3 Existing Agricultural Demand

Because existing rice fields and almond orchards currently on the project site would cease production during project operations, agricultural water use would be reduced within the project area.

The project's reduction in agricultural demand was calculated based on the estimated crop evapotranspiration for rice fields and almond orchards for the region and the expected reduction in acreage of these irrigated lands. Evapotranspiration is the loss of water to the atmosphere by the combined processes of evaporation from soil and plant surfaces and transpiration from plant tissues.

The evapotranspiration for a specific crop (or  $ET_c$ ) is determined by multiplying the reference crop evapotranspiration ( $ET_o$ ) by the crop coefficient ( $K_c$ ), as shown in equation 1.

$$ET_c = ET_o * K_c \quad (\text{Eqn 1})$$

Where:

$ET_c$  = evapotranspiration rate of the crop (inches per month),

$ET_o$  = evapotranspiration rate of the reference plant such as grass (inches per month), and

$K_c$  = the crop coefficient (dimensionless), which varies by crop and stage of growth of the crop.

The  $ET_o$  used to estimate existing agricultural demands were based on monthly values provided for the California Irrigation Management Information System (CIMIS) reference evapotranspiration for Zone 14 (DWR 2012). Zone 14 includes the portion of the Central Valley at and near the project site. Crop coefficients were estimated by month based on two leaflets prepared by University of California Cooperative Extension which were designed for use with the CIMIS  $ET_o$  data (University of California Cooperative Extension 1987a, b).

The reduction in agricultural demand due to the conversion of irrigated lands to non-irrigated land use is expected to be more than 3,600 AFY (as shown in Table 5).

**Table 5. Project Reduction in Irrigation Demand**

Land Cover Type	Area (acres) <sup>1</sup>	$ET_c$ (inches per year) <sup>2</sup>	Reduction in Agricultural Demand (AFY)
Rice Field	829.8	47.6	3,293
Almond Orchard	110.2	41.3	379
Irrigated Pasture	0.02	13.5	<1
Non-Agricultural Lands	93.6	--	--
<b>Total</b>	<b>1,033.6</b>	<b>--</b>	<b>3,673</b>

AFY = acre-feet per year

<sup>1</sup> The impact footprint is based on overlay of 10% design features.

<sup>2</sup> The  $ET_c$  was verified based on South Sutter Water District data for rice as described in MBK Engineers (2016). Applied water for rice in South Sutter Water District's service area was 47.32 in/yr in 2011, 49.37 in/yr in 2012, 50.54 in/yr in 2013, 50.70 in/yr in 2014, and 50.07 in/yr in 2015.

## 4.2 PROJECTED WATER DEMAND AND DRAWDOWN FROM ONSITE WELLS

The project site is currently served by onsite wells and future demands from the project are expected to be met by existing or new onsite wells. Estimated demands for the project are summarized in Table 6. These demands are substantially less than the agricultural demands that currently exist within the project area (by approximately one to two orders of magnitude).

**Table 6. Water Demand from Onsite Wells**

Project Phase	Water Demand	Primary Use
Construction	Up to 100 AF over 18 to 24 months	Soil compaction and dust control
Operation and Maintenance	Up to 11 AFY	Washing of solar panels; domestic use by onsite employees; and compatible agricultural activities such as grazing and/or pollinator habitat

AF = acre-feet; AFY = acre-feet per year

Although a net increase in groundwater storage is expected on an average annual basis, localized effects could occur due to project-related groundwater pumping (e.g., if pumping rates are high enough, they could influence the water level in offsite wells).

Groundwater pumped at a well causes a local drawdown effect. The extent of the drawdown depends on various factors, such as subsurface characteristics (e.g., hydraulic conductivity), pumping rates, volume, and duration. Operation of an existing well, or installation of a new groundwater well, could potentially affect offsite wells within the local area.

The radius of influence of a well is the distance at which the localized effects from groundwater pumping is negligible. Effects to groundwater intake at offsite wells would be dependent on the offsite well's screening interval and on groundwater levels. For this analysis, a negligible effect is assumed if drawdown is less than 0.5 foot.

The amount of groundwater drawdown can be calculated using Theis's method for unsteady flow for a well (Kruseman and de Ridder 1991). The Theis equation is summarized below in equations 2 through 4.

$$s = \frac{Q}{4\pi KD} W(u) \quad (\text{Eqn 2})$$

$$W(u) = -0.5772 - \ln u + u - \frac{u^2}{2*2!} + \frac{u^3}{3*3!} - \frac{u^4}{4*4!} + \dots \quad (\text{Eqn 3})$$

$$u = \frac{r^2 S}{4KDt} \quad (\text{Eqn 4})$$

Where:

s = drawdown at a distance r from the well (feet)

Q = well discharge (cubic feet per day),

K = hydraulic conductivity (feet per day),

D = depth of the aquifer (feet),

W(u) = Theis well function,

u = the argument of the Theis function,

r = distance from the well (feet),

S = storativity of the aquifer (foot per foot),

t = time since pumping started (days)

The following parameters were used in the Theis equation.

Hydraulic conductivity. The hydraulic conductivity is a measure of the ease with which water can move through pore spaces in soil or fractures in rock. Values are based on well tests or the hydraulic conductivity can be estimated based on data reported by the U.S. Department of Agriculture National Resources Conservation Service web soil survey for site-specific soils. The hydraulic conductivity at a depth below 100 feet is assumed to be 0.26 feet per day (NRCS 2022).

Aquifer depth. Aquifer depth is based on regional or project specific groundwater information. The base of freshwater (or bottom of the aquifer) is estimated at 800 to 900 feet below mean sea level at the site (GEI 2021). The ground surface elevation is approximately 90 feet in this area, and the depth to water is approximately 110 feet (DWR 2022b). Therefore, the average depth of the aquifer was assumed to be about 800 feet.

Storativity. The storativity is a measure of the ability of the aquifer to release water from storage. Approximations for the storativity are different for confined vs. unconfined conditions, with the latter having higher storativity coefficients. Because the central portion of the groundwater subbasin has unconfined to semiconfined conditions depending on depth (GEI 2021), to be conservative unconfined conditions were assumed. Storativity in unconfined aquifers typically range from 0.01 to 0.3, and is approximately equal to the specific yield. The storativity was assumed to equal the specific yield for fine sand (0.21) (Johnson 1967) based on the soil composition/characteristics of the aquifer.

The radius of influence was calculated for pumping scenarios associated with construction, operations, and maintenance activities. For the purpose of this analysis, a negligible effect was assumed if drawdown is less than 0.5 foot.

During construction, 100 AF of water would be needed over an 18-month to 24-month period. Assuming 100 AF would be pumped during an 18-month period that has 375 construction days, the average flow rate would be approximately 11,600 cubic feet per day. Under these conditions, drawdown would be approximately 0.5 feet at a distance of 1,450 feet after 375 days of pumping. Offsite wells and other sensitive receptors are located approximately 1,450 feet or more from existing onsite wells (see

- Table 4). As such, drawdown is expected to be 0.5 foot or less at even the nearest neighboring offsite well when pumping to meet construction demands.
- Approximately 5 AF of water would be needed for PV panel washing. Assuming that the annual PV panel washing would occur over 4 weeks (20 construction days), the average flow rate would be approximately 10,900 cubic feet per day. Under these conditions, drawdown would be approximately 0.5 foot at a distance of 330 feet after 20 days of pumping (drawdown effects would be attenuated at greater distances). Effects to groundwater levels at offsite wells and other sensitive receptors would be negligible.
- Domestic use of approximately 70 gallons per day (9.4 cubic feet per day) would cause a drawdown of less than 0.05 foot at a distance of 100 feet after 30 years of pumping (drawdown effects would be attenuated at greater distances). Effects to groundwater levels at offsite wells and other sensitive receptors would be negligible.
- Compatible agricultural activities such as grazing and/or establishment of pollinator habitat is assumed to have a water demand of 5.8 AFY. Assuming that water would be drawn from one well in the North Fields and one well in the South Fields, continuous pumping to meet a demand of approximately 350 cubic feet per day per well is expected to cause a drawdown of less than 0.5 foot at a distance of 1,400 feet from the well after 30 years of pumping. Drawdown effects would be attenuated at greater distances. Effects to groundwater levels at offsite wells and other sensitive receptors would be negligible.

Local drawdown effects from pumped groundwater during project construction, operations, and maintenance is expected to be minor to negligible.

### **4.3 SUFFICIENCY OF SUPPLIES TO MEET THE DEMAND**

As discussed in Section 3.3, the groundwater subbasin is currently within balance and projected conditions with climate change results in only a slight imbalance. The subbasin currently has a surplus of water, and this surplus groundwater condition is expected to continue into the future but in lesser amounts. During dry and critically dry water years, there is a net decrease in groundwater storage within the subbasin, but this storage is typically recovered during subsequent wet years. As such, the groundwater subbasin is not projected to experience any undesirable results within in the 2042 planning horizon.

Implementation of the proposed project would require up to 100 AF of groundwater over an 18-month to 24-month period which could occur during normal, single dry, and even multiple dry water years. Approximately 11 AFY would also be needed during a longer 30-year time period. These supplies are available within the groundwater basin and because the project reduces annual outflows from the subbasin due to changes in land use, additional surplus conditions can be expected over the long-term.

When future conditions without the project were modeled with a central tendency climate change scenario, the groundwater subbasin was found to be in a modest overdraft of 3,500 AFY (the net reduction in average annual storage). Implementation of the proposed project would reduce long-term average annual outflows from the groundwater subbasin, thereby reducing risks that could occur under a 50-year planning horizon.

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## **5 CONCLUSIONS**

Groundwater and trucked water are the only sources of water supply proposed for the project. Effects to regional water supplies were considered in the context of existing modeling results for current and future conditions in the groundwater basin as analyzed in existing water resource management plans. The proposed project would reduce agricultural demands due to the conversion of irrigated lands to non-irrigated land uses and cause a net increase in groundwater storage on an average annual basis. Adequate supplies to support the project would be available under normal, single dry, and multiple dry water years. As such, there is sufficient supplies to serve the project demand over the next 30 years.

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# **PRELIMINARY HYDROLOGY REPORT**

Country Acres Solar & BESS Project  
Placer County, California

**B&V PROJECT NO. 406242**

**REVISION 2**

**PREPARED FOR**

**Sacramento Municipal Utility District**

**24 JUNE 2022**

Prepared by:

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## 1.0 Site Location

The proposed site is located in rural, western Placer County, California, approximately 7 miles west of the City of Roseville. A vicinity map is shown in Figure 1 below.

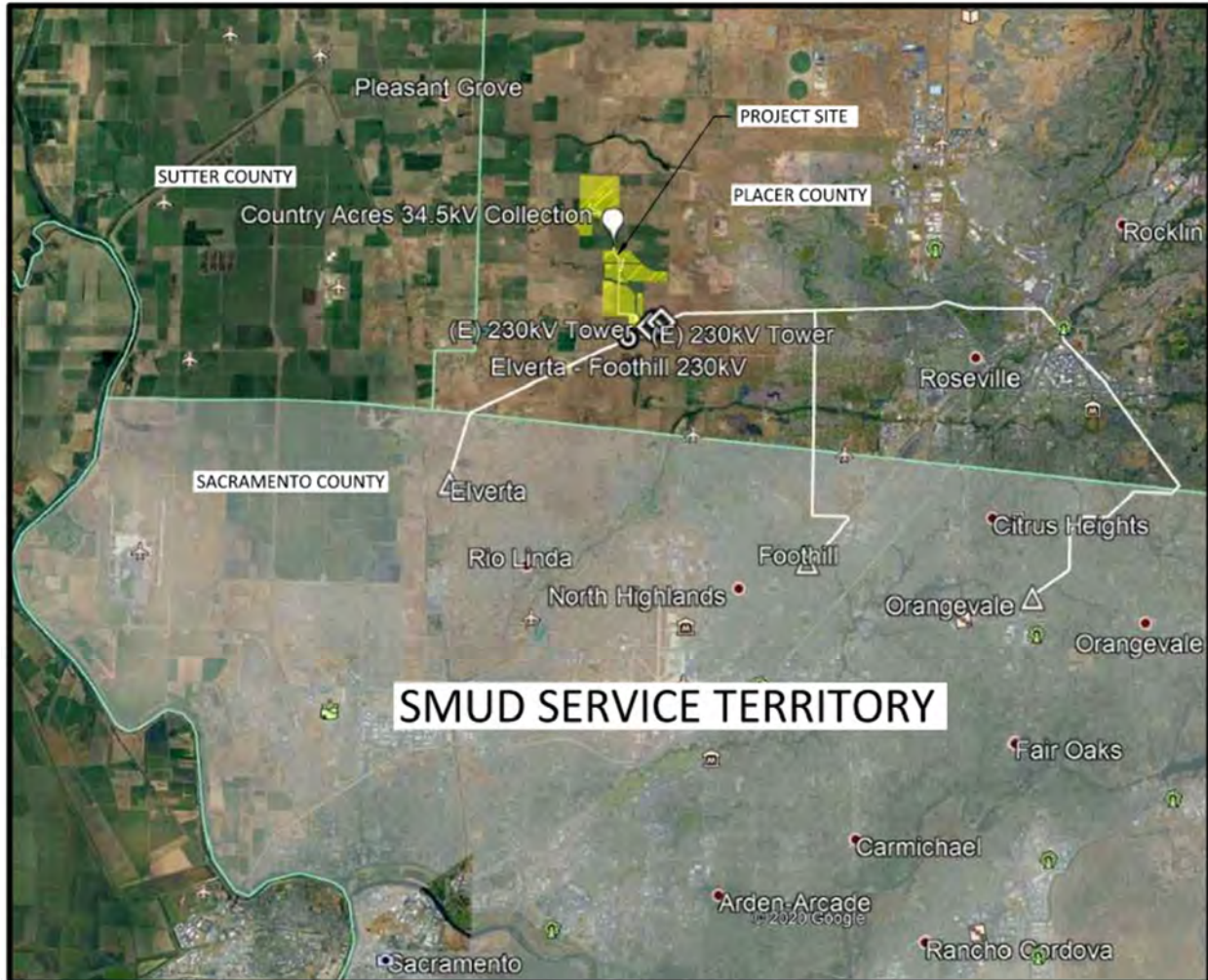


Figure 1 Vicinity Map (Google Earth)

## 2.0 Project Description

Sacramento Municipal Utility District (SMUD) plans to develop the Country Acres Solar and Battery Energy Storage System (BESS) Project (the Project) on an approximately 1,120-acre site. The Project will potentially have a nameplate solar photovoltaic (PV) plant capacity of 364MWac and BESS plant capacity of 344MW/1,376MWh. The Overall Conceptual Site Layout Drawing, CA-SK-0100, is located in Attachment D, Supplemental Drawings and Exhibits.

The solar PV plant will take up most of the Project site, with the BESS plant, Project Substation and Switching Station likely to be located on the south side of the Project. Access entries to the Project parcels will be provided through existing public paved and unpaved roads. Perimeter and interior aggregate-surfaced access roads will be provided within each Project parcel.

The Point of Interconnection (POI) for the Project will be along the existing 230-kV Elverta-Orangevale and Elverta-Foothill transmission lines that run in the east-west direction along the south side of the Project. The Project capacity will be limited to 344MWac at the POI.

### 3.0 Preliminary Hydrologic Analysis

The SMUD Country Acres Preliminary Hydrologic Analysis is based on the requirements of the Placer County Stormwater Management Manual and the West Placer County Storm Water Quality Design Manual. Additional guidance was provided by the Placer County Flood Control District and the Placer County Engineering & Surveying Division.

The project site consists primarily of existing rice fields and almond orchards, with additional areas characterized as rangeland. The proposed PV arrays will be installed on 12 parcels ranging in size from 14.69 acres to 232.64 acres, with a total area of 1,064.85 acres. An additional 56.67 acres will be used for a Substation, Switching Station, and BESS areas.

Post-development peak stormwater discharge is limited to the pre-development rate in response to the 2-, 10-, and 100-year design precipitation events. The peak discharges have been estimated using the HEC-HMS Hydrologic Modeling System software package developed by the U.S. Army Corps of Engineers.

Design standards, methodologies, and sources for the analysis are summarized in Table 1, below. HEC-HMS model input parameters are developed in the Design Parameters section of the report, following Table 1.

**Table 1 Hydrologic Data and Methodology**

Parameter	Design Standard/Method/Source
Topography	Design Topography from USGS lidar (2020) Verified with lidar data from SMUD (2021)
Land Use	Aerial Imagery from Google Earth Pro (2021)
Soil Information	United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), Web Soil Survey (2019)
Design Storm Events	2-Year, 24-Hour, 10-Year, 24-Hour, and 100-Year (frequency), 24-Hour (duration)
Precipitation Depths	Placer County Stormwater Management Manual (1994) 2-Year, 24-Hour = 1.90 inches 10-Year, 24-Hour = 2.98 inches 100-Year, 24-Hour = 4.25 inches
Precipitation Distribution	Soil Conservation Service (SCS) Type IA (NRCS, 1986) <i>The SCS is now known as the NRCS.</i>
Time of Concentration and Curve Number	SCS TR-55 (NRCS, 1986)



Parameter	Design Standard/Method/Source
Loss Method	Initial and Constant, Placer County Stormwater Management Manual (1994)
Transform Method	SCS Unit Hydrograph

### 3.1 Design Parameters

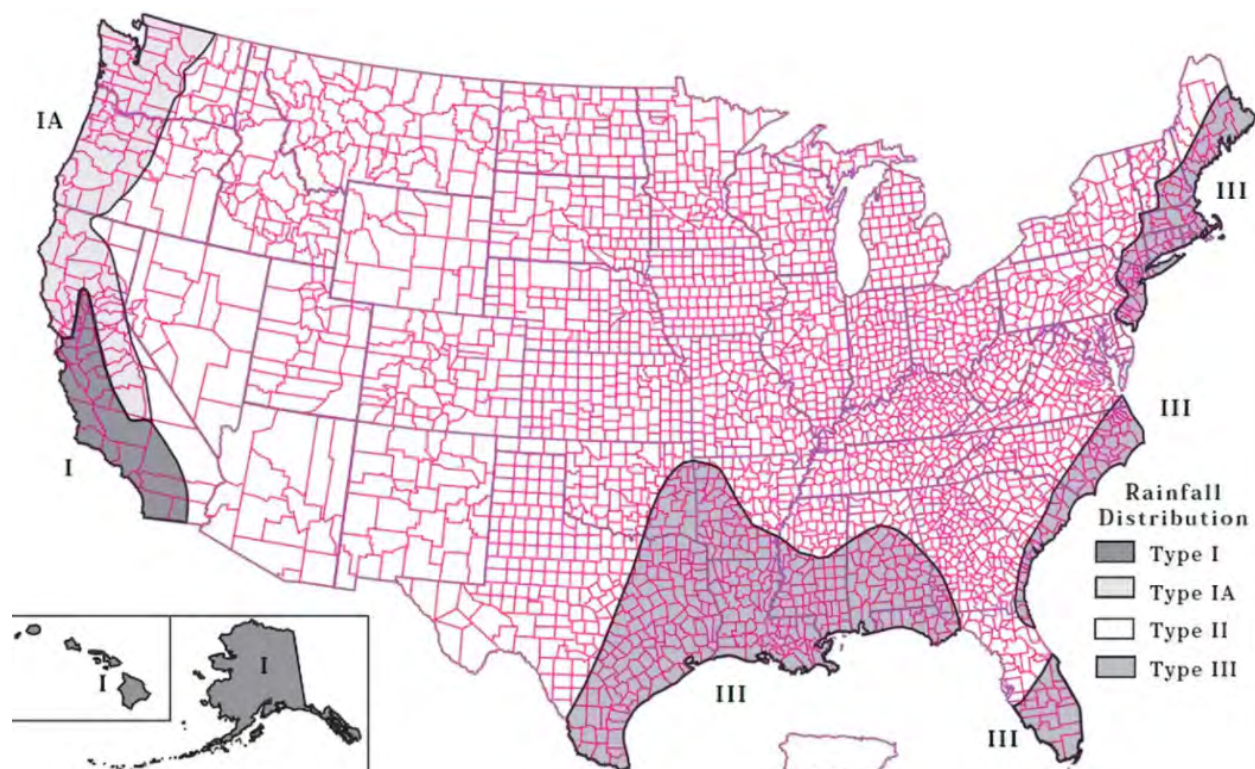
Design parameters used as input data for the HEC-HMS models are described below.

#### 3.1.1 Precipitation

Design precipitation values are provided in the Placer County Flood Control and Water Conservation District Stormwater Management Manual, Table 5-A-1, Depth-Duration-Frequency Coefficients, for areas west of the Sierra Nevada Crest. For a 24-Hour event, the 2, 10, and 100-year precipitation depths are 1.90 inches, 2.98 inches, and 4.25 inches, respectively.

#### 3.1.2 Precipitation Distribution

The site is near the boundary for the SCS Type I/Type IA distribution regions, but in the Type IA area, as shown in Figure 2. The SCS Type IA distribution will produce higher peak intensities and greater peak flows than the Type I distribution.



**Figure 2** SCS Type Rainfall Distribution Map (NRCS, 1986)

### 3.1.3 Time-of-Concentration

Time-of-Concentration has been estimated for each parcel in both the pre- and post-development conditions, and also for the Switching Station, Substation, and BESS areas, using the methodology from TR-55, Urban Hydrology for Small Watersheds, developed by the USDA Natural Resources Conservation Service.

### 3.1.4 Hydrologic Soil Group

The Hydrologic Soil Group (HSG) rating of D was obtained from the Natural Resources Conservation Service Web Soil Survey. An HSG rating of D for the project area is also provided in Figure 3-1 from the West Placer County Storm Water Quality Manual.

### 3.1.5 Infiltration Characteristics

Infiltration characteristics are estimated for the parcels based on guidance from TR-55 Urban Hydrology for Small Watersheds, Table 2-2, Runoff Curve Numbers, and Table 5-3, Constant Infiltration Rates for Hydrologic Soil-Cover Complexes, from the Placer County Flood Control and Water Conservation District Stormwater Management Manual. Stormwater runoff from pervious and impervious areas is calculated separately in the models.

See Attachment A, Preliminary Hydrology Study Infiltration Characteristics for more information.

### 3.1.6 Existing Characteristics

The existing vegetation at the project site is primarily comprised of rice fields, with some additional areas that are best described as rangeland. The rice fields are modeled as “Small Grain in Good Condition.” For HSG D, the SCS Curve Number for this cover type is 87, and the loss rate is 0.05 inches/hour. For “Rangeland in Good Condition,” with HSG D, the SCS Curve Number is 80, and the loss rate is 0.09 inches/hour.

### 3.1.7 Proposed Site Characteristics

The proposed site where the PV arrays are installed will be seeded to establish grass, but it is conservatively assumed that the grass will be in fair condition, with grass cover established in 50 to 75 percent of the area. For “Grass in Fair Condition,” with HSG D, the SCS Curve Number is 84, and the loss rate is 0.07 inches/hour.

Pile foundations supporting the racking tables and inverter skids are modeled as “Impervious Areas,” with HSG D, a SCS Curve Number of 98, and a loss rate of 0.00 inches/hour. This assumes that the soil under the PV panels will become saturated in response to the design storm events, specifically the 100-year recurrence interval event, which is used to size the ditches and basins. The existing grades at the site are very flat, which will encourage infiltration.

Ditches and detention basins will be graded to drain completely, seeded to establish grass, and mowed once the grass is established. This cover is modeled as “Grass in Good Condition,” with HSG D, resulting in a SCS Curve Number of 80, and a loss rate of 0.09 inches/hour.

Perimeter and intermediate roads at the site will be gravel surfaced. For “Gravel Roads,” with HSG D, the SCS Curve Number is 91, and the loss rate is 0.03 inches/hour.

Equipment and foundations in the Switching Station, Substation, and BESS areas are modeled as “Impervious Areas,” with a SCS Curve Number of 98, and a loss rate of 0.00 inches/hour.



Areas planted with grass in the Switching Station, Substation, and BESS areas are modeled as “Grass in Good Condition,” with HSG D, resulting in a SCS Curve Number of 80, and a loss rate of 0.09 inches/hour.

Areas in the Switching Station and Substation surfaced with loose yard stone are modeled with a SCS Curve Number of 86, and a loss rate of 0.06 inches/hour.

### 3.1.8 SCS Unit Hydrograph and Kinematic Wave Transform Comparison

A separate hydrology analysis of the watershed within the solar array parcel South #5 was performed using the Kinematic Wave Transform method in accordance with Section V.E.3.b.(6) of the Placer County Stormwater Management Manual (SWMM, page V-19), to compare the results against the SCS Unit Hydrograph Transform method used in the Hydrology Analysis. The analysis found the Kinematic Wave Transform method resulted in higher peak discharges as compared to the SCS UH method. However, post-development peak discharges continued to be less than the corresponding pre-development peak discharge in response to all storm events.

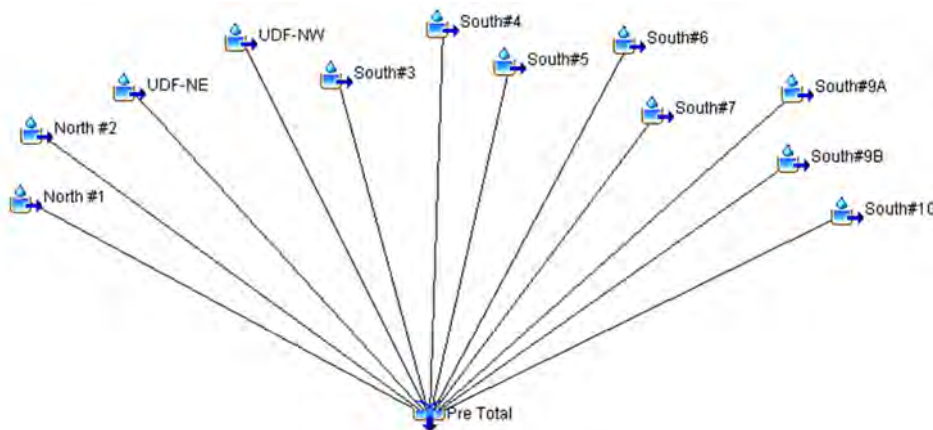
The Switching Station, Substation, and BESS areas were also analyzed using the Kinematic Wave Transform method. The analysis found that post-development peak discharges of these areas were less than the corresponding pre-development peak discharge, in response to all storm events.

Detailed discussions and results of the Kinematic Wave Transform analysis are provided on 6.0 Attachment E.

## 3.2 Existing Conditions Analysis

Separate HEC-HMS models were developed for the parcels containing the PV arrays, and the Switching Station, Substation, and BESS areas, for the site in its existing condition.

The HEC-HMS Basin Model for the PV Array Parcels is shown in Figure 3. Each parcel shown in Figure 2 is identified in the Overall Conceptual Site Layout Drawing, CA-SK-0100, located in Attachment D, Supplemental Drawings and Exhibits. For each parcel, input values for the design parameters described above are developed in the Preliminary Hydrologic Analysis Calculation, included as Attachment B. HEC-HMS is a hydrograph routing software, and runoff hydrographs from each parcel are generated in the model. These hydrographs are then combined at a junction titled “Pre-Total”, which provides the peak discharge flowrate for the entire system in response to the design precipitation events.



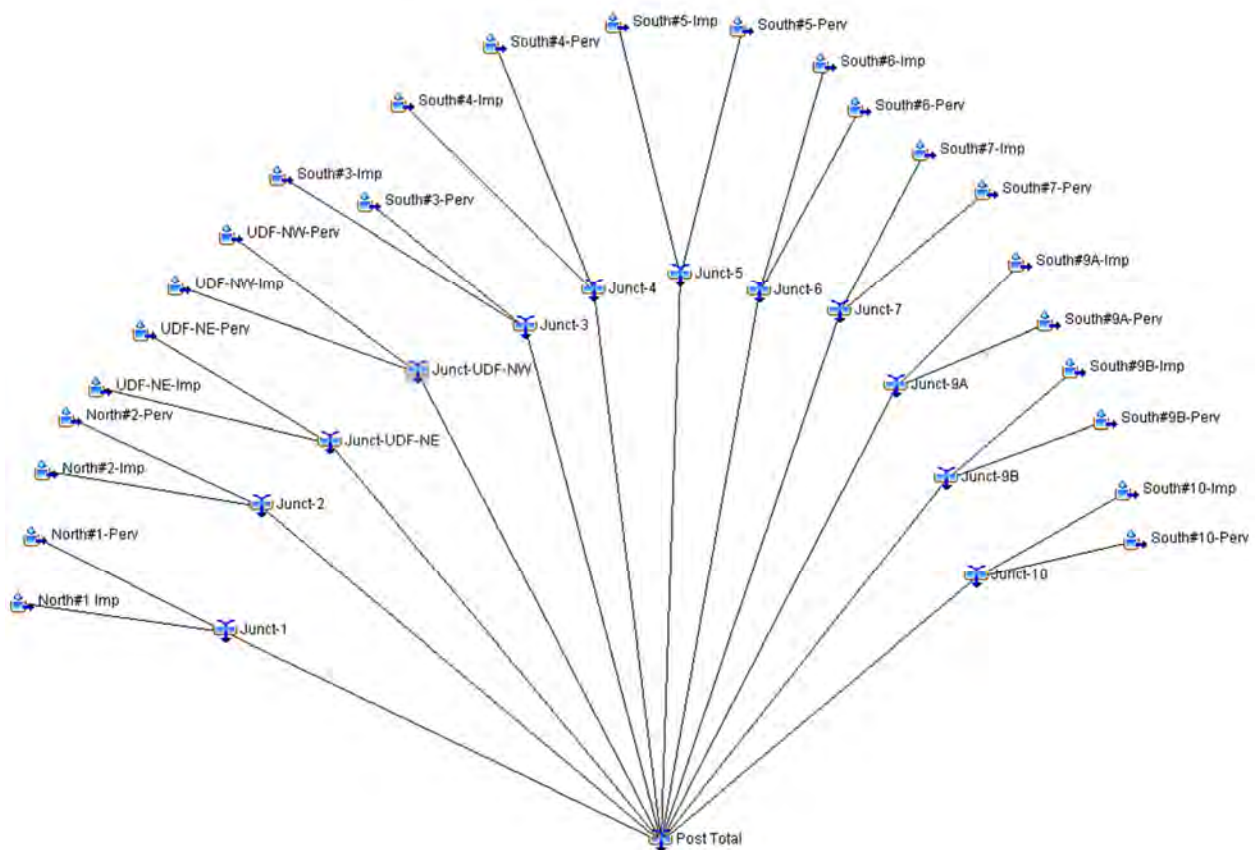
**Figure 3 HEC-HMS Basin Model for PV Array Parcels – Existing Conditions**

Similarly, a HEC-HMS model was created to develop a discharge hydrograph for the Switching Station, Substation, and BESS areas, in response to the existing conditions. See Attachment B for more details, and the Overall Conceptual Site Layout Drawing, CA-SK-0100, located in Attachment D, Supplemental Drawings and Exhibits for the location of these areas. Detailed layouts of each of these areas are also provided in Attachment D.

### 3.3 Proposed Conditions Analysis

Separate HEC-HMS models were also developed for the parcels containing the PV arrays, and the Switching Station, Substation, and BESS areas, for the site in its proposed condition.

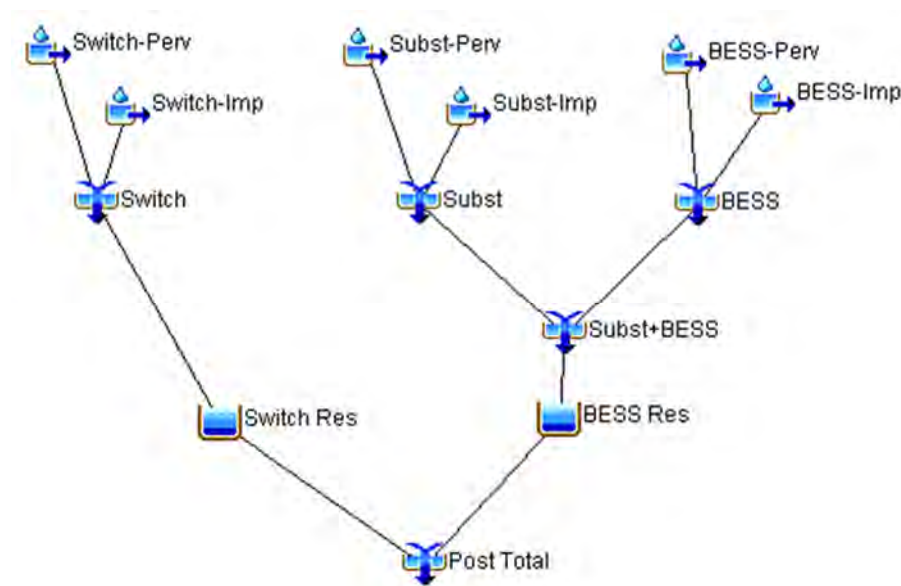
The HEC-HMS Basin Model for the PV Array Parcels in the proposed condition is shown in Figure 4. Input values were developed for each design parameter in the Preliminary Hydrologic Analysis Calculation, included in Attachment B. In each parcel, impervious and pervious areas are modeled separately and then combined at a junction, which is more conservative than the use of composite infiltration characteristics. The resulting hydrograph from each parcel was then combined at a junction titled “Post-Total”, which provides the peak discharge flowrate for the entire system in response to the design precipitation events.



**Figure 4** HEC-HMS Basin Model for PV Array Parcels – Proposed Conditions

The HEC-HMS Basin Model for the Switching Station, Substation, and BESS areas in the proposed condition is shown in Figure 5. Similar to the analysis of the parcels, impervious and pervious areas are

modeled separately for each area and then combined at a junction. Substation runoff combines with runoff from the BESS area and is then surface routed to the BESS area detention basins. The two BESS area detention basins are hydraulically connected and modeled as a single basin in HEC-HMS. The runoff hydrograph generated in the Switching Station area is surface routed to the Switching Station area detention basin. Stormwater runoff routed to each of the basins is stored and simultaneously discharged based on the state-discharge relationships developed in Attachment B. The basins' water surface elevations fluctuate based on the volume of stormwater entering and being discharged from the basin during each hydrograph time increment. Stormwater is released from the basins through series of discharge culverts. Detailed detention basin design parameters are provided in Tables 4, 5, and 6. Discharge hydrographs from the Switching Station and BESS area basins are combined at a junction titled, "Post-Total", which proves the peak discharge flowrate for the entire Switching Station, Substation, and BESS area in response to the design precipitation events. See Attachment B for more details on the analysis, and the Stormwater Quantity Results section of this report for more discussion on the detention basins.



**Figure 5** HEC-HMS Basin Model for Switching Station, Substation and BESS Areas – Proposed Conditions

### 3.4 Stormwater Quantity Results

Results for the 12 parcels containing the proposed PV arrays are presented in Table 2. For each design storm event, the proposed condition peak discharge and stormwater volume are less than the corresponding peak discharge and stormwater volume for the existing condition. These results meet the requirements of Placer County and were achieved without the use of detention basins. See Attachment B for more details.

**Table 2 Stormwater Quantity Results for Parcels containing the PV Arrays**

Storm Events	Existing Conditions Peak Discharge (cfs)	Proposed Conditions Peak Discharge (cfs)
2-Year, 24-Hour	254.4	208.5
10-Year, 24-Hour	434.7	369.2
100-Year, 24-Hour	646.2	557.5

Storm Events	Existing Conditions Stormwater Volume (acre-ft)	Proposed Conditions Stormwater Volume (acre-ft)
2-Year, 24-Hour	54.1	42.3
10-Year, 24-Hour	134.3	113.2
100-Year, 24-Hour	240.3	219.0

Due to post-development surfacing, additional stormwater runoff was generated in the Substation, Switching Station, and BESS areas, and detention basins were needed to meet the discharge requirements. Total peak discharges and stormwater volumes from these areas are presented in Table 3. For each design storm event, the proposed condition peak discharge is less than the corresponding peak discharge for the existing condition. These results meet the requirements of Placer County. See Attachment B for more details.

**Table 3 Stormwater Quantity Results for Switching Station, Substation, and BESS Areas**

Storm Events	Existing Conditions Peak Discharge (cfs)	Proposed Conditions Peak Discharge (cfs)
2-Year, 24-Hour	10.3	7.9
10-Year, 24-Hour	19.4	15.6
100-Year, 24-Hour	29.8	24.2

Storm Events	Existing Conditions Stormwater Volume (acre-ft)	Proposed Conditions Stormwater Volume (acre-ft)
2-Year, 24-Hour	1.5	2.1
10-Year, 24-Hour	4.3	5.4
100-Year, 24-Hour	9.2	10.7

Design parameters for the two basins located in the BESS area and the Switching Station area basin are provided in Tables 4, 5, and 6. The topography of the Substation did not support the development of a detention basin, so Substation runoff was routed to the BESS area basins.

**Table 4 BESS Area – Northwest Detention Basin Design Parameters**

Design Parameters	
Basin Invert Elevation (ft)	78.0
Basin Crest Elevation (ft)	80.0
Peak Stage for 100-Year Event (ft)	79.0
Peak Storage for 100-Year Event (ac-ft)	0.9 (total for both BESS area basins)
Min. Freeboard for 100-Year Event (ft)	1.0
Discharge Culverts – Size, Material, Number	12-inch diameter, HDPE, 6
Discharge Culverts – Upstream Invert Elev., Downstream Invert Elev. (ft), Length (ft)	78.0, 77.9, 20

**Table 5 BESS Area – Southwest Detention Basin Design Parameters**

Design Parameters	
Basin Invert Elevation (ft)	77.5
Basin Crest Elevation (ft)	80.0
Peak Stage for 100-Year Event (ft)	79.0
Peak Storage for 100-Year Event (ac-ft)	Included in Table 4 value
Min. Freeboard for 100-Year Event (ft)	1.0
Discharge Culverts – Size, Material, Number	12-inch diameter, HDPE, 3
Discharge Culverts – Upstream Invert Elev., Downstream Invert Elev. (ft), Length (ft)	77.5, 77.4, 24

**Table 6 Switching Station Area – Detention Basin Design Parameters**

Design Parameters	
Basin Invert Elevation (ft)	83.5
Basin Crest Elevation (ft)	85.2
Peak Stage for 100-Year Event (ft)	84.2
Peak Storage for 100-Year Event (ac-ft)	0.1
Min. Freeboard for 100-Year Event (ft)	1.0
Discharge Culverts – Size, Material, Number	12-inch diameter, HDPE, 8
Discharge Culverts – Upstream Invert Elev., Downstream Invert Elev. (ft), Length (ft)	83.5, 83.4, 20

Most of the stormwater runoff passed through the BESS area basins, which required approximately 0.9 acre-feet of storage in response to the 100-year storm event. Approximately 0.1 acre-feet of storage was required in the Switching Station basin in response to the 100-year event. The basins are designed to completely drain, with a one percent bottom slope directed towards the discharge culverts. The basins are dry between storm events, with grass cover.

As presented in the tables, the basins are very shallow, due to the topography of the site. Only a small reduction in the post-development peak discharges was required, so multiple 12-inch diameter discharge culverts were provided to release the stormwater. The size was selected to allow for sufficient cover on the pipes, with the added benefit of the stormwater discharge being diffused over a large area through the multiple barrels.

The BESS area basins are hydraulically connected with a pipe that matches the basin inverts to allow for acceptable performance regardless of the amount of stormwater runoff directed to each basin.

See Attachment B for more details on the detention basins.

### 3.5 Stormwater Quality Design

The West Placer Storm Water Quality Design Manual was developed to address stormwater management within the West Placer County region. Placer County maintains an online map that delineates the West Placer County Permit or Project Planning Areas, subject to the requirements of the manual. Parcels within this compliance area need to have a stormwater quality plan completed, depending on the amount of new impervious area added.

Two of the project parcels, UDF-NE and UDF-NW, are located within the compliance boundary. The location of these parcels is illustrated on the Overall Conceptual Site Layout Drawing, CA-SK-0100, located in Attachment D, Supplemental Drawings and Exhibits. Project categorization is provided in Section 2.2 of the manual, based on the amount of impervious surface that is created or replaced. A total of 2,345 square feet of impervious surface is created in parcels UDF-NE and UDF-NW, which is less than the minimum value of 2,500 square feet which defines a small project. Thus, based on Figure 2-3, Project Category Decision Tree, the project is not subject to the requirements of the West Placer Storm Water Quality Design Manual.

While the Project is not subject to the requirements of the West Placer Storm Water Quality Design Manual, the proposed development will create a total of approximately 3.27 acres of impervious surfaces. Thus, the Project will be required to treat the post-development stormwater runoffs, in conformance with the Policies of the Placer County General Plan.

During construction phase of the Project, various temporary Best Management Practices (BMPs) such as stabilized construction entrances, silt fences, straw bales, etc. shall be implemented along the perimeter of the Project's parcels to prevent pollutants from leaving the site.

During the operational phase of the Project, it is anticipated that there will be insignificant amount of pollutants resulting from the Project, mostly resulting from infrequent vehicular traffic to address operational or maintenance issues within the Project site. Most of the proposed equipment associated with the Project is not anticipated to be source of pollutants. It is noted, however, that the Main Power Transformers within the Substation and the medium-voltage transformers located within the solar PV and BESS area may contain oil. Oil containment structure will be constructed around each of the Main Power Transformers within the Substation area to contain any oil leaks. Dry type transformers or bio-

degradable oil may be specified for the medium-voltage transformers located within the solar PV and BESS areas as part of stormwater quality mitigation methods. Additionally, given the relatively small total areas of impervious surfaces (approximately 3.27 acres out of the 1,121 acres total Project area), it is anticipated that post-development stormwater runoffs will be treated by way of infiltration through the seeded areas within the Project site, as the runoffs sheet flow across the project parcels prior to draining into various drainageways.

The design and details of the temporary and permanent BMPs will be addressed in the final design of the Project as part of the Project's Erosion Control Plan and Storm Water Pollution Prevention Plan (SWPPP).

## 4.0 Preliminary Hydraulic Analysis

A preliminary hydraulic analysis along Curry Creek and two unnamed tributaries on the north side of Curry Creek was conducted in order to determine 100-year-flood inundation limits throughout the project sites, to determine changes in the 100-year-flood Water Surface Elevations (WSEs) and velocities that would occur due to the development of the project, and to estimate scour depths at the base of the proposed solar panels.

### 4.1 Hydrology

**The overall watershed for Curry Creek and the unnamed tributaries to the north of Curry Creek were evaluated to determine 100-year-flood peak discharges, which were used as inputs into the subject hydraulic analysis. The latest available 1-Dimensional (1D) Federal Emergency Management Agency (FEMA) hydraulic model includes 100-year-flood peak discharges along Curry Creek; however, the unnamed tributaries are not included. As such, United States Geological Survey (USGS) regression equations (USGS StreamStats Tool) were used to determine estimated 100-year-flood peak discharges along the unnamed tributaries. The tabular data is shown below in Table 7 and**

Table 8. The overall watershed, FEMA 100-year-flood cross sections along Curry Creek, and subarea outlets along the unnamed tributaries (used to determine estimated 100-year-flood discharges based on USGS regression equations) are subsequently shown below in Figure 6.

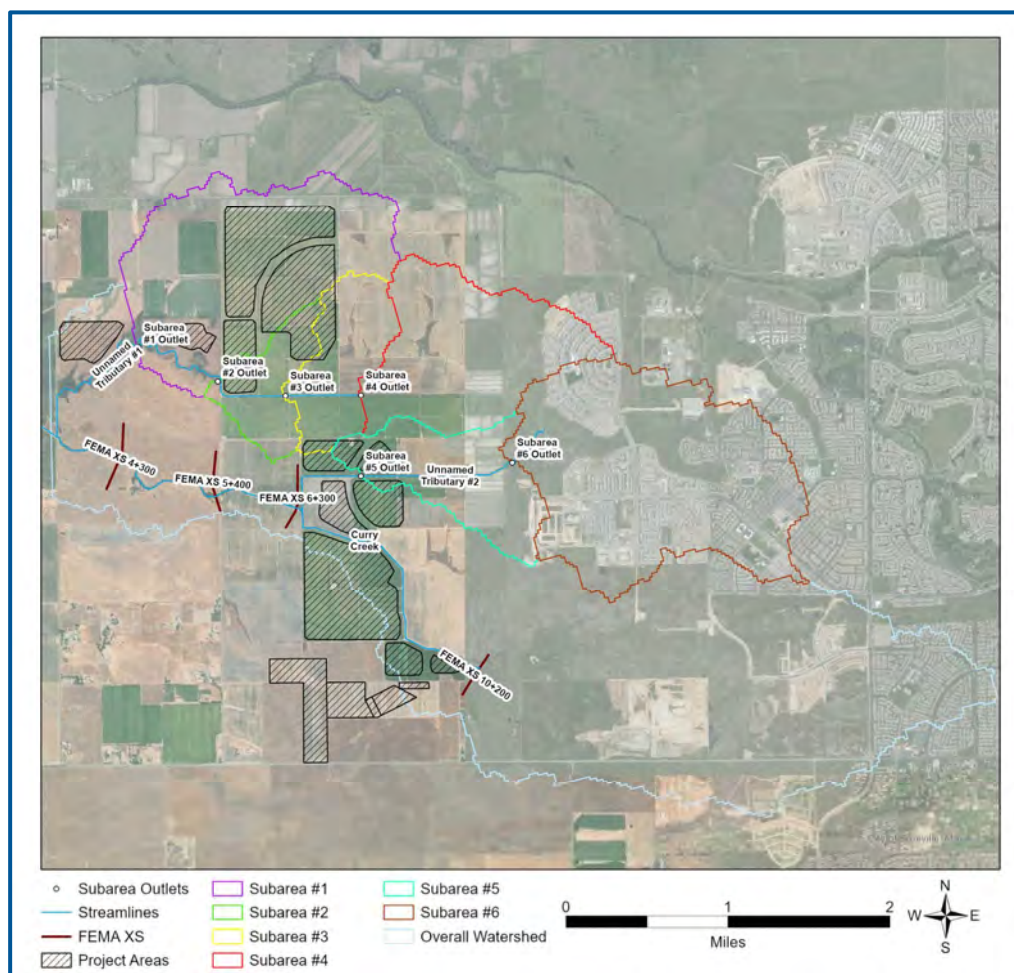
**Table 7**                      **Curry Creek FEMA 100-Year-Flood Discharges**

Description	FEMA 100-Year Flood Discharges (cfs)
FEMA Cross Section 4+300	1579
FEMA Cross Section 5+400	1520
FEMA Cross Section 6+300	1519
FEMA Cross Section 10+200	957



**Table 8**      **Unnamed Tributaries Estimated 100-Year-Flood Discharges**

Description	Estimated 100-Year Flood Discharges (cfs)
Subarea #1 Outlet	892
Subarea #2 Outlet	536
Subarea #3 Outlet	455
Subarea #4 Outlet	173
Subarea #5 Outlet	706
Subarea #6 Outlet	550

**Figure 6**      **Overall Watershed, Subareas, and 100-Year-Flood Discharge Locations**

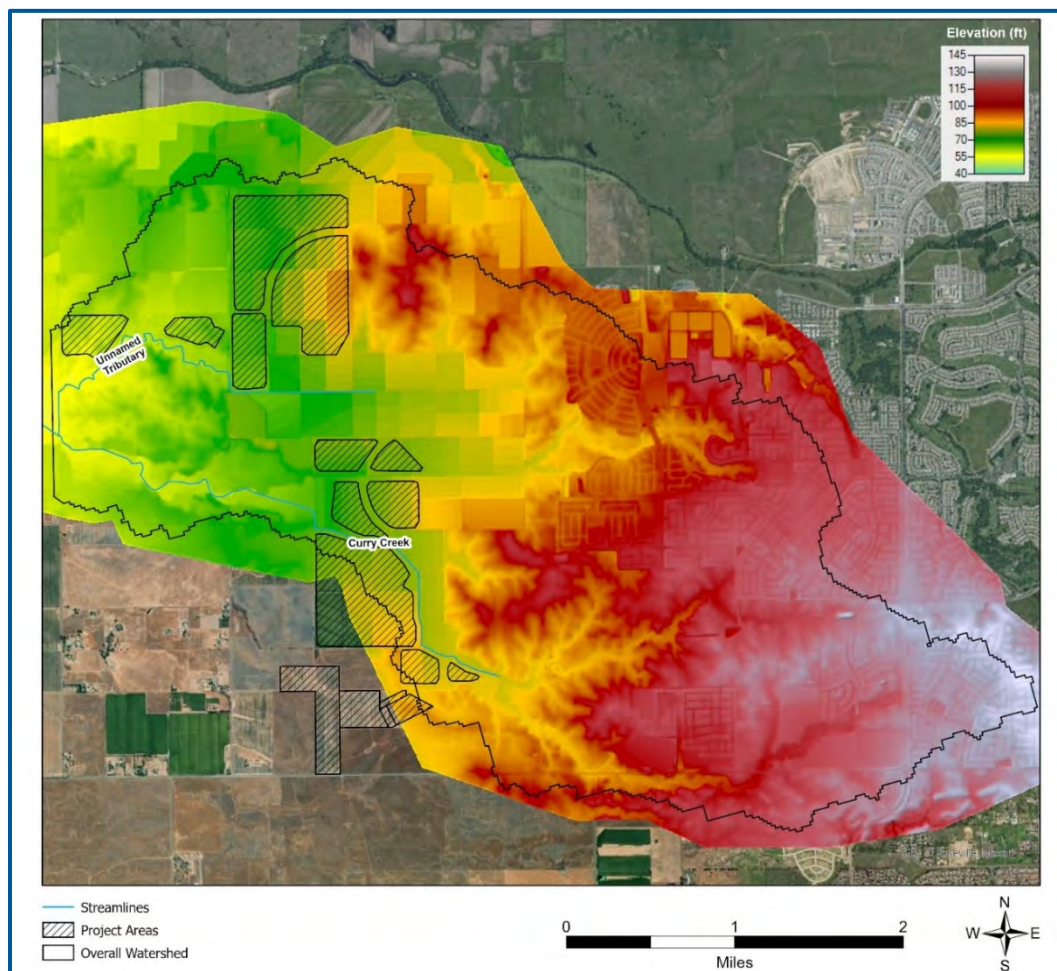
## 4.2 Hydraulic Model

Two hydraulic models using United States Army Corps of Engineers (USACE) HEC-RAS software comprise the subject preliminary hydraulic analysis: the 2-Dimensional (2D) hydraulic model and the latest

available 1D FEMA hydraulic model. The majority of the analysis is centered around the 2D model, which is used for design calculations pertaining to depth, velocity, and scour depth along the project areas. The FEMA model provides a preliminary evaluation of the project impact from a regulatory floodplain perspective, which is described in the subsequent “Regulatory Implications – FEMA Model” section. Notably, both models compared existing and proposed conditions to obtain their respective WSE increase estimates. The FEMA model is considered ancillary to the 2D model because it does not include the unnamed tributaries on the north side of Curry Creek. Nonetheless, data from the FEMA model, such as 100-year-flood discharges along Curry Creek and culvert information, were used as inputs in the 2D model.

#### 4.2.1 Elevation Data

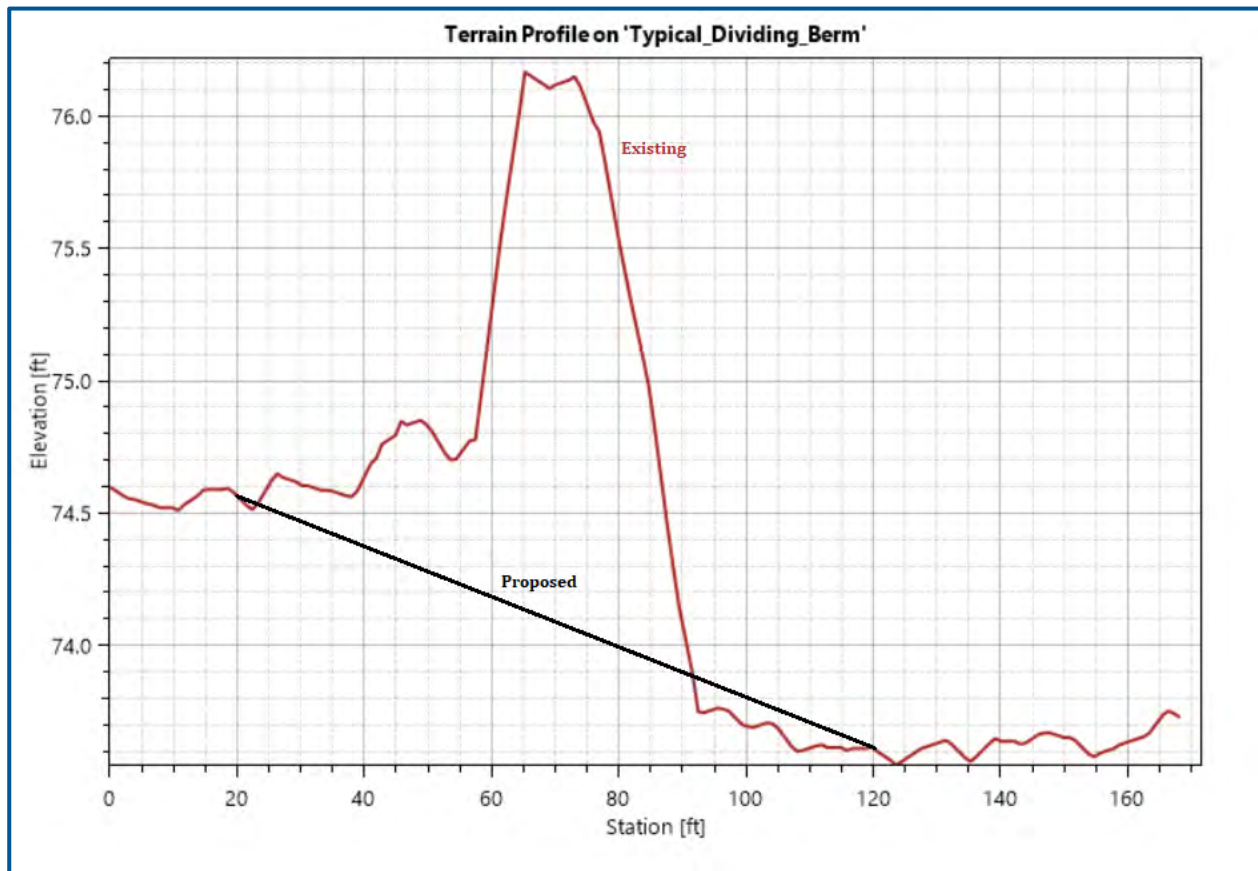
The Digital Elevation Model (DEM) for the 2D model was developed from 2020 USGS lidar data (Ref. 4). The DEM is shown below in Figure 7. To better define the geometry in the 2D model, break lines were placed along major topographical changes and pertinent features, such as ridges, channels, road embankments, agricultural earthen dividing berms, and levees to provide additional definition to the natural direction of flow through the system.



**Figure 7** Digital Elevation Model (DEM) — USGS 2020 Lidar

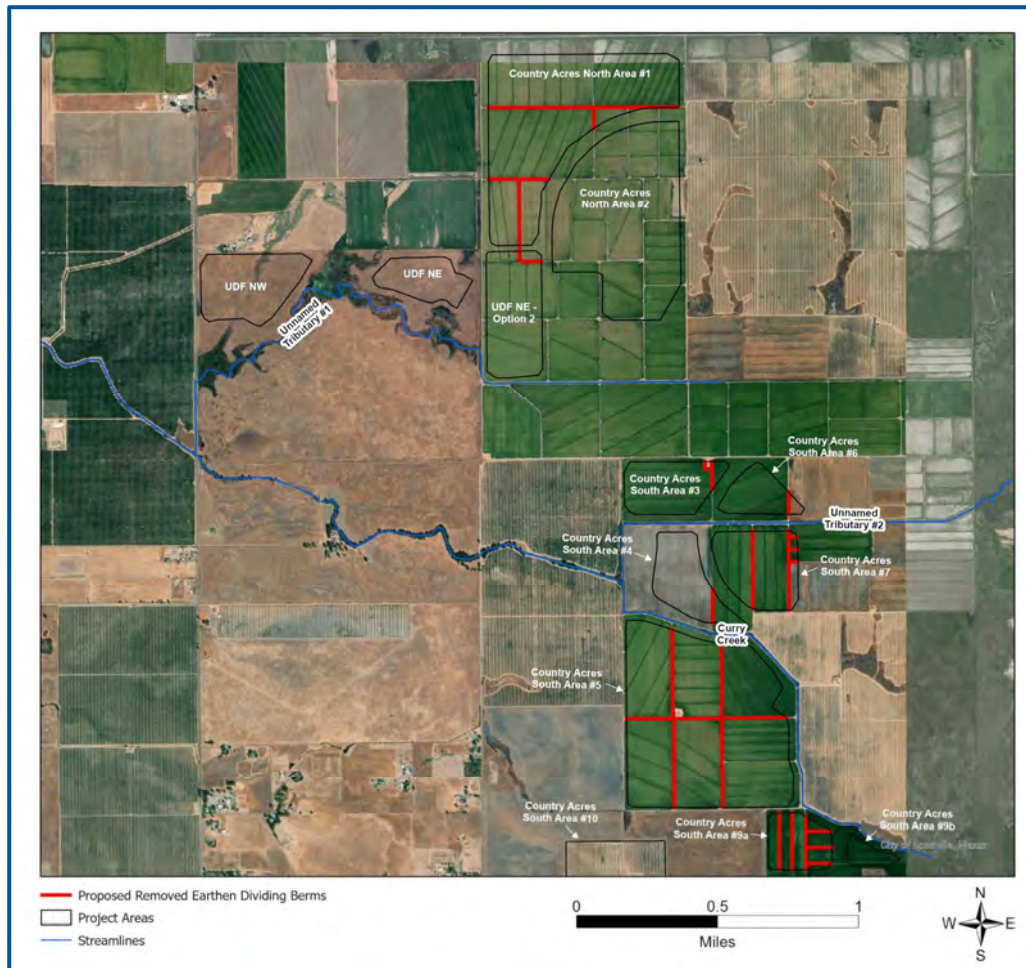
The existing conditions terrain is comprised of agricultural fields and numerous earthen dividing berms. The berms in the 100-year floodplain are approximately 2 to 4-ft tall (from the downstream end) and

approximately 30 to 40-ft wide (upstream to downstream toes). The proposed grading is designed to match existing condition grading patterns as much as possible with minimal modifications. The proposed grading will remove and smooth out a 100-ft wide area for each berm, creating a uniform slope. The typical existing and proposed configurations are shown in Figure 8, and the approximate locations of the removed berms are shown below in Figure 9.



**Figure 8** Typical Existing and Proposed Earthen Dividing Berm Configuration





**Figure 9 Aerial — Proposed Removed Earthen Dividing Berms**

Although there is additional grading in Country Acres North Area #2, it is outside the floodplain and has no impact on the hydraulic analysis.

Notably, due to limitations with the technology, lidar (including the utilized 2020 USGS lidar data) is unable to penetrate water. Consequently, the utilized lidar data excludes elevation data below the water surface present during data collection. The thalweg elevations were not manually edited into the DEM, except for near culvert invert and exit elevations. The subject assumption is expected to marginally increase the conservatism of the model with respect to resultant WSEs.

The FEMA effective models predate the 2020 USGS lidar. As such, the inundation boundaries in the subject analysis will have improved definition compared to the existing FEMA floodplain.

SMUD retained NV5 Geospatial to obtain updated lidar data of the project areas, which was provided to Black & Veatch in December of 2021. The lidar data provided by SMUD generally aligned with the utilized 2020 USGS lidar data along the pertinent inundated areas and provided an additional degree of confidence to the accuracy of the underlying elevation data. There were minor elevation differences along localized areas of the channel thalweg that are not anticipated to appreciably impact the results of the model.

#### 4.2.2 Manning's Values

A detailed analysis was conducted in Australia regarding Manning's (n) values for different land covers specifically for 2D HEC-RAS hydraulic models. Consequently, applicable Manning's (n) values were assigned in accordance with the subject analysis (Australian Rainfall & Runoff Project 15 – Ref. 6) as shown below in Table 9. Notably, depending on the existing agriculture within the project areas, the existing Manning's values may be equal to or greater than the proposed Manning's values. Nonetheless, in order to capture any potential impacts associated with the proposed condition, the Manning's values were conservatively adjusted from 0.04 (representing existing conditions) to 0.06 (representing proposed conditions) in appropriate project areas.

**Table 9 Manning's (n) Values**

Description	Manning's (n) Value
Proposed Project Area	0.06
Open Pervious Area, Minimal Vegetation (grassed)	0.04
Open Pervious Areas, Moderate Vegetation (shrubs)	0.06
Waterways/channels – Minimal Vegetation	0.03
Paved Roads/Car Park/Driveways	0.025
Residential Areas — Low Density	0.15
Residential Areas — High Density	0.35

#### 4.2.3 Hydraulic Model Results

According to the 2D hydraulic model, the proposed conditions are expected to expand 100-year flood boundaries by a net approximately 40 acres (55-acre expansion and 15 acre reduction), increase 100-year-flood WSEs up to 0.2-feet (ft), and generally increase/decrease velocities by 0.5 feet per second (ft/s) along the inundated project areas. There are localized areas with velocity increases up to 4 ft/s, particularly in areas with removed earthen dividing berms. The WSEs are unchanged throughout the downstream areas of Curry Creek and the unnamed tributaries. See Attachment D for the depth, velocity, and WSE increase exhibits.

#### 4.3 Scour Calculations

It is anticipated that the supports of the solar panels will consist in 8-inch long by 3.5-inch wide steel C-shaped piles. For the purpose of scour depth calculations, the piles hydraulically function as piers. One commonly used standard for calculating scour depth for piers is the Colorado State University (CSU) equation, described in HEC-18 (Ref. 7) and shown below. The subject equation was used to calculate scour depths for the 100-year-flood. In terms of the scour depth ( $y_s$ ) the equation is:

$$y_s = 2.0aK_1K_2K_3 \left( \frac{y_1}{a} \right)^{0.35} Fr_1^{0.43}$$

where:

$$\begin{aligned} y_s &= \text{Scour Depth (ft)} \\ y_1 &= \text{Flow depth directly upstream of the pier (ft)} \end{aligned}$$

$K_1$	=	Correction factor for pier nose shape
$K_2$	=	Correction factor for angle of attack of flow
$K_3$	=	Correction factor for bed condition
$a$	=	Pier width (ft)
$L$	=	Length of pier (ft)
$Fr_1$	=	Froude Number directly upstream of the pier
$V_1$	=	Mean velocity of flow directly upstream of the pier (fps)
$g$	=	Acceleration of gravity (32.2 ft/s <sup>2</sup> )

The piles were considered to have rounded noses ( $K_1 = 1.0$ ), the most conservative configuration for the angle of attack correction factor ( $K_2 = 1.81$ ), and a plane bed ( $K_3 = 1.1$ ). The 2D hydraulic model results for the 100-year-flood depths and the slightly more conservative existing velocities were utilized to calculate potential scour depth heat maps for the proposed project areas. The maximum 100-year-flood scour depth in the proposed project areas was calculated to be 1.5-ft, with over 99% of the proposed project area with scour depths less than 1-ft. See Attachment C for an example of the subject calculation representing the 100-year-flood maximum expected scour depth and Attachment D for the scour depth exhibits.

## 4.4 Regulatory Implications

### 4.4.1 FEMA Regulations and Model

The National Flood Insurance Program (NFIP) minimum regulations indicate that development in the flood fringe (outside of the floodway) must not increase the 100-year-flood WSE by more than 1-ft. When calculating WSE increases from a regulatory floodplain perspective, the latest available FEMA hydraulic model is adapted to represent the proposed conditions. As such, the subject FEMA model was obtained, and a preliminary conservative evaluation of the project impact to 100-year-flood WSEs was conducted.

The FEMA model's Manning's values for the appropriate cross sections' overbank areas were conservatively adjusted from 0.04 (representing existing conditions) to 0.06 (representing proposed conditions). The conservative Manning's adjustments without flood mitigation measures result in a maximum estimated 100-year-flood WSE increase of 0.25-ft. This maximum increase is localized to the area near Country Acres South Area #4. Notably, the FEMA model was conservatively adjusted to apply the Manning's changes to the entire overbank areas, whereas the 2D hydraulic model applied the changes solely to the areas where proposed changes are planned to occur. The subject difference along with differences in how flow is routed through the 1D FEMA model and the 2D hydraulic model likely accounted for the differences between the results of the two models. Given the conservatism used in these calculations, the 0.25-ft increase is considered an upper bound on maximum change in WSEs possible due to the project; therefore, a refinement in the analysis will likely show a lesser impact.

Given that the proposed project areas are in the flood fringe (outside of the floodway) and the maximum estimated WSE increase due to the development is less than 1-ft, the proposed project meets the above-noted NFIP minimum regulation.

### 4.4.2 Placer County Regulations

Placer County generally does not allow development in the future, fully developed, unmitigated, 100-year floodplain. For this project, the County is considering the following three options: (1) to

recommend changing the configuration of the stream (by placing fill) such that the proposed areas are outside the 100-year floodplain, (2) to allow for an amendment permitting development in the 100-year flood fringe, or (3) to require identifying the fully developed, unmitigated, 100-year floodplain and not allow construction in the subject area. A final determination has not yet been decided by Placer County. The first option to change the configuration of the stream by placing fill would further alter the floodplain from its current condition, reduce its hydraulic carrying capacity, and increase WSEs to a greater degree than allowing for an amendment that permits solar panel development in the flood fringe. Notably, the solar panels themselves will be raised above the 100-year flood WSE, with just the piers in the flood.

## 5.0 Conclusion

A Preliminary Hydrology Study was performed in support of the SMUD Country Acres Solar Project. Key findings of the study are as follows:

- Stormwater detention is not necessary for the parcels where the proposed PV arrays will be located, contingent on Placer County approval.
- Stormwater detention is required in the Switching Station, Substation, and BESS areas. A total of approximately 1.0 acre-feet of storage is needed in response to the 100-Year, 24-Hour precipitation event.
- Temporary and permanent Best Management Practice (BMP) structures will be installed as part of the Project's stormwater quality mitigation method to prevent pollutions from leaving the Project site during construction and operation phases in conformance with the Policies of the Placer County General Plan. The design and details of the temporary and permanent BMPs will be addressed in the final design of the Project as part of the Project's Erosion Control Plan and Storm Water Pollution Prevention Plan (SWPPP).
- Only minimal grading will be required in the PV array areas. More substantial grading will be required in the Switching Station, Substation and BESS areas.
- Placer County Engineering & Surveying Division reviewed the methodology and infiltration characteristics used in the hydrologic analysis and stated the approach is reasonable and consistent with County Standards.

A Preliminary Hydraulic study was also performed in support of the SMUD Country Acres Solar Project. Key findings of the study are as follows:

- According to the 2D hydraulic model, the proposed conditions are expected to expand 100-year flood boundaries a net approximately 40 acres, increase 100-year-flood WSEs by up to 0.2-ft, generally increase/decrease velocities by 0.5 ft/s, and result in scour depths of less than 1.5-ft at the base of the solar panel supports.
- According to the 2D hydraulic model, the WSEs were unchanged throughout the downstream areas of Curry Creek and the unnamed tributaries.
- According to the FEMA hydraulic model, the proposed conditions are expected to increase 100-year-flood WSEs by a maximum of 0.25-ft along Curry Creek.

## 6.0 References

1. Placer County Flood Control and Water Conservation District, Stormwater Management Manual, Version 3, February 1994.
2. West Placer Storm Water Quality Design Manual, April 2016, Revised May 2018.
3. USDA Technical Release 55, Urban Hydrology for Small Watersheds, 1986.
4. U.S. Geological Survey, 20200108, USGS one-meter x63y430 CA NoCAL Wildfires B5a 2018: U.S. Geological Survey.
5. Gotvald, A.J., Barth, N.A., Veilleux, A.G., and Parrett, Charles, 2012, Methods for determining magnitude and frequency of flood in California, based on data through water year 2006: U.S. Geological Survey Scientific Investigations Report 2012-5113, 38 p., 1 pl. (<http://pubs.usgs.gov/sir/2012/5113/>).
6. Australian Rainfall & Runoff Project 15, Two-Dimensional Modelling in Urban and Rural Floodplains, Stage 1&2 Report, P15/S1/009, November 2012.
7. US Department of Transportation Federal Highway Administration, Hydraulic Engineering Circular No. 18 (HEC-18), Evaluating Scour at Bridges, Fifth Edition, April 2012.



## **Attachment A. Preliminary Hydrology Study Infiltration Characteristics**



## MEMORANDUM

Sacramento Municipal Utility District (SMUD)  
Country Acres Solar  
Preliminary Hydrology Study – Infiltration Characteristics

B&V Project 406242  
B&V File 1000  
11/17/2021

To: Phil Frantz, P.E.  
Senior Civil Engineer  
Engineering & Surveying Division, Placer County

From: Erik Winata, P.E.  
Renewable Energy Project Manager  
Black & Veatch

## OVERVIEW

Black & Veatch is conducting a preliminary hydrology study for the Country Acres Solar project located on an approximately 1,100-acre parcels located about eight miles west of Roseville, within the unincorporated area of Placer County, California.

As part of the preliminary hydrology study, ground infiltration characteristics are determined under the pre- and post-development conditions.

The purpose of this memorandum is obtaining acceptance for the proposed methodology described below, specifically for the PV array portion of the project.

## INFILTRATION CHARACTERISTICS

Infiltration characteristics are estimated for the parcels based on guidance from TR-55 Urban Hydrology for Small Watersheds, Table 2-2, Runoff Curve Numbers, and Table 5-3, Constant Infiltration Rates for Hydrologic Soil-Cover Complexes, from the Placer County Flood Control and Water Conservation District Stormwater Management Manual. The Hydrologic Soil Group (HSG) rating of D was obtained from the Natural Resources Conservation Service Web Soil Survey.

### Pre-Developed Condition Characteristics:

The existing vegetation at the project site is primarily comprised of rice fields, with some additional areas that are best described as rangeland. The rice fields are modeled as “Small Grain in Good Condition.” For HSG D, the SCS Curve Number for this cover type is 87, and the loss rate is 0.05

inches/hour. For “Rangeland in Good Condition,” with HSG D, the SCS Curve Number is 80, and the loss rate is 0.09 inches/hour.

Proposed Site Characteristics:

The proposed site where the solar panels are installed will be seeded to establish grass, but it is conservatively assumed that the grass will be in fair condition, with grass cover established between 50 and 75 percent of the area. For “Grass in Fair Condition,” with HSG D, the SCS Curve Number is 89, and the loss rate is 0.07 inches/hour.

The steel pile foundations supporting the solar panel racking tables and the inverter skids are modeled as “Impervious Areas,” with HSG D, an SCS Curve Number of 98, and a loss rate of 0.00 inches/hour. This assumes that the soil under the solar panels will become saturated in response to the design storm events, specifically the 100-Year recurrence interval event, which is used to size the ditches and basins. The existing grades at the site are very flat, which will encourage infiltration.

Ditches and detention basins within the site will be graded to drain completely, seeded to establish grass, and mowed once the grass is established. This cover is modeled as “Grass in Good Condition,” with HSG D, resulting in an SCS Curve Number of 80, and a loss rate of 0.09 inches/hour.

Perimeter and intermediate access roads within the site are assumed to be gravel surfaced. For “Gravel Roads,” with HSG D, the SCS Curve Number is 91, and the loss rate is 0.03 inches/hour.

## **HYDROLOGY ANALYSIS COMPARISON**

Black & Veatch also reviewed the Hydrology Study for the SMUD Rancho Seco II Solar project located in Sacramento County, California, dated November 20, 2019 and prepared by Westwood, for comparison of methodology. The SMUD Rancho Seco II Solar project encompasses approximately 523 acres and is the most recently constructed utility scale solar project in the area.

In Black & Veatch’s opinion, the methodology used in the SMUD Rancho Seco II Hydrology Study is similar to the methodology being used in the SMUD Country Acres Preliminary Hydrology Study. Some differences noted in Table 1 below are mainly due to the Country Acres project using design values and methodologies specified in the Placer County Stormwater Management Manual.

**Table 1: Hydrology Analysis Comparison**

ITEM	RANCHO SECO II SOLAR	COUNTRY ACRES SOLAR
Regulations	Sacramento County	Placer County
Design	Final	Preliminary
Precipitation Source	NOAA Atlas 14	Placer County Stormwater Manual*
Software	Flo-2D	HEC-HMS/HEC-RAS**
Soils Data	NRCS – HSG D	NRCS – HSG D
Conveyance	Culvert Designs	No Culvert Designs
Storm Events	10- and 100-Year	2-, 10-, and 100-Year
Infiltration Method	Curve Number	Placer County Constant*
Pre- vs. Post- Analysis	Provided	Provided

\* Values specified in the Placer County Stormwater Management Manual

\*\* HEC referenced in the Placer County Stormwater Management Manual

CC: Sarah Cheney, SMUD

## **Attachment B. Preliminary Hydrologic Analysis Calculation**

Client Name Sacramento Municipal Utility District Page 1 of 75

 Project Name Country Acres Solar Study Project No. 406242

 Calculation Title Hydrologic Analysis

Calculation No./File No. \_\_\_\_\_

 Verification Method: ☐ Check and Review ☐ Alternate Calculations

**Objective:** Determine the hydrologic response of the site to the design precipitation events.  
 Demonstrate that the stormwater facilities meet the requirements of Placer County.

**Unverified Assumptions Requiring Subsequent Verification**

No.	Assumption	Verified By	Date

Refer to Page \_\_\_\_\_ of this calculation for additional assumptions.

**This Section Used for Software-Generated Calculations**

 Program Name/Number HEC-HMS Version 4.6.1

 Standard B&V Application Used? ☒ Yes ☐ No

If no, list approved deviation permit number below and attach approved deviation permit.

**Review and Approval**

Rev	Prepared By	Date	Verified By	Date	Approved By	Date
0	G. V. Johnson	12/17/2021				

**Owner:** Sacramento Municipal Utility District  
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## **1.0 REFERENCES:**

- 1) TR55, Urban Hydrology for Small Watersheds, U.S. Department of Agriculture, Soil Conservation Service, June 1986.
- 2) HEC-HMS, Hydrologic Modeling System, U.S. Army Corps of Engineers, Version 4.6.1, Build: 8363 Date: 17Sep2020 DSS: 7-HK JAVA: 11.0.6
- 3) SMUD Country Acres Solar, BESS Yard Conceptual Layout, Placer County, California, Dwg. No. CA-SK-3000, Rev. B, 12/07/21.
- 4) SMUD Country Acres Solar + BESS, Placer County, CA, B&V Dwg. CA-SK-0004, Rev. M, 21/OCT/21.
- 5) SMUD Country Acres Solar + BESS, Conceptual Substation General Arrangement, Placer County, CA, B&V Dwg. CA-SK-1000, 11/8/2021.
- 6) SMUD, 230KV General Arrangement Plan, Country Acres Switch Station, Dwg. No. CAS-E4H-E001, Rev. A, 05/21.
- 7) NRCS Type IA Precipitation Distribution, HydroCAD Software Solutions LLC, 2015.
- 8) HY-8 v.7.60, Culvert Analysis Software Package, Federal Highway Administration, Build Date Jul 30, 2019.
- 9) United States Dept. of Agriculture, Natural Resources Conservation Service, Web Soil Survey, Website: <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>
- 10) West Placer Storm Water Quality Design Manual, April 2016, Revised May 2018.
- 11) Placer County Online Map: [http://maps.placer.ca.gov/Html5viewer/Index.html?configBase=http://arcgis/Geocortex/Essentials/REST/sites/LIS\\_Public/viewers/LIS\\_Base-Public/virtualdirectory/Resources/Config/Default](http://maps.placer.ca.gov/Html5viewer/Index.html?configBase=http://arcgis/Geocortex/Essentials/REST/sites/LIS_Public/viewers/LIS_Base-Public/virtualdirectory/Resources/Config/Default)
- 12) Fluid Mechanics, 8th Edition, Streeter and Wylie, McGraw-Hill, 1985.
- 13) Introduction to Hydrology, 3rd Edition, Viessman, Jr., Lewis, & Knapp, HarperCollins, 1989.
- 14) Placer County Flood Control and Water Conservation District, Stormwater Management Manual, Version 3, February 1994.
- 15) Open-Channel Hydraulics, Chow, McGraw-Hill, 1959.
- 16) Project meeting with Phil Frantz, Placer County Engineering and Surveying Division (ESD), Sarah Cheney, SMUD, and Erik Winata and Greg Johnson, Black & Veatch, 10/1/2021.



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## **2.0 DESIGN BASIS:**

The proposed project includes the installation of solar PV panels on 12 parcels of land with a total area of 1064.85 acres. Inverter skids and aggregate surfaced access roads will also be constructed on the parcels. The project will be supported by the construction of a substation, switchyard, and BESS area, on an additional 55.75 acres. The project is located in rural west Placer County, California.

The project site will be designed to meet the requirements of the Placer County Stormwater Management Manual (Reference 14). The 2, 10, and 100-Year recurrence interval events shall be used as the design precipitation events. Any additional requirements from the Placer County Flood Control District and Placer County Engineering and Surveying Division will be addressed.

The existing project site will be evaluated based on its area and infiltration characteristics. The proposed final site conditions consider the constructed facilities, along with roads and project surfacing. In the proposed final condition, BMPs are provided if required to meet stormwater quality and quantity requirements.

The HEC-HMS Hydrologic Modeling System software package is used to model the response of the system to the design precipitation events as specified by Placer County. Modeling is performed for the site in its existing, and proposed conditions. (Reference 2)

## **3.0 DEFINITION OF UNITS AND CONSTANTS:**

cfs	cubic feet per second
ac-ft	acre-feet
sq mi	square miles
sq ft	square feet
hr	hour
in	inches
ft	feet
ft/sec	feet per second
cu-ft	cubic feet

## **4.0 ANALYSIS:**

Required HEC-HMS design input parameters include watershed area, infiltration characteristics, and time lag. Also, stage-area and stage-discharge relationships are required for the proposed finished site BMPs, where required. Design precipitation events and the precipitation distribution are also used in the HEC-HMS models.

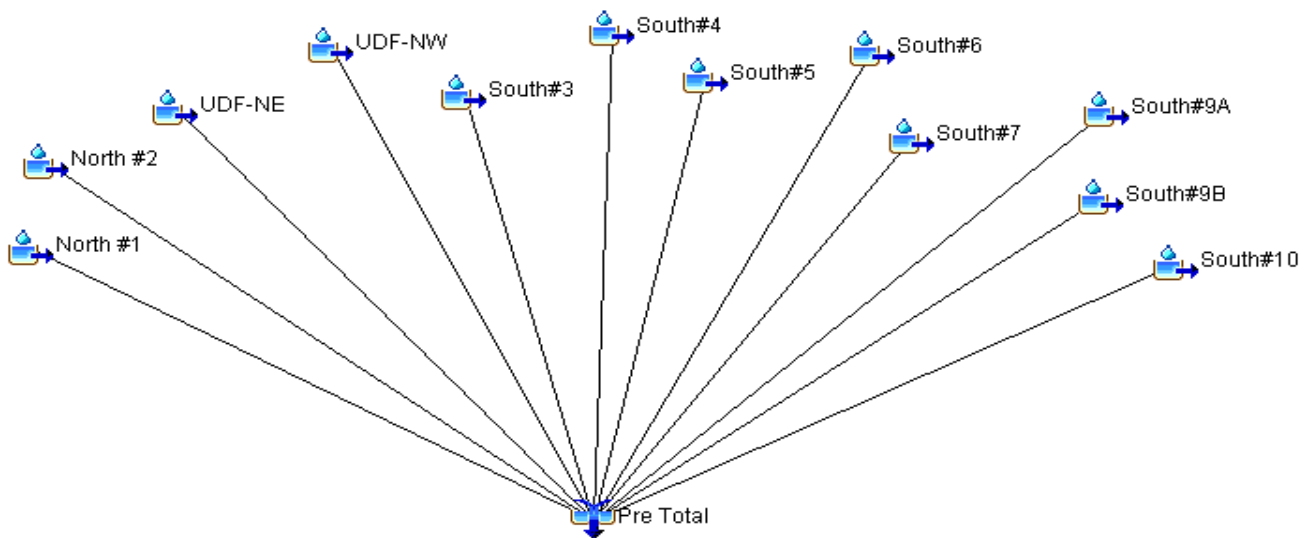
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**Stormwater Management System:**

**Pre-Development:**

The existing site consists primarily of rice fields, with some areas characterized as rangeland. There are no significant areas of impervious surfacing. The existing parcels are shown in the sketch below. The discharge hydrograph from each parcel is combined at a junction named "Pre Total".



The Switchyard, Substation, and BESS areas are considered in a separate HEC-HMS model, with the areas combined for the pre-development case.

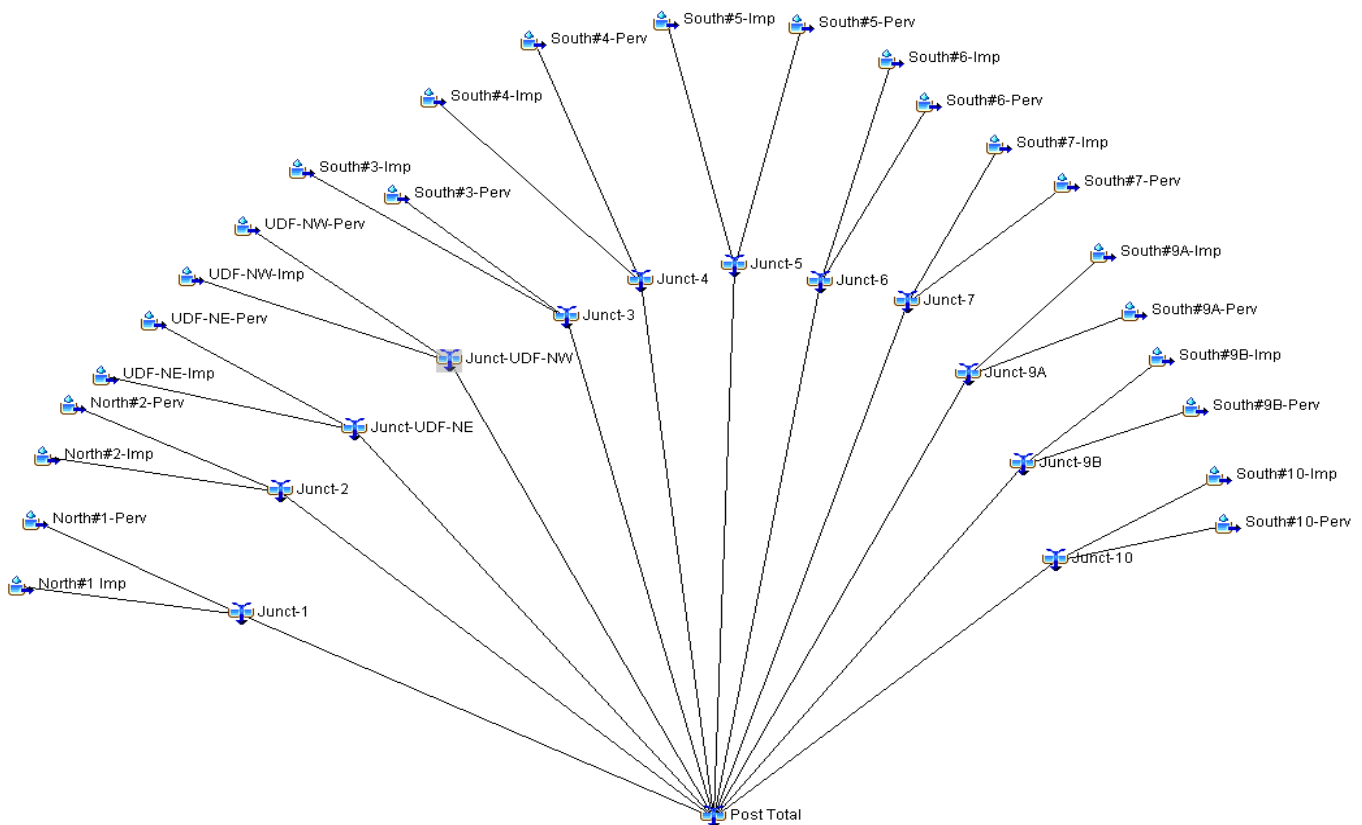
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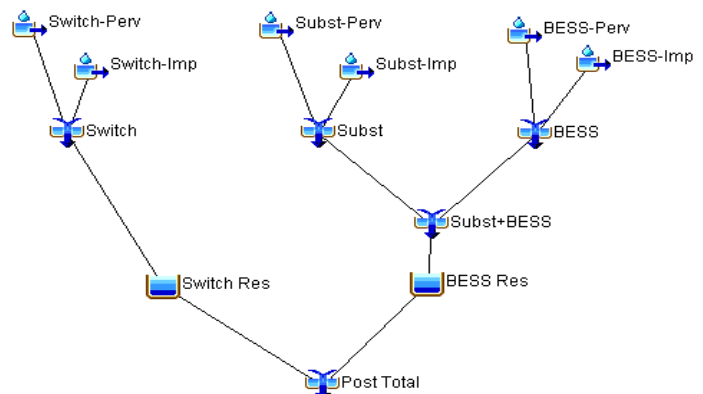
### Stormwater Management System:

#### Post-Development:

The proposed stormwater management system for the parcels is shown in the sketch below. For all subbasins, pervious and impervious surfaces are modeled separately. Runoff from each area is routed to a junction, and all subbasins are combined at the junction "Post Total".



The proposed stormwater management system for the Switchyard, Substation, and BESS areas is shown in the sketch to the right. Switchyard runoff is routed to a basin named "Switch Res", and runoff from the Substation and BESS areas is routed to a basin named "BESS Res". Discharge hydrographs from the two basins are combined at a junction named, "Post Total".



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**Watershed Areas:**

The watershed areas for each of the parcels is provided in the table below, from Reference 4.

<b><u>Country Acres</u></b>	<b><u>Parcel Size</u></b>	<b><u>Parcel Size</u></b>
<b><u>Parcel Title</u></b>	<b><u>(acres)</u></b>	<b><u>(sq miles)</u></b>
North #1	180.54	0.28209
North #2	176.69	0.27608
UDF-NW	59.04	0.09225
UDF-NE	124.98	0.19528
UDF-NE (Option 2)	61.00	0.09531
South #3	45.57	0.07120
South #4	44.78	0.06997
South #5	232.64	0.36350
South #5 (Option 2)	202.62	0.31659
South #6	28.30	0.04422
South #7	55.73	0.08708
South #9A	32.72	0.05113
South #9B	14.69	0.02295
<u>South #10</u>	<u>69.17</u>	<u>0.10808</u>
Total	1064.85	1.66383

<b><u>Country Acres</u></b>	<b><u>Parcel Size</u></b>	<b><u>Parcel Size</u></b>
<b><u>Parcel Title</u></b>	<b><u>(acres)</u></b>	<b><u>(sq miles)</u></b>
BESS	40.66	0.06353
Substation	3.75	0.00586
Subst - Offsite	0.83	0.00129
<u>Switchyard</u>	<u>11.34</u>	<u>0.01772</u>
Total	56.58	0.08840

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**Design Precipitation Events:**

From References 14 and 16, design precipitation events for this site include the 2, 10, and 100-Year, 24-Hour Events. Precipitation frequency data at the site for these events were obtained from Reference 14.

<b><u>Event</u></b>	<b><u>Precip. (in.)</u></b>
2-Year, 24-Hour	<b>1.90</b>
10-Year, 24-Hour	<b>2.98</b>
100-Year, 24-Hour	<b>4.25</b>

**PLACER COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT**  
**STORMWATER MANAGEMENT MANUAL** **V. HYDROLOGY**

**Table 5-A-1**  
**Depth-Duration-Frequency Coefficients**

**150 - 3000 feet elevation**  
**West of Sierra Nevada Crest**

**Depths in inches at 150 feet**

<b><u>Duration</u></b>	<b><u>2yr</u></b>	<b><u>5yr</u></b>	<b><u>10yr</u></b>	<b><u>25yr</u></b>	<b><u>50yr</u></b>	<b><u>100yr</u></b>	<b><u>200yr</u></b>	<b><u>500yr</u></b>
5m	0.13	0.20	0.25	0.32	0.38	0.44	0.49	0.58
10m	0.19	0.29	0.36	0.46	0.54	0.62	0.70	0.82
15m	0.23	0.35	0.43	0.55	0.64	0.73	0.82	0.96
30m	0.32	0.47	0.57	0.72	0.83	0.94	1.04	1.22
1h	0.45	0.64	0.77	0.94	1.07	1.21	1.33	1.53
2h	0.64	0.88	1.04	1.26	1.42	1.59	1.76	2.00
3h	0.77	1.04	1.23	1.47	1.66	1.85	2.03	2.31
6h	1.06	1.40	1.65	1.95	2.22	2.23	2.75	3.10
12h	1.43	1.91	2.24	2.67	3.00	3.30	3.60	4.00
1d	1.90	2.50	2.98	3.46	3.85	4.25	4.60	5.20
2d	2.51	3.40	3.95	4.65	5.15	5.70	6.20	7.00
3d	3.00	4.07	4.65	5.50	6.20	6.80	7.50	8.40
5d	3.61	4.91	5.76	6.85	7.63	8.42	9.20	10.29
10d	4.73	6.44	7.54	8.96	9.97	11.01	11.95	13.45

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**Time-of-Concentration:** (from Reference 1 )

The time-of-concentration for stormwater runoff to travel across the site from the hydrologically most remote portion of the watershed is determined based on the topography from References 3, 4, 5 and 6. The time-of-concentration is made up of travel time due to sheet flow, shallow concentrated flow, and channel flow. Many watersheds do not have all three flow types. A flow path sketch is provided for each t-o-c calculation.

**North #1:**

**Existing**

**Sheet Flow:**

Surface Description: crop  
Manning's Roughness: 0.06 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.003 ft/ft  
Travel Time: **0.502 hours** (from Ref. 1 equation)

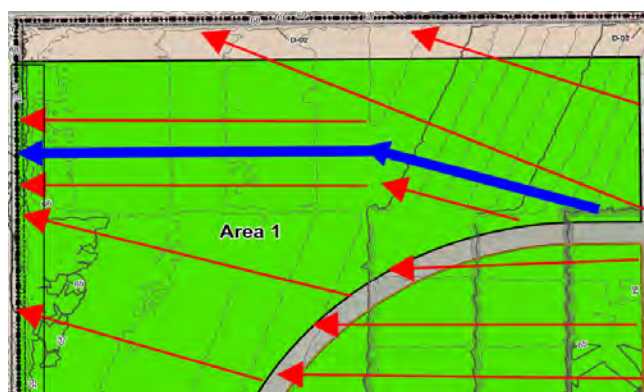
**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 1160 feet  
Watercourse Slope: 0.007 ft/ft  
Average Velocity: 1.35 ft/sec (Ref. 1)  
Travel Time: **0.239 hours** (length/(3600\*Velocity))

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 2650 feet  
Watercourse Slope: 0.002 ft/ft  
Average Velocity: 1 ft/sec (Ref. 1)  
Travel Time: **0.736 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.477 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.886 hr**  
Time Lag =  $0.6 \cdot T_c$  = **53.2 min**



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Time-of-Concentration: (from Reference 1 )

**North #2:**

**Existing**

**Sheet Flow:**

Surface Description: crop  
Manning's Roughness: 0.06 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.002 ft/ft  
Travel Time: **0.663 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 3500 feet  
Watercourse Slope: 0.007 ft/ft  
Average Velocity: 1.35 ft/sec (Ref. 1)  
Travel Time: **0.720 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.383 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.830 hr**  
Time Lag =  $0.6 \cdot T_c$  = **49.8 min**





Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Hydrologic Analysis

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Time-of-Concentration: (from Reference 1 )

**UDF-NE:**

Existing

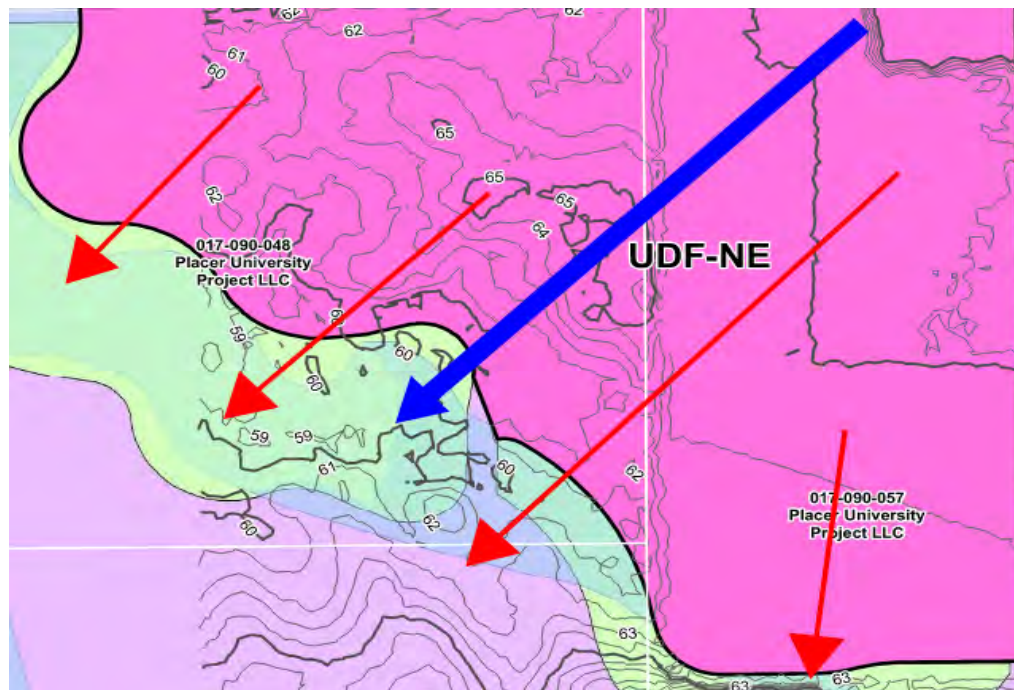
**Sheet Flow:**

Surface Description: crop  
Manning's Roughness: 0.06 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.003 ft/ft  
Travel Time: **0.502 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 2000 feet  
Watercourse Slope: 0.005 ft/ft  
Average Velocity: 1.15 ft/sec (Ref. 1)  
Travel Time: **0.483 hours** (length/(3600\*Velocity))

Time-of-Conc.: **0.985 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.591 hr**  
Time Lag =  $0.6 \cdot T_c$  = **35.5 min**





**Owner:** Sacramento Municipal Utility District  
**Plant:** Country Acres Solar Study  
**Address:** Placer County, CA  
**Project No.:** 406242 **File No.**  
**Title:** Hydrologic Analysis

**Page:** A12

**Time-of-Concentration:** (from Reference 1 )

**UDF-NW:**

**Existing**

**Sheet Flow:**

Surface Description: rangeland  
 Manning's Roughness: 0.13 (Ref. 1)  
 Flow Length: 300 feet  
 2-Yr 24-Hr Precip.: 1.9 inches  
 Land Slope: 0.007 ft/ft  
 Travel Time: **0.706 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
 Flow Length: 900 feet  
 Watercourse Slope: 0.004 ft/ft  
 Average Velocity: 1.1 ft/sec (Ref. 1)  
 Travel Time: **0.227 hours** (length/(3600\*Velocity))

**Channel Flow:**

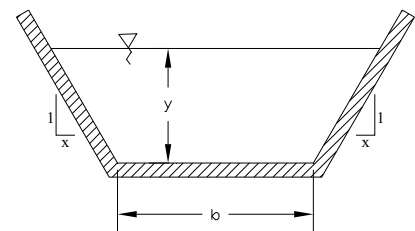
**Input**

Flow Depth (y)= 0.5 feet  
 Channel width (b)= 50 feet  
 Roughness Coeff n 0.15  
 Channel Slope (s)= 0.0096 ft/ft  
 Side slope (x)= 50

**Calculated Values**

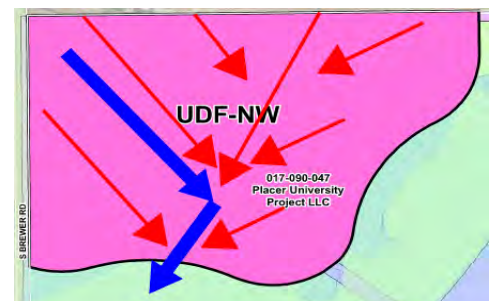
Flow Area= 37.5 sq. ft  
 Wetted Perimeter= 100.01 feet  
 Flow Type= subcritical  
 Froude Number 0.18 feet  
 Discharge (Q)= 18.99 cfs  
 Flow velocity (v)= 0.51 ft/sec  
 Flow Length: 416 feet  
 Travel Time: **0.228 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.162 hr**  
 Time Lag = 0.6\*Tc = **0.697 hr**  
 Time Lag = 0.6\*Tc = **41.8 min**



Manning's Formula

$$Q = \frac{1.49}{n} A R^{\frac{2}{3}} S^{\frac{1}{2}}$$



Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Hydrologic Analysis

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Time-of-Concentration: (from Reference 1 )

**South #3**

Existing

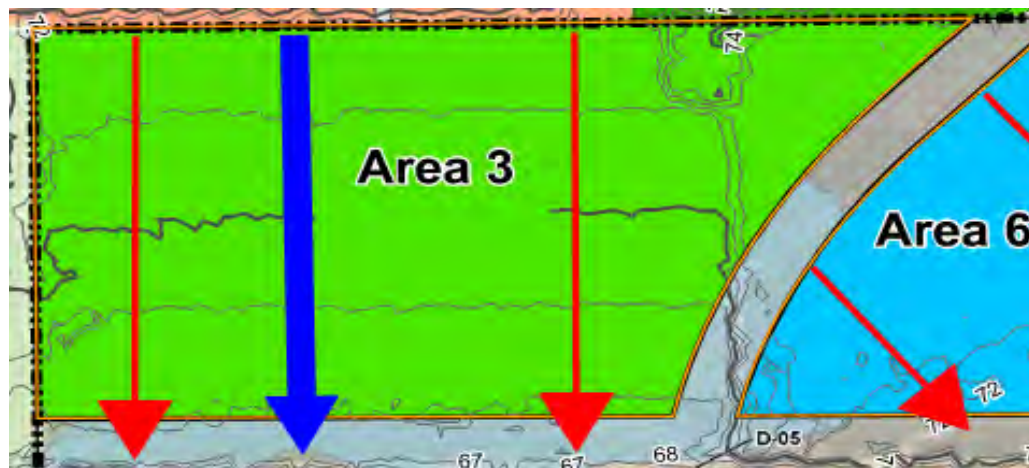
**Sheet Flow:**

Surface Description: crop  
Manning's Roughness: 0.06 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.004 ft/ft  
Travel Time: **0.467 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 750 feet  
Watercourse Slope: 0.004 ft/ft  
Average Velocity: 1.1 ft/sec (Ref. 1)  
Travel Time: **0.189 hours** (length/(3600\*Velocity))

Time-of-Conc.: **0.656 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.394 hr**  
Time Lag =  $0.6 \cdot T_c$  = **23.6 min**



Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Hydrologic Analysis

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Time-of-Concentration: (from Reference 1 )

**South #4:**

Existing

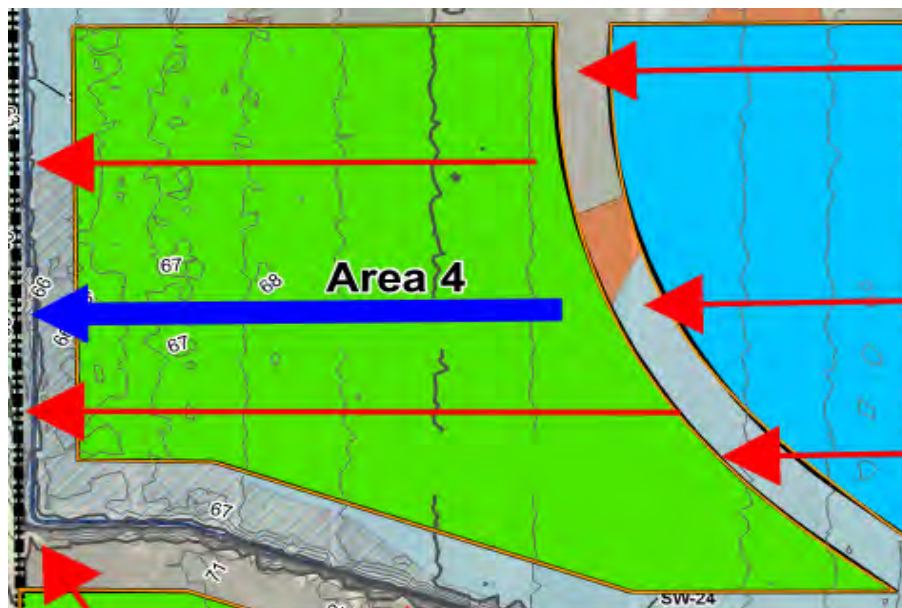
**Sheet Flow:**

Surface Description: crop  
Manning's Roughness: 0.06 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.003 ft/ft  
Travel Time: **0.502 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 1050 feet  
Watercourse Slope: 0.003 ft/ft  
Average Velocity: 1.10 ft/sec (Ref. 1)  
Travel Time: **0.265 hours** (length/(3600\*Velocity))

Time-of-Conc.: **0.767 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.460 hr**  
Time Lag =  $0.6 \cdot T_c$  = **27.6 min**



Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Hydrologic Analysis

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Time-of-Concentration: (from Reference 1 )

**South #5:**

Existing

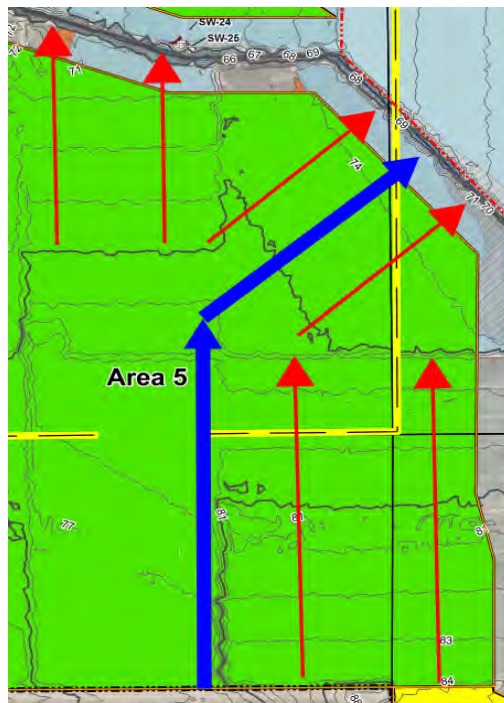
**Sheet Flow:**

Surface Description: crop  
Manning's Roughness: 0.06 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.003 ft/ft  
Travel Time: **0.502 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 1650 feet  
Watercourse Slope: 0.006 ft/ft  
Average Velocity: 1.25 ft/sec (Ref. 1)  
Travel Time: **0.367 hours** (length/(3600\*Velocity))

Time-of-Conc.: **0.869 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.521 hr**  
Time Lag =  $0.6 \cdot T_c$  = **31.3 min**



Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Hydrologic Analysis

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Time-of-Concentration: (from Reference 1 )

**South #6:**

**Existing**

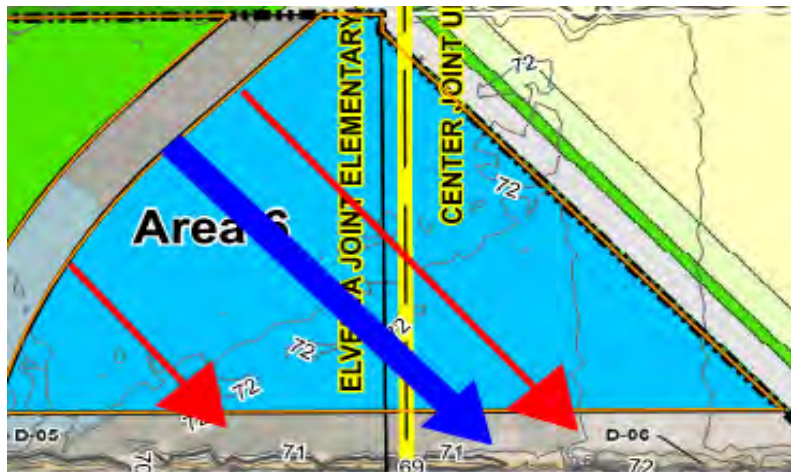
**Sheet Flow:**

Surface Description: crop  
Manning's Roughness: 0.06 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.001 ft/ft  
Travel Time: **0.724 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 1000 feet  
Watercourse Slope: 0.001 ft/ft  
Average Velocity: 1.00 ft/sec (Ref. 1)  
Travel Time: **0.278 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.002 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.601 hr**  
Time Lag =  $0.6 \cdot T_c$  = **36.1 min**



Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Hydrologic Analysis

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Time-of-Concentration: (from Reference 1 )

**South #7:**

**Existing**

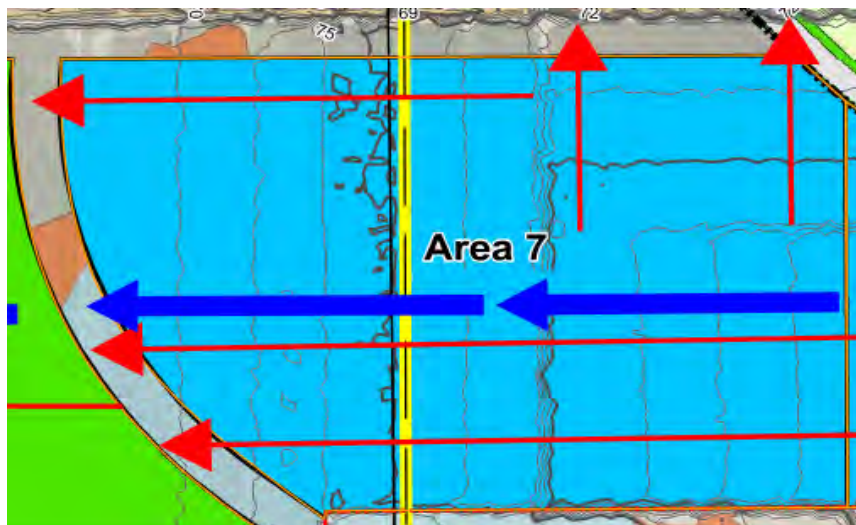
**Sheet Flow:**

Surface Description: crop  
Manning's Roughness: 0.06 (Ref. 1)  
Flow Length: 250 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.004 ft/ft  
Travel Time: **0.403 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 2950 feet  
Watercourse Slope: 0.005 ft/ft  
Average Velocity: 1.15 ft/sec (Ref. 1)  
Travel Time: **0.713 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.116 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.670 hr**  
Time Lag =  $0.6 \cdot T_c$  = **40.2 min**





Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Hydrologic Analysis

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Time-of-Concentration: (from Reference 1 )

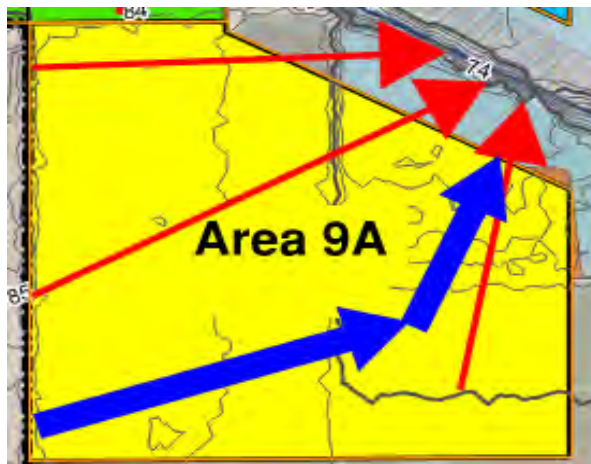
**South #9A: Sheet Flow:**

Existing Surface Description: crop  
Manning's Roughness: 0.06 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.002 ft/ft  
Travel Time: **0.579 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 1300 feet  
Watercourse Slope: 0.004 ft/ft  
Average Velocity: 1.1 ft/sec (Ref. 1)  
Travel Time: **0.328 hours** (length/(3600\*Velocity))

Time-of-Conc.: **0.907 hr**  
Time Lag =  $0.6 \cdot T_c =$  **0.544 hr**  
Time Lag =  $0.6 \cdot T_c =$  **32.7 min**



Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
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Time-of-Concentration: (from Reference 1 )

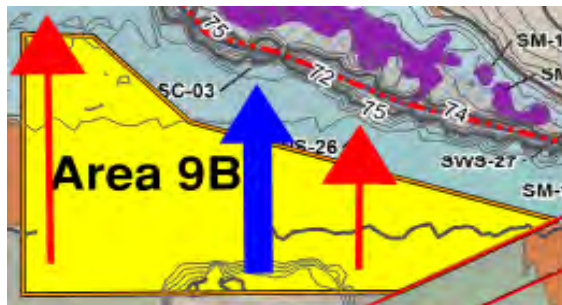
**South #9B:** **Sheet Flow:**

Existing Surface Description: crop  
Manning's Roughness: 0.06 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.003 ft/ft  
Travel Time: **0.502 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 420 feet  
Watercourse Slope: 0.004 ft/ft  
Average Velocity: 1.1 ft/sec (Ref. 1)  
Travel Time: **0.106 hours** (length/(3600\*Velocity))

Time-of-Conc.: **0.608 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.365 hr**  
Time Lag =  $0.6 \cdot T_c$  = **21.9 min**





Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
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Title: Hydrologic Analysis

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Time-of-Concentration: (from Reference 1 )

**South #10:** **Sheet Flow:**

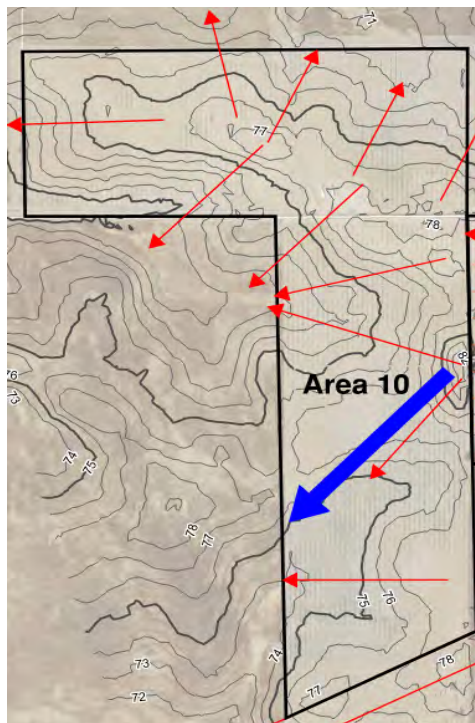
Existing

Surface Description: range  
Manning's Roughness: 0.13 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.015 ft/ft  
Travel Time: **0.515 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 1050 feet  
Watercourse Slope: 0.004 ft/ft  
Average Velocity: 1.1 ft/sec (Ref. 1)  
Travel Time: **0.265 hours** (length/(3600\*Velocity))

Time-of-Conc.: **0.780 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.468 hr**  
Time Lag =  $0.6 \cdot T_c$  = **28.1 min**



Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Hydrologic Analysis

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**Time-of-Concentration:** (from Reference 1 )

For the pre-development case, the Switchyard, Substation, and BESS areas are combined and modeled as one area.

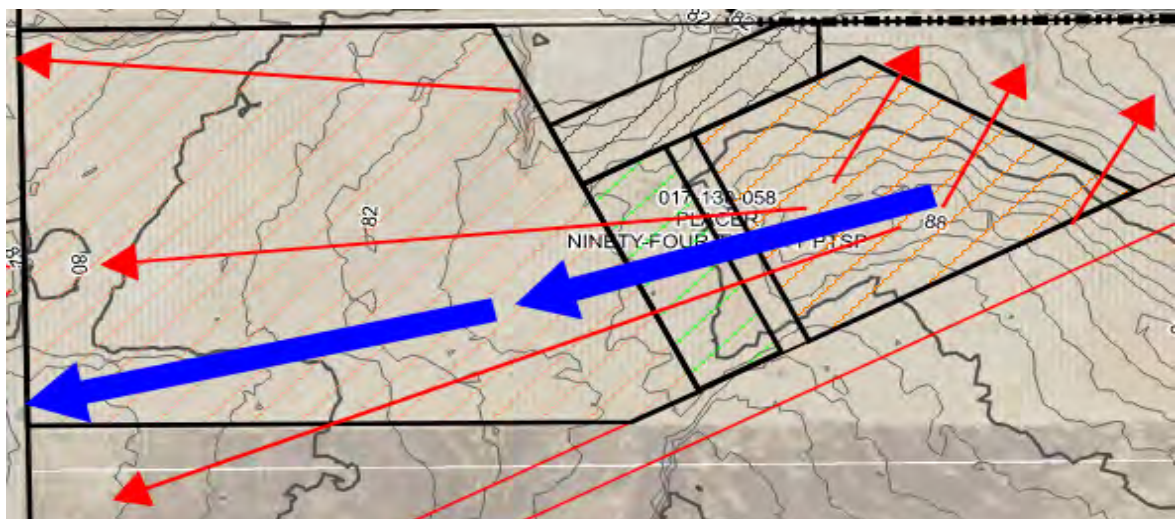
**Subst/BESS: Sheet Flow:**

**Existing** Surface Description: range  
Manning's Roughness: 0.13 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.003 ft/ft  
Travel Time: **0.932 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 2100 feet  
Watercourse Slope: 0.005 ft/ft  
Average Velocity: 1.15 ft/sec (Ref. 1)  
Travel Time: **0.507 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.439 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.864 hr**  
Time Lag =  $0.6 \cdot T_c$  = **51.8 min**



Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Hydrologic Analysis

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**Time-of-Concentration:** (from Reference 1 )

Only minimal grading is proposed to prepare the site for the PV panels. Thus, the same flow path and slope is assumed for the existing and proposed site, with the major difference in time of concentration resulting from changing the surface description from crop to grass in fair condition, which is modeled as rangeland.

**North #1:**

**Proposed**

**Sheet Flow:**

Surface Description: range  
Manning's Roughness: 0.13 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.003 ft/ft  
Travel Time: **0.932 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 1160 feet  
Watercourse Slope: 0.007 ft/ft  
Average Velocity: 1.35 ft/sec (Ref. 1)  
Travel Time: **0.239 hours** (length/(3600\*Velocity))

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 2650 feet  
Watercourse Slope: 0.002 ft/ft  
Average Velocity: 1 ft/sec (Ref. 1)  
Travel Time: **0.736 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.907 hr**  
Time Lag =  $0.6 \cdot T_c$  = **1.144 hr**  
Time Lag =  $0.6 \cdot T_c$  = **68.6 min**



Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Hydrologic Analysis

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Time-of-Concentration: (from Reference 1 )

**North #2:**

**Proposed**

**Sheet Flow:**

Surface Description: range  
Manning's Roughness: 0.13 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.002 ft/ft  
Travel Time: **1.230 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 3500 feet  
Watercourse Slope: 0.007 ft/ft  
Average Velocity: 1.35 ft/sec (Ref. 1)  
Travel Time: **0.720 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.950 hr**  
Time Lag =  $0.6 \cdot T_c$  = **1.170 hr**  
Time Lag =  $0.6 \cdot T_c$  = **70.2 min**



Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Hydrologic Analysis

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Time-of-Concentration: (from Reference 1 )

**UDF-NE:**

**Proposed**

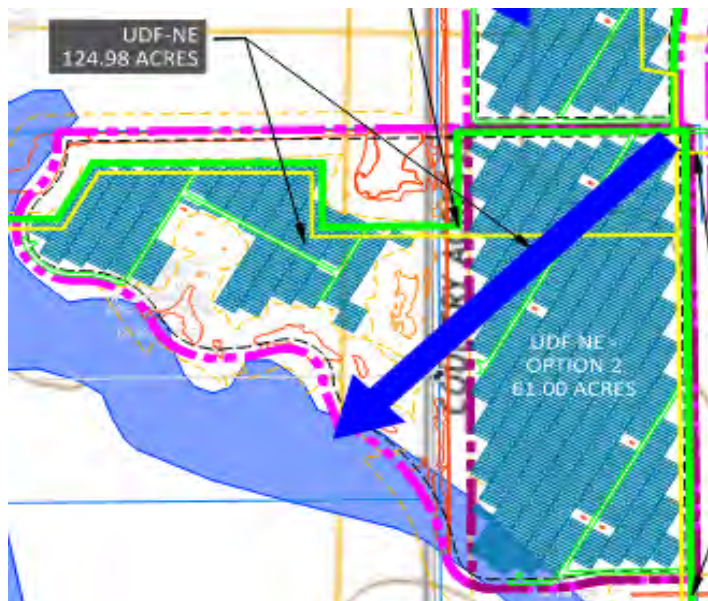
**Sheet Flow:**

Surface Description: range  
Manning's Roughness: 0.13 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.003 ft/ft  
Travel Time: **0.932 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 2000 feet  
Watercourse Slope: 0.005 ft/ft  
Average Velocity: 1.15 ft/sec (Ref. 1)  
Travel Time: **0.483 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.415 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.849 hr**  
Time Lag =  $0.6 \cdot T_c$  = **50.9 min**





**Owner:** Sacramento Municipal Utility District  
**Plant:** Country Acres Solar Study  
**Address:** Placer County, CA  
**Project No.:** 406242 **File No.**  
**Title:** Hydrologic Analysis

**Page:** A25

**Time-of-Concentration:** (from Reference 1 )

**UDF-NW:**

**Proposed**

**Sheet Flow:**

Surface Description: range  
 Manning's Roughness: 0.13 (Ref. 1)  
 Flow Length: 300 feet  
 2-Yr 24-Hr Precip.: 1.9 inches  
 Land Slope: 0.007 ft/ft  
 Travel Time: **0.706 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
 Flow Length: 900 feet  
 Watercourse Slope: 0.004 ft/ft  
 Average Velocity: 1.1 ft/sec (Ref. 1)  
 Travel Time: **0.227 hours** (length/(3600\*Velocity))

**Channel Flow:**

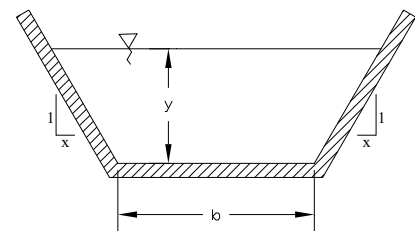
**Input**

Flow Depth (y)= 0.5 feet  
 Channel width (b)= 50 feet  
 Roughness Coeff n 0.15  
 Channel Slope (s)= 0.0096 ft/ft  
 Side slope (x)= 50

**Calculated Values**

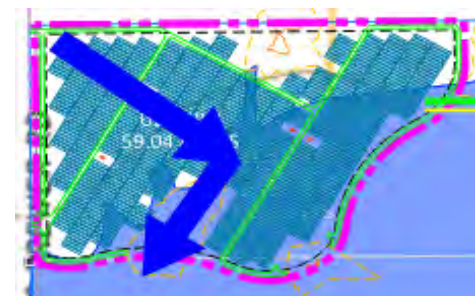
Flow Area= 37.5 sq. ft  
 Wetted Perimeter= 100.01 feet  
 Flow Type= subcritical  
 Froude Number 0.18 feet  
 Discharge (Q)= 18.99 cfs  
 Flow velocity (v)= 0.51 ft/sec  
 Flow Length: 416 feet  
 Travel Time: **0.228 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.162 hr**  
 Time Lag = 0.6\*Tc = **0.697 hr**  
 Time Lag = 0.6\*Tc = **41.8 min**



Manning's Formula

$$Q = \frac{1.49}{n} A R^{\frac{2}{3}} S^{\frac{1}{2}}$$



Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Hydrologic Analysis

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Time-of-Concentration: (from Reference 1 )

**South #3**

**Proposed**

**Sheet Flow:**

Surface Description: range  
Manning's Roughness: 0.13 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.004 ft/ft  
Travel Time: **0.866 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 750 feet  
Watercourse Slope: 0.004 ft/ft  
Average Velocity: 1.1 ft/sec (Ref. 1)  
Travel Time: **0.189 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.056 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.634 hr**  
Time Lag =  $0.6 \cdot T_c$  = **38.0 min**



Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Hydrologic Analysis

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Time-of-Concentration: (from Reference 1 )

**South #4:**

**Proposed**

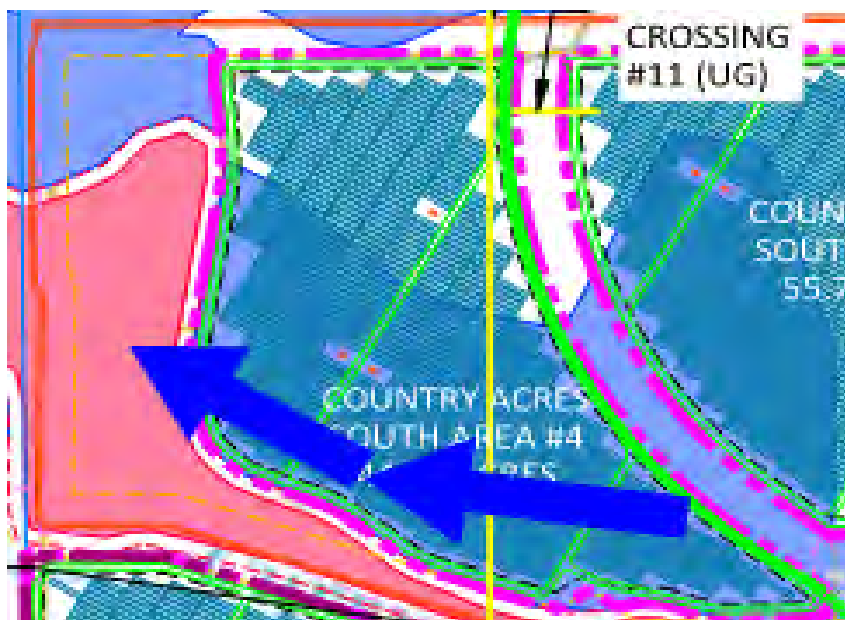
**Sheet Flow:**

Surface Description: range  
Manning's Roughness: 0.13 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.003 ft/ft  
Travel Time: **0.932 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 1050 feet  
Watercourse Slope: 0.003 ft/ft  
Average Velocity: 1.10 ft/sec (Ref. 1)  
Travel Time: **0.265 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.197 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.718 hr**  
Time Lag =  $0.6 \cdot T_c$  = **43.1 min**





Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Hydrologic Analysis

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Time-of-Concentration: (from Reference 1 )

**South #5:**

**Proposed**

**Sheet Flow:**

Surface Description: range  
Manning's Roughness: 0.13 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.003 ft/ft  
Travel Time: **0.932 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 1650 feet  
Watercourse Slope: 0.006 ft/ft  
Average Velocity: 1.25 ft/sec (Ref. 1)  
Travel Time: **0.367 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.299 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.779 hr**  
Time Lag =  $0.6 \cdot T_c$  = **46.8 min**



Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Hydrologic Analysis

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Time-of-Concentration: (from Reference 1 )

**South #6:**

**Proposed**

**Sheet Flow:**

Surface Description: range  
Manning's Roughness: 0.13 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.001 ft/ft  
Travel Time: **1.345 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 1000 feet  
Watercourse Slope: 0.001 ft/ft  
Average Velocity: 1.00 ft/sec (Ref. 1)  
Travel Time: **0.278 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.622 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.973 hr**  
Time Lag =  $0.6 \cdot T_c$  = **58.4 min**



Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Hydrologic Analysis

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Time-of-Concentration: (from Reference 1 )

**South #7:**

**Proposed**

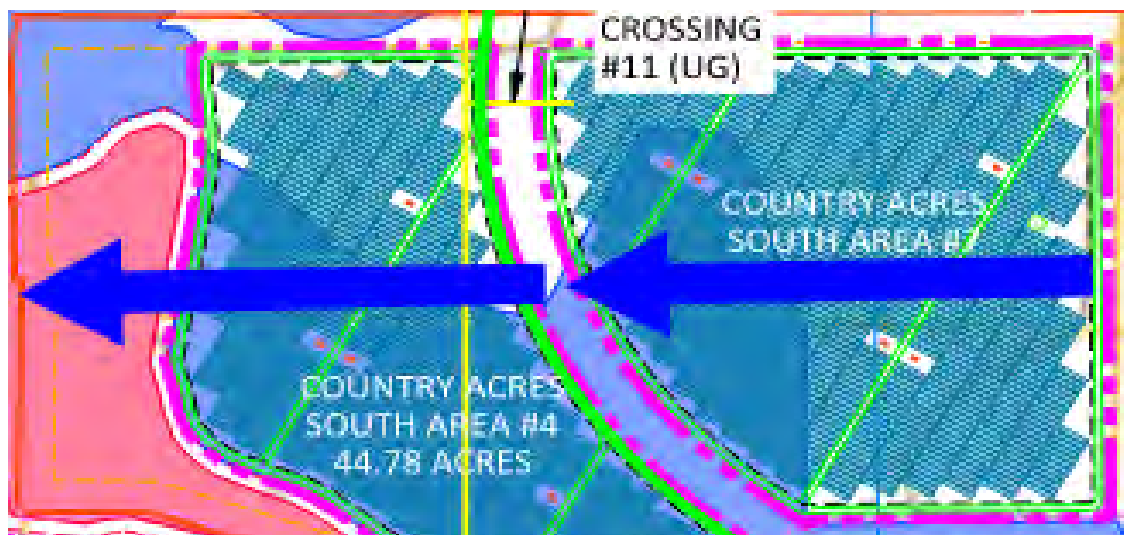
**Sheet Flow:**

Surface Description: range  
Manning's Roughness: 0.13 (Ref. 1)  
Flow Length: 250 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.004 ft/ft  
Travel Time: **0.749 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 2950 feet  
Watercourse Slope: 0.005 ft/ft  
Average Velocity: 1.15 ft/sec (Ref. 1)  
Travel Time: **0.713 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.461 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.877 hr**  
Time Lag =  $0.6 \cdot T_c$  = **52.6 min**



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Time-of-Concentration: (from Reference 1 )

**South #9A: Sheet Flow:**

**Proposed**

Surface Description: range  
Manning's Roughness: 0.13 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.002 ft/ft  
Travel Time: **1.075 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 1300 feet  
Watercourse Slope: 0.004 ft/ft  
Average Velocity: 1.1 ft/sec (Ref. 1)  
Travel Time: **0.328 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.403 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.842 hr**  
Time Lag =  $0.6 \cdot T_c$  = **50.5 min**



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Time-of-Concentration: (from Reference 1 )

**South #9B:** **Sheet Flow:**

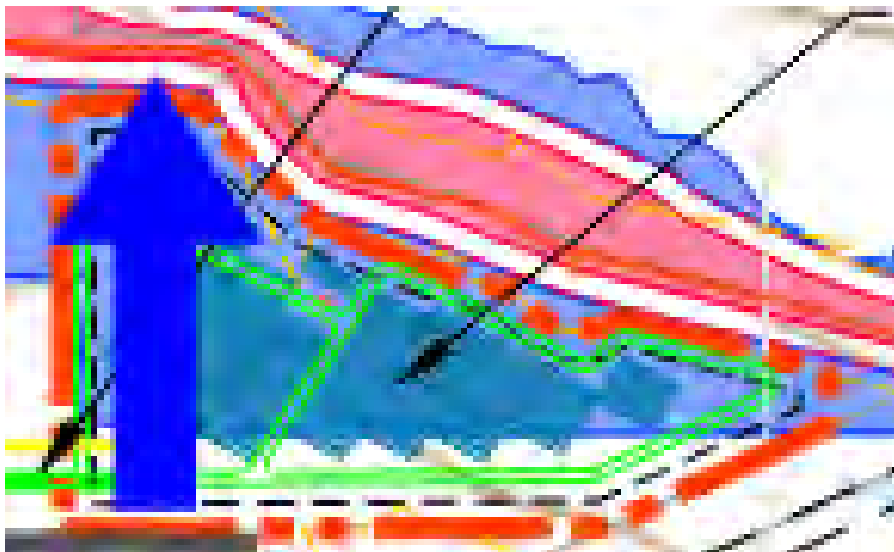
**Proposed**

Surface Description: range  
Manning's Roughness: 0.13 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.003 ft/ft  
Travel Time: **0.932 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 420 feet  
Watercourse Slope: 0.004 ft/ft  
Average Velocity: 1.1 ft/sec (Ref. 1)  
Travel Time: **0.106 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.038 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.623 hr**  
Time Lag =  $0.6 \cdot T_c$  = **37.4 min**



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Time-of-Concentration: (from Reference 1 )

**South #10:** **Sheet Flow:**

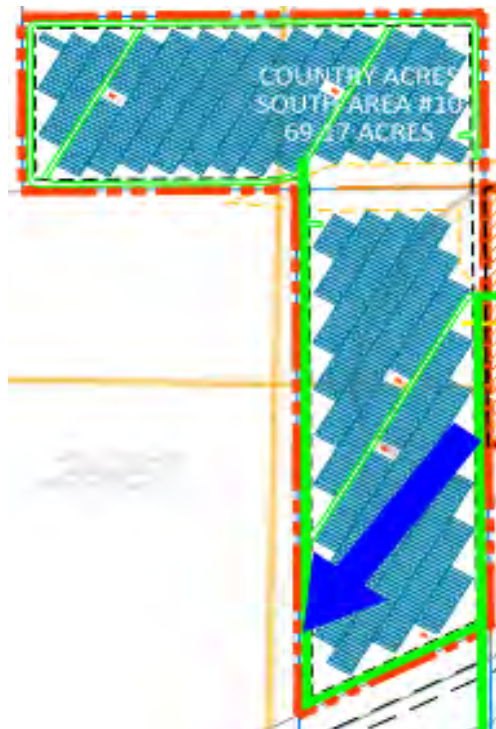
**Proposed**

Surface Description: range  
Manning's Roughness: 0.13 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.015 ft/ft  
Travel Time: **0.515 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 1050 feet  
Watercourse Slope: 0.004 ft/ft  
Average Velocity: 1.1 ft/sec (Ref. 1)  
Travel Time: **0.265 hours** (length/(3600\*Velocity))

Time-of-Conc.: **0.780 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.468 hr**  
Time Lag =  $0.6 \cdot T_c$  = **28.1 min**



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**Time-of-Concentration:** (from Reference 1 )

For post-development, the Switchyard, Substation, and BESS areas are modeled separately.  
Time-of-concentration considers changes due to grading and surfacing.

**BESS:**

**Proposed**

**Sheet Flow:**

Surface Description: range  
Manning's Roughness: 0.13 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.002 ft/ft  
Travel Time: **1.121 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 1475 feet  
Watercourse Slope: 0.004 ft/ft  
Average Velocity: 1.1 ft/sec (Ref. 1)  
Travel Time: **0.372 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.494 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.896 hr**  
Time Lag =  $0.6 \cdot T_c$  = **53.8 min**



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Time-of-Concentration: (from Reference 1 )

**SUBSTATION:**

**Sheet Flow:**

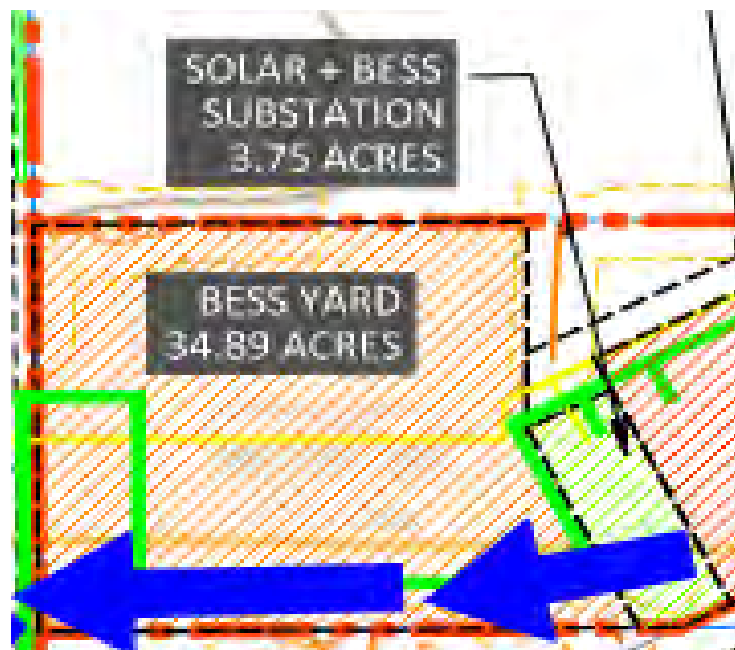
**Proposed**

Surface Description: range  
Manning's Roughness: 0.13 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.004 ft/ft  
Travel Time: **0.866 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 1825 feet  
Watercourse Slope: 0.004 ft/ft  
Average Velocity: 1.1 ft/sec (Ref. 1)  
Travel Time: **0.461 hours** (length/(3600\*Velocity))

Time-of-Conc.: **1.327 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.796 hr**  
Time Lag =  $0.6 \cdot T_c$  = **47.8 min**





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Time-of-Concentration: (from Reference 1 )

**SWITCHYARD:** **Sheet Flow:**

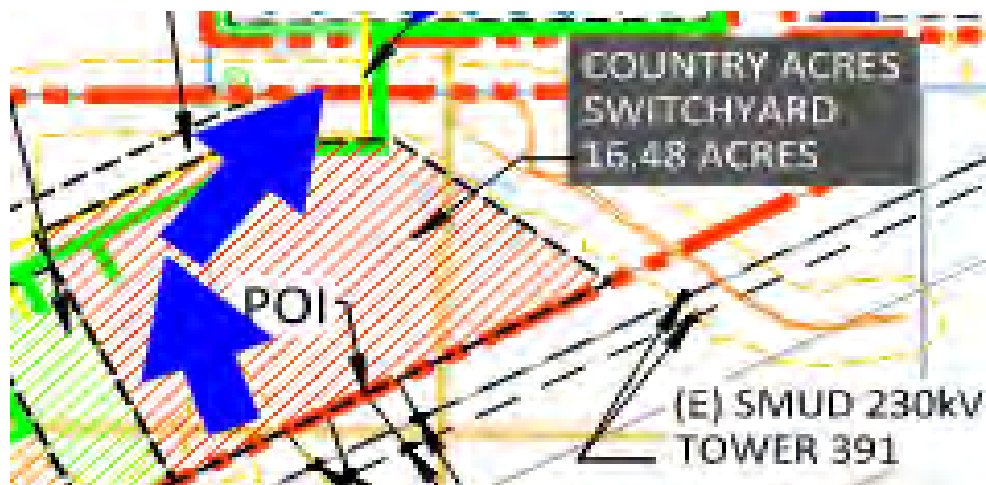
**Proposed**

Surface Description: gravel  
Manning's Roughness: 0.011 (Ref. 1)  
Flow Length: 300 feet  
2-Yr 24-Hr Precip.: 1.9 inches  
Land Slope: 0.010 ft/ft  
Travel Time: **0.083 hours** (from Ref. 1 equation)

**Shallow Concentrated Flow:**

Surface Description: unpaved  
Flow Length: 300 feet  
Watercourse Slope: 0.010 ft/ft  
Average Velocity: 1.6 ft/sec (Ref. 1)  
Travel Time: **0.052 hours** (length/(3600\*Velocity))

Time-of-Conc.: **0.135 hr**  
Time Lag =  $0.6 \cdot T_c$  = **0.081 hr**  
Time Lag =  $0.6 \cdot T_c$  = **4.9 min**



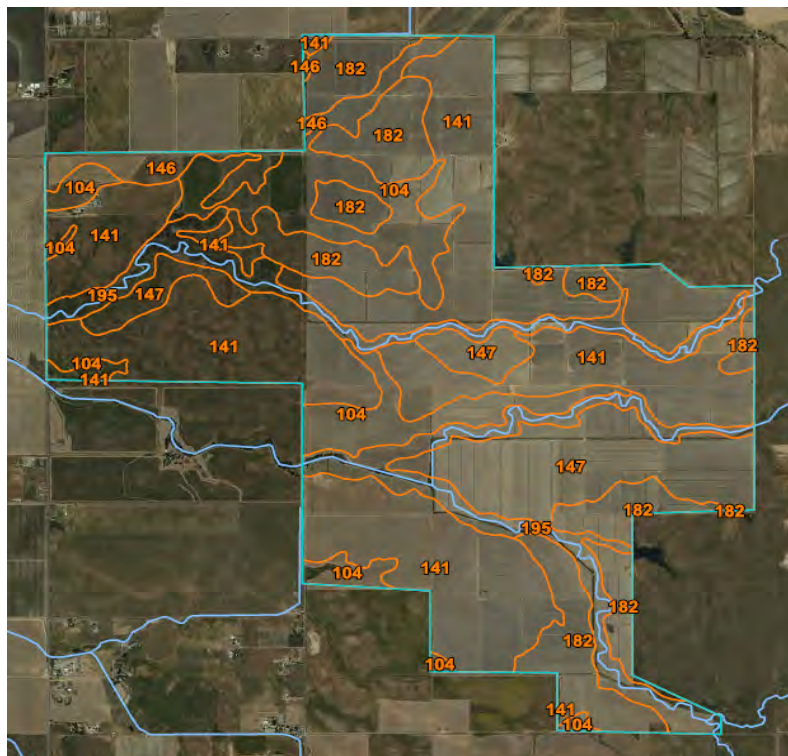
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**Hydrologic Soil Group:**

From the Web Soil Survey (Reference 9), the entire area of interest is, shown below. All map units in the table below are HSG D, with the exception of Unit 147, which makes up 12.2 percent of the area and is HSG C. Thus, for design use HSG D.

A HSG rating of **D** for the project area is also provided in Figure 3-1 from the West Placer Storm Water Quality Manual.



Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
104	Alamo-Fiddymont complex, 0 to 5 percent slopes	374.5	13.2%
141	Cometa-Fiddymont complex, 1 to 5 percent slopes	1,253.5	44.1%
146	Fiddymont loam, 1 to 8 percent slopes	65.0	2.3%
147	Fiddymont-Kaseberg loams, 2 to 9 percent slopes	346.5	12.2%
182	San Joaquin-Cometa sandy loams, 1 to 5 percent slopes	480.0	16.9%
195	Xerofluvents, hardpan substratum	322.8	11.4%
<b>Totals for Area of Interest</b>		<b>2,842.2</b>	<b>100.0%</b>

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#### Infiltration Characteristics - Pre-Development:

Infiltration characteristics are modeled based on the SCS Curve Number method (References 1 and 14). From References 9 and 10, the soils at the site are assigned a Hydrologic Soil Group rating of **D**. Area and surfacing values for the existing and proposed site are tabulated below from References 4 and 5. Modeling is based on the initial abstraction, plus the constant infiltration loss.

#### Pre-Development - Rice Fields

During the growing season, the fields are inundated with water, therefore, design for the condition after the fields are drained, prior to harvest.

**SCS Curve Number:** Cover type is small grain in good condition, with HSG=D. **CN = 87** (Ref. 1)

**Constant Infiltration Rate:** small grain in good cond., HSG=D, **Loss Rate = 0.05 in/hr** (Ref.14, Table 5-3)

Potential Maximum Retention,  $S=(1000/CN - 10) =$  1.49 inches (Ref. 1, Eq. 2-4)

**Initial Abstraction:**  $I_a = 0.2 S =$  **0.30 inches** (Ref. 1, Eq. 2-2)

#### Pre-Development - Rangeland

Areas outside the limits of the rice fields are modeled as rangeland in good condition.

**SCS Curve Number:** Cover type is rangeland in good condition, with HSG=D. **CN = 80** (Ref. 1)

**Constant Infiltration Rate:** Rangeland in good cond., HSG=D, **Loss Rate = 0.09 in/hr** (Ref.14, Table 5-3)

Potential Maximum Retention,  $S=(1000/CN - 10) =$  2.50 inches (Ref. 1, Eq. 2-4)

**Initial Abstraction:**  $I_a = 0.2 S =$  **0.50 inches** (Ref. 1, Eq. 2-2)

<u>Surface</u>	<u>Area (sf)</u>	<u>CN</u>	<u>CN*Area</u>	<u>Infiltration Rate(in/hr)</u>	<u>S (in.)</u>	<u>I<sub>a</sub> (in.)</u>
North #1 Rice Fields	7864322	<b>87</b>	684196049	<b>0.05</b>	1.49	<b>0.30</b>
North #2 Rice Fields	7696616	<b>87</b>	669605627	<b>0.05</b>	1.49	<b>0.30</b>
UDF-NE Rice Fields	2500000	87	217500000	0.05	1.49	0.30
UDF-NE Rangeland	2944129	80	235530304	0.09	2.50	0.50
UDF-NE Composite	5444129	<b>83.2</b>	453030304	<b>0.072</b>		<b>0.408</b>
UDF-NW Rangeland	2571782	<b>80</b>	205742592	<b>0.09</b>	2.50	<b>0.50</b>
South #3 Rice Fields	1985029	<b>87</b>	172697540	<b>0.05</b>	1.49	<b>0.30</b>
South #4 Rice Fields	1950617	<b>87</b>	169703662	<b>0.05</b>	1.49	<b>0.30</b>
South #5 Rice Fields	10133798	<b>87</b>	881640461	<b>0.05</b>	1.49	<b>0.30</b>
South #6 Rice Fields	1232748	<b>87</b>	107249076	<b>0.05</b>	1.49	<b>0.30</b>
South #7 Rice Fields	2427599	<b>87</b>	211201096	<b>0.05</b>	1.49	<b>0.30</b>
South #9A Rice Fields	1425283	<b>87</b>	123999638	<b>0.05</b>	1.49	<b>0.30</b>
South #9B Rice Fields	639896	<b>87</b>	55670986.8	<b>0.05</b>	1.49	<b>0.30</b>
South #10 Rangeland	3013045	<b>80</b>	241043616	<b>0.09</b>	2.50	<b>0.50</b>
Subst, Switch, BESS	2567426	<b>80</b>	205394112	<b>0.09</b>	2.50	<b>0.50</b>

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**Infiltration Characteristics - Pre-Development:** (continued)

<b><u>Surface</u></b>	<b><u>Area (sf)</u></b>	<b><u>Area (ac)</u></b>	<b><u>Area (sq mi)</u></b>
North #1	7864322	180.54	<b>0.28209</b>
North #2	7696616	176.69	<b>0.27608</b>
UDF-NE	5444129	124.98	<b>0.19528</b>
UDF-NW	2571782	59.04	<b>0.09225</b>
South #3	1985029	45.57	<b>0.07120</b>
South #4	1950617	44.78	<b>0.06997</b>
South #5	10133798	232.64	<b>0.36350</b>
South #6	1232748	28.30	<b>0.04422</b>
South #7	2427599	55.73	<b>0.08708</b>
South #9A	1425283	32.72	<b>0.05113</b>
South #9B	639896	14.69	<b>0.02295</b>
South #10	3013045	69.17	<b>0.10808</b>
Subst, Switch, BESS	<u>2567426</u>	<u>56.58</u>	<b><u>0.08840</u></b>
Parcel Total	46384866	1064.85	1.66383
Parcel + Subst, BESS...	48952292	1121.43	1.75223

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**Infiltration Characteristics - Post-Development:**

<b><u>Surface - North #1</u></b>	<b><u>Area (sf)</u></b>	<b><u>CN</u></b>	<b><u>CN*Area</u></b>	<b><u>Infiltration Rate(in/hr)</u></b>	<b><u>S (in.)</u></b>	<b><u>Ia (in.)</u></b>
Inverters	3040	<b>98</b>	297920	0.00	0.20	0.04
Rack Table Piles	376	<b>98</b>	36891	0.00	0.20	0.04
Perimeter Road	265160	<b>91</b>	24129560	0.03	0.99	0.20
Intermediate Roads	179520	<b>91</b>	16336320	0.03	0.99	0.20
Grass - Fair Condition	<u>7416226</u>	<b>84</b>	<u>622962981</u>	0.07	1.90	0.38
Total Contributing Area =	7864322		663763672			
Impervious CN/Ia		<b>98</b>	0	<b>0.00</b>	0.20	<b>0.04</b>
Pervious Composite CN =		<b>84.4</b>		<b>0.068</b>	1.85	<b>0.371</b>

<b><u>Surface</u></b>	<b><u>Area (sf)</u></b>	<b><u>Area (ac)</u></b>	<b><u>Area (sq mi)</u></b>
North #1 - Impervious	3416	0.08	<b>0.00012</b>
<u>North #1 - Pervious</u>	<u>7860906</u>	<u>180.46</u>	<b>0.28197</b>
North #1 - Total Area	7864322	180.54	<b>0.28209</b>

<b><u>Surface - North #2</u></b>	<b><u>Area (sf)</u></b>	<b><u>CN</u></b>	<b><u>CN*Area</u></b>	<b><u>Infiltration Rate(in/hr)</u></b>	<b><u>S (in.)</u></b>	<b><u>Ia (in.)</u></b>
Inverters	3040	<b>98</b>	297920	0.00	0.20	0.04
Rack Table Piles	378	<b>98</b>	37059	0.00	0.20	0.04
Perimeter Road	218700	<b>91</b>	19901700	0.03	0.99	0.20
Intermediate Roads	162200	<b>91</b>	14760200	0.03	0.99	0.20
Grass - Fair Condition	<u>7312298</u>	<b>84</b>	<u>614233053</u>	0.07	1.90	0.38
Total Contributing Area =	7696616		649229932			
Impervious CN/Ia		<b>98</b>	0	<b>0.00</b>	0.20	<b>0.04</b>
Pervious Composite CN =		<b>84.3</b>		<b>0.068</b>	1.86	<b>0.372</b>

<b><u>Surface</u></b>	<b><u>Area (sf)</u></b>	<b><u>Area (ac)</u></b>	<b><u>Area (sq mi)</u></b>
North #2 - Impervious	3418	0.08	<b>0.00012</b>
<u>North #2 - Pervious</u>	<u>7693198</u>	<u>176.61</u>	<b>0.27596</b>
North #2 - Total Area	7696616	176.69	<b>0.27608</b>

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**Infiltration Characteristics - Post-Development:** (continued)

<b><u>Surface - UDF-NE</u></b>	<b><u>Area (sf)</u></b>	<b><u>CN</u></b>	<b><u>CN*Area</u></b>	<b><u>Infiltration Rate(in/hr)</u></b>	<b><u>S (in.)</u></b>	<b><u>Ia (in.)</u></b>
Inverters	1280	<b>98</b>	125440	0.00	0.20	0.04
Rack Table Piles	169	<b>98</b>	16544	0.00	0.20	0.04
Perimeter Road	223460	<b>91</b>	20334860	0.03	0.99	0.20
Intermediate Roads	82240	<b>91</b>	7483840	0.03	0.99	0.20
Grass - Fair Condition	<u>5136980</u>	<b>84</b>	<u>431506318</u>	0.07	1.90	0.38
Total Contributing Area =	5444129		459467003			
Impervious CN/Ia		<b>98</b>	0	<b>0.00</b>	0.20	<b>0.04</b>
Pervious Composite CN =		<b>84.4</b>		<b>0.068</b>	1.85	<b>0.371</b>

<b><u>Surface</u></b>	<b><u>Area (sf)</u></b>	<b><u>Area (ac)</u></b>	<b><u>Area (sq mi)</u></b>
UDF-NE - Impervious	1449	0.03	<b>0.00005</b>
UDF-NE - Pervious	<u>5442680</u>	<u>124.95</u>	<b>0.19523</b>
UDF-NE -Total Area	5444129	124.98	<b>0.19528</b>

<b><u>Surface - UDF-NW</u></b>	<b><u>Area (sf)</u></b>	<b><u>CN</u></b>	<b><u>CN*Area</u></b>	<b><u>Infiltration Rate(in/hr)</u></b>	<b><u>S (in.)</u></b>	<b><u>Ia (in.)</u></b>
Inverters	800	<b>98</b>	78400	0.00	0.20	0.04
Rack Table Piles	96	<b>98</b>	9433	0.00	0.20	0.04
Perimeter Road	118700	<b>91</b>	10801700	0.03	0.99	0.20
Intermediate Roads	54300	<b>91</b>	4941300	0.03	0.99	0.20
Grass - Fair Condition	<u>2397886</u>	<b>84</b>	<u>201422436</u>	0.07	1.90	0.38
Total Contributing Area =	2571782		217253269			
Impervious CN/Ia		<b>98</b>	0	<b>0.00</b>	0.20	<b>0.04</b>
Pervious Composite CN =		<b>84.5</b>		<b>0.067</b>	1.84	<b>0.369</b>

<b><u>Surface</u></b>	<b><u>Area (sf)</u></b>	<b><u>Area (ac)</u></b>	<b><u>Area (sq mi)</u></b>
UDF-NW - Impervious	896	0.02	<b>0.00003</b>
UDF-NW - Pervious	<u>2570886</u>	<u>59.02</u>	<b>0.09222</b>
UDF-NW -Total Area	2571782	59.04	<b>0.09225</b>

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**Infiltration Characteristics - Post-Development:** (continued)

<b><u>Surface - South #3</u></b>	<b><u>Area (sf)</u></b>	<b><u>CN</u></b>	<b><u>CN*Area</u></b>	<b><u>Infiltration Rate(in/hr)</u></b>	<b><u>S (in.)</u></b>	<b><u>Ia (in.)</u></b>
Inverters	640	<b>98</b>	62720	0.00	0.20	0.04
Rack Table Piles	82	<b>98</b>	8001	0.00	0.20	0.04
Perimeter Road	104960	<b>91</b>	9551360	0.03	0.99	0.20
Intermediate Roads	44220	<b>91</b>	4024020	0.03	0.99	0.20
Grass - Fair Condition	<u>1835128</u>	<b>84</b>	<u>154150714</u>	0.07	1.90	0.38
Total Contributing Area =	1985029		167796816			
Impervious CN/Ia		<b>98</b>	0	<b>0.00</b>	0.20	<b>0.04</b>
Pervious Composite CN =		<b>84.5</b>		<b>0.067</b>	1.84	<b>0.367</b>

<b><u>Surface</u></b>	<b><u>Area (sf)</u></b>	<b><u>Area (ac)</u></b>	<b><u>Area (sq mi)</u></b>
South #3 - Impervious	722	0.02	<b>0.00003</b>
<u>South #3 - Pervious</u>	<u>1984308</u>	<u>45.55</u>	<b><u>0.07118</u></b>
South #3 -Total Area	1985029	45.57	<b>0.07120</b>

<b><u>Surface - South #4</u></b>	<b><u>Area (sf)</u></b>	<b><u>CN</u></b>	<b><u>CN*Area</u></b>	<b><u>Infiltration Rate(in/hr)</u></b>	<b><u>S (in.)</u></b>	<b><u>Ia (in.)</u></b>
Inverters	640	<b>98</b>	62720	0.00	0.20	0.04
Rack Table Piles	81	<b>98</b>	7977	0.00	0.20	0.04
Perimeter Road	116580	<b>91</b>	10608780	0.03	0.99	0.20
Intermediate Roads	34600	<b>91</b>	3148600	0.03	0.99	0.20
Grass - Fair Condition	<u>1798715</u>	<b>84</b>	<u>151092093</u>	0.07	1.90	0.38
Total Contributing Area =	1950617		164920171			
Impervious CN/Ia		<b>98</b>	0	<b>0.00</b>	0.20	<b>0.04</b>
Pervious Composite CN =		<b>84.5</b>		<b>0.067</b>	1.83	<b>0.367</b>

<b><u>Surface</u></b>	<b><u>Area (sf)</u></b>	<b><u>Area (ac)</u></b>	<b><u>Area (sq mi)</u></b>
South #4 - Impervious	721	0.02	<b>0.00003</b>
<u>South #4 - Pervious</u>	<u>1949895</u>	<u>44.76</u>	<b><u>0.06994</u></b>
South #4 -Total Area	1950617	44.78	<b>0.06997</b>

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**Infiltration Characteristics - Post-Development:** (continued)

<b><u>Surface - South #5</u></b>	<b><u>Area (sf)</u></b>	<b><u>CN</u></b>	<b><u>CN*Area</u></b>	<b><u>Infiltration Rate(in/hr)</u></b>	<b><u>S (in.)</u></b>	<b><u>Ia (in.)</u></b>
Inverters	4160	<b>98</b>	407680	0.00	0.20	0.04
Rack Table Piles	516	<b>98</b>	50535	0.00	0.20	0.04
Perimeter Road	246740	<b>91</b>	22453340	0.03	0.99	0.20
Intermediate Roads	219680	<b>91</b>	19990880	0.03	0.99	0.20
Grass - Fair Condition	<u>9662703</u>	<b>84</b>	<u>811667030</u>	0.07	1.90	0.38
Total Contributing Area =	10133798		854569465			
Impervious CN/Ia		<b>98</b>	0	<b>0.00</b>	0.20	<b>0.04</b>
Pervious Composite CN =		<b>84.3</b>		<b>0.068</b>	1.86	<b>0.373</b>

<b><u>Surface</u></b>	<b><u>Area (sf)</u></b>	<b><u>Area (ac)</u></b>	<b><u>Area (sq mi)</u></b>
South #5 - Impervious	4676	0.11	<b>0.00017</b>
<u>South #5 - Pervious</u>	<u>10129123</u>	<u>232.53</u>	<b><u>0.36333</u></b>
South #5 -Total Area	10133798	232.64	<b>0.36350</b>

<b><u>Surface - South #6</u></b>	<b><u>Area (sf)</u></b>	<b><u>CN</u></b>	<b><u>CN*Area</u></b>	<b><u>Infiltration Rate(in/hr)</u></b>	<b><u>S (in.)</u></b>	<b><u>Ia (in.)</u></b>
Inverters	320	<b>98</b>	31360	0.00	0.20	0.04
Rack Table Piles	48	<b>98</b>	4681	0.00	0.20	0.04
Perimeter Road	82580	<b>91</b>	7514780	0.03	0.99	0.20
Intermediate Roads	10040	<b>91</b>	913640	0.03	0.99	0.20
Grass - Fair Condition	<u>1139760</u>	<b>84</b>	<u>95739860</u>	0.07	1.90	0.38
Total Contributing Area =	1232748		104204321			
Impervious CN/Ia		<b>98</b>	0	<b>0.00</b>	0.20	<b>0.04</b>
Pervious Composite CN =		<b>84.5</b>		<b>0.067</b>	1.84	<b>0.367</b>

<b><u>Surface</u></b>	<b><u>Area (sf)</u></b>	<b><u>Area (ac)</u></b>	<b><u>Area (sq mi)</u></b>
South #6 - Impervious	368	0.01	<b>0.00001</b>
<u>South #6 - Pervious</u>	<u>1232380</u>	<u>28.29</u>	<b><u>0.04421</u></b>
South #6 -Total Area	1232748	28.30	<b>0.04422</b>



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**Infiltration Characteristics - Post-Development:** (continued)

<b><u>Surface - South #7</u></b>	<b><u>Area (sf)</u></b>	<b><u>CN</u></b>	<b><u>CN*Area</u></b>	<b><u>Infiltration Rate(in/hr)</u></b>	<b><u>S (in.)</u></b>	<b><u>Ia (in.)</u></b>
Inverters	800	<b>98</b>	78400	0.00	0.20	0.04
Rack Table Piles	108	<b>98</b>	10600	0.00	0.20	0.04
Perimeter Road	109620	<b>91</b>	9975420	0.03	0.99	0.20
Intermediate Roads	50900	<b>91</b>	4631900	0.03	0.99	0.20
Grass - Fair Condition	<u>2266171</u>	<b>84</b>	<u>190358333</u>	0.07	1.90	0.38
Total Contributing Area =	2427599		205054654			
Impervious CN/Ia		<b>98</b>	0	<b>0.00</b>	0.20	<b>0.04</b>
Pervious Composite CN =		<b>84.5</b>		<b>0.067</b>	1.84	<b>0.369</b>

<b><u>Surface</u></b>	<b><u>Area (sf)</u></b>	<b><u>Area (ac)</u></b>	<b><u>Area (sq mi)</u></b>
South #7 - Impervious	908	0.02	<b>0.00003</b>
South #7 - Pervious	<u>2426691</u>	<u>55.71</u>	<b>0.08705</b>
South #7 -Total Area	2427599	55.73	<b>0.08708</b>

<b><u>Surface - South #9A</u></b>	<b><u>Area (sf)</u></b>	<b><u>CN</u></b>	<b><u>CN*Area</u></b>	<b><u>Infiltration Rate(in/hr)</u></b>	<b><u>S (in.)</u></b>	<b><u>Ia (in.)</u></b>
Inverters	480	<b>98</b>	47040	0.00	0.20	0.04
Rack Table Piles	58	<b>98</b>	5679	0.00	0.20	0.04
Perimeter Road	81480	<b>91</b>	7414680	0.03	0.99	0.20
Intermediate Roads	42620	<b>91</b>	3878420	0.03	0.99	0.20
Grass - Fair Condition	<u>1300645</u>	<b>84</b>	<u>109254201</u>	0.07	1.90	0.38
Total Contributing Area =	1425283		120600020			
Impervious CN/Ia		<b>98</b>	0	<b>0.00</b>	0.20	<b>0.04</b>
Pervious Composite CN =		<b>84.6</b>		<b>0.067</b>	1.82	<b>0.365</b>

<b><u>Surface</u></b>	<b><u>Area (sf)</u></b>	<b><u>Area (ac)</u></b>	<b><u>Area (sq mi)</u></b>
South #9A - Impervious	538	0.01	<b>0.00002</b>
South #9A - Pervious	<u>1424745</u>	<u>32.71</u>	<b>0.05111</b>
South #9A -Total Area	1425283	32.72	<b>0.05113</b>

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**Infiltration Characteristics - Post-Development:** (continued)

<b><u>Surface - South #9B</u></b>	<b><u>Area (sf)</u></b>	<b><u>CN</u></b>	<b><u>CN*Area</u></b>	<b><u>Infiltration Rate(in/hr)</u></b>	<b><u>S (in.)</u></b>	<b><u>Ia (in.)</u></b>
Inverters	160	<b>98</b>	15680	0.00	0.20	0.04
Rack Table Piles	14	<b>98</b>	1408	0.00	0.20	0.04
Perimeter Road	51380	<b>91</b>	4675580	0.03	0.99	0.20
Intermediate Roads	8220	<b>91</b>	748020	0.03	0.99	0.20
Grass - Fair Condition	<u>580122</u>	<b>84</b>	<u>48730251</u>	0.07	1.90	0.38
Total Contributing Area =	639896		54170939			
Impervious CN/Ia		<b>98</b>	0	<b>0.00</b>	0.20	<b>0.04</b>
Pervious Composite CN =		<b>84.7</b>		<b>0.066</b>	1.82	<b>0.364</b>

<b><u>Surface</u></b>	<b><u>Area (sf)</u></b>	<b><u>Area (ac)</u></b>	<b><u>Area (sq mi)</u></b>
South #9B - Impervious	174	0.00	<b>0.00001</b>
South #9B - Pervious	<u>639722</u>	<u>14.69</u>	<b>0.02295</b>
South #9B -Total Area	639896	14.69	<b>0.02295</b>

<b><u>Surface - South #10</u></b>	<b><u>Area (sf)</u></b>	<b><u>CN</u></b>	<b><u>CN*Area</u></b>	<b><u>Infiltration Rate(in/hr)</u></b>	<b><u>S (in.)</u></b>	<b><u>Ia (in.)</u></b>
Inverters	800	<b>98</b>	78400	0.00	0.20	0.04
Rack Table Piles	109	<b>98</b>	10709	0.00	0.20	0.04
Perimeter Road	193580	<b>91</b>	17615780	0.03	0.99	0.20
Intermediate Roads	50380	<b>91</b>	4584580	0.03	0.99	0.20
Grass - Fair Condition	<u>2768176</u>	<b>84</b>	<u>232526778</u>	0.07	1.90	0.38
Total Contributing Area =	3013045		254816247			
Impervious CN/Ia		<b>98</b>	0	<b>0.00</b>	0.20	<b>0.04</b>
Pervious Composite CN =		<b>84.6</b>		<b>0.067</b>	1.83	<b>0.366</b>

<b><u>Surface</u></b>	<b><u>Area (sf)</u></b>	<b><u>Area (ac)</u></b>	<b><u>Area (sq mi)</u></b>
South #10 - Impervious	909	0.02	<b>0.00003</b>
South #10 - Pervious	<u>3012136</u>	<u>69.15</u>	<b>0.10805</b>
South #10 -Total Area	3013045	69.17	<b>0.10808</b>

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**Infiltration Characteristics - Post-Development:** (continued)

<u>Surface - BESS</u>	<u>Area (sf)</u>	<u>CN</u>	<u>CN*Area</u>	<u>Infiltration Rate(in/hr)</u>	<u>S (in.)</u>	<u>Ia (in.)</u>
Impervious Areas	106820	<b>98</b>	10468360	0.00	0.20	0.04
Access Roads	170871	<b>91</b>	15549261	0.03	0.99	0.20
Grass - Good Condition	<u>1493459</u>	<b>80</b>	<u>119476720</u>	0.09	2.50	0.50
Total Contributing Area =	1771150		145494341			
Impervious CN/Ia		<b>98</b>	0	<b>0.00</b>	0.20	<b>0.04</b>
Pervious Composite CN =		<b>81.1</b>		<b>0.084</b>	2.34	<b>0.469</b>

<u>Surface</u>	<u>Area (sf)</u>	<u>Area (ac)</u>	<u>Area (sq mi)</u>
BESS - Impervious	106820	2.45	<b>0.00383</b>
<u>BESS - Pervious</u>	<u>1664330</u>	<u>38.21</u>	<u><b>0.05970</b></u>
BESS -Total Area	1771150	40.66	<b>0.06353</b>

**Determine Curve Number for Yard Stone:**

Final site stabilization for portions of the Substation and Switchyard includes a 4" layer of ¾" clean, crushed stone surfacing. This material promotes runoff infiltration and provides the grounding insulation necessary in substations for personnel safety.

Determine Curve Number for loose rock fill with a porosity of 0.4.

$S = \text{maximum retention} = (0.4)(4 \text{ inch layer}) = 1.6 \text{ inches.}$

$S = (1000/CN - 10)$  (Ref. 1)

thus,

$CN = 1000/(S+10) = 1000/(1.6+10) = 86.2$

From Reference 1, Table 2-2, and Reference 14, Table 5-3, infiltration characteristics for a surface with a curve number of 86.2 correlates to a constant infiltration rate of 0.06 inches/hour.

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**Infiltration Characteristics - Post-Development:** (continued)

<b><u>Surface - Switchyard</u></b>	<b><u>Area (sf)</u></b>	<b><u>CN</u></b>	<b><u>CN*Area</u></b>	<b><u>Infiltration Rate(in/hr)</u></b>	<b><u>S (in.)</u></b>	<b><u>Ia (in.)</u></b>
Impervious Areas	12260	<b>98</b>	1201480	0.00	0.20	0.04
Access Roads	61985	<b>91</b>	5640635	0.03	0.99	0.20
Yard Stone	175980	<b>86.2</b>	15169476	0.06	1.60	0.32
Grass - Good Condition	<u>243746</u>	<b>80</b>	<u>19499680</u>	0.09	2.50	0.50
Total Contributing Area =	493971		41511271			
Impervious CN/Ia		<b>98</b>	0	<b>0.00</b>	0.20	<b>0.04</b>
Pervious Composite CN =		<b>83.7</b>		<b>0.071</b>	1.98	<b>0.395</b>

<b><u>Surface</u></b>	<b><u>Area (sf)</u></b>	<b><u>Area (ac)</u></b>	<b><u>Area (sq mi)</u></b>
Switchyard - Impervious	12260	0.28	<b>0.00044</b>
<u>Switchyard - Pervious</u>	<u>481711</u>	<u>11.06</u>	<b>0.01728</b>
Switchyard -Total Area	493971	11.34	<b>0.01772</b>

<b><u>Surface - Substation</u></b>	<b><u>Area (sf)</u></b>	<b><u>CN</u></b>	<b><u>CN*Area</u></b>	<b><u>Infiltration Rate(in/hr)</u></b>	<b><u>S (in.)</u></b>	<b><u>Ia (in.)</u></b>
Impervious Areas	5200	<b>98</b>	509600	0.00	0.20	0.04
Access Roads	19522	<b>91</b>	1776502	0.03	0.99	0.20
Yard Stone	72135	<b>86.2</b>	6218037	0.06	1.60	0.32
Grass - Good Condition	<u>102493</u>	<b>80</b>	<u>8199440</u>	0.09	2.50	0.50
Total Contributing Area =	199350		16703579			
Impervious CN/Ia		<b>98</b>	0	<b>0.00</b>	0.20	<b>0.04</b>
Pervious Composite CN =		<b>83.4</b>		<b>0.073</b>	2.01	<b>0.403</b>

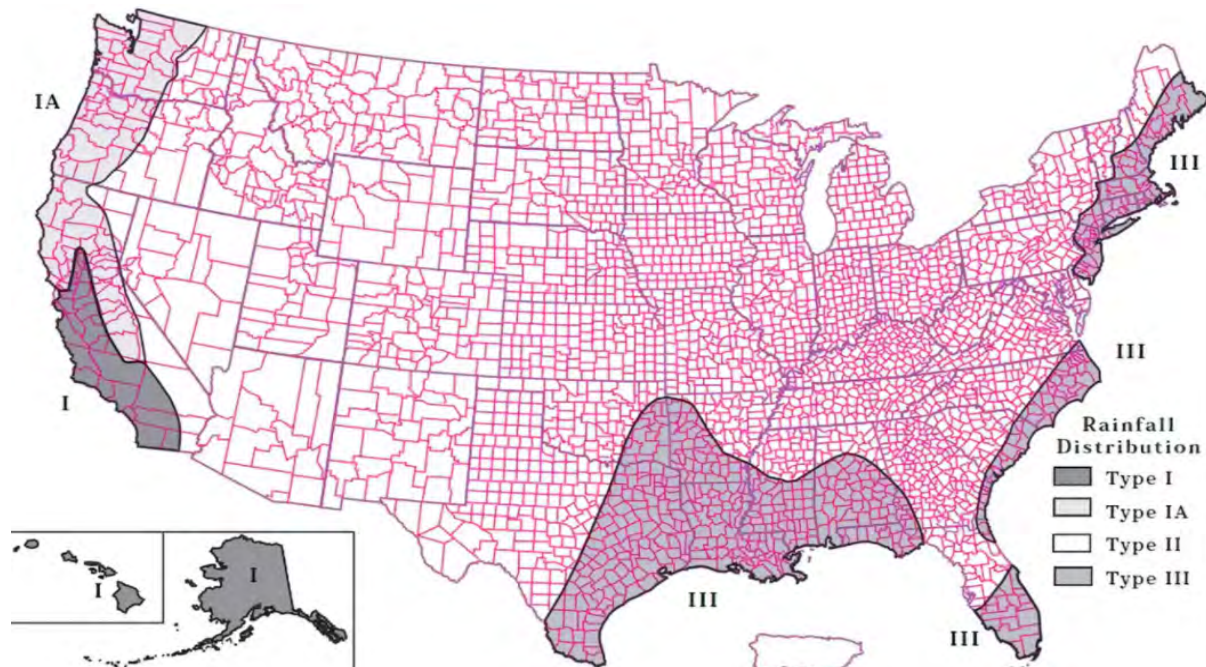
<b><u>Surface</u></b>	<b><u>Area (sf)</u></b>	<b><u>Area (ac)</u></b>	<b><u>Area (sq mi)</u></b>
Substation - Impervious	5200	0.12	<b>0.00019</b>
<u>Substation - Pervious</u>	<u>194150</u>	<u>4.46</u>	<b>0.00696</b>
Substation -Total Area	199350	4.58	<b>0.00715</b>

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**Precipitation Distribution:**

From the figure from Reference 1, below, use the NRCS Type IA distribution for this site in western Placer County, California.



The cumulative distribution is provided below, from Reference 7.

```
// HydroCAD Rainfall table  
// Copyright (c) 2005 HydroCAD Software Solutions LLC  
// For details see Rainfall.txt
```

```
name=Type IA 24-hr Tabular  
timeunits=hours  
depthunits=inches  
duration=24  
comment=Type IA 24-hour tabular mass curve 1982  
smoothing=false  
depth= 0.0000 0.0100 0.0220 0.0360 0.0510  
depth= 0.0670 0.0830 0.0990 0.1160 0.1350  
depth= 0.1560 0.1790 0.2040 0.2330 0.2680  
depth= 0.3100 0.4250 0.4800 0.5200 0.5500  
depth= 0.5770 0.6010 0.6230 0.6440 0.6640  
depth= 0.6830 0.7010 0.7190 0.7360 0.7530  
depth= 0.7690 0.7850 0.8000 0.8150 0.8300  
depth= 0.8440 0.8580 0.8710 0.8840 0.8960  
depth= 0.9080 0.9200 0.9320 0.9440 0.9560  
depth= 0.9670 0.9780 0.9890 1.000
```

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**Proposed Site Basins: Stage - Storage Relationships:**

Due to the post-development surfacing in the switchyard, substation, and BESS areas, additional stormwater runoff is generated, and detention basins are needed to meet the discharge requirements. The topography of the substation area does not support the development of a detention basin, so substation runoff is routed to the BESS area. Detention basins are provided in the BESS and Switchyard areas. These basins are shallow with a relatively large footprint, due to the flat topography.

<b>BESS AREA:</b>		<b>Area</b>	<b>Area</b>	<b>Cum. Vol.</b>	<b>Cum. Vol.</b>
	<b><u>Elevation</u></b>	<b><u>(sq ft)</u></b>	<b><u>(acres)</u></b>	<b><u>(cu ft)</u></b>	<b><u>(ac-ft)</u></b>
	77.50	2850	0.0654	0	0.0000
	78.00	27076	0.6216	7482	0.0000
	79.00	38292	0.8791	40166	0.9221
	80.00	42000	0.9642	80312	1.8437

<b>SWITCH AREA:</b>		<b>Area</b>	<b>Area</b>	<b>Cum. Vol.</b>	<b>Cum. Vol.</b>
	<b><u>Elevation</u></b>	<b><u>(sq ft)</u></b>	<b><u>(acres)</u></b>	<b><u>(cu ft)</u></b>	<b><u>(ac-ft)</u></b>
	83.50	2600	0.0597	0	0.0000
	84.00	7000	0.1607	2400	0.0000
	85.00	25625	0.5883	18713	0.4296

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**Proposed Site Basins: Stage - Discharge Relationships:**

For the proposed site, detention basins are provided for the Switchyard and the BESS area. Substation stormwater runoff passes through the BESS area basins. A basin in the northeast corner of the switchyard controls runoff from the switchyard area, and the BESS area is controlled by basins in the northwest and southwest corners of that area.

Due to the topography, all basins are very shallow, and multiple 12-inch diameter HDPE discharge pipes are used to release the stormwater. The size was selected to optimize discharge capacity, while allowing for required cover over the top of the pipes. The use of multiple pipes diffuses stormwater discharge over a large area. The BESS area basins are connected with a pipe to allow them fill and drain uniformly. Thus, they will be modeled as a single basin. Existing topography allows for discharge invert elevations of 77.5 feet for the southwest basin and 78.0 feet for the northwest basin. The discharge invert elevation for the switchyard basin is 83.5 feet.

The HY-8 Culvert Analysis Package (Federal Highway Admin., Reference 8) is used to determine the stage-discharge relationship of the discharge pipelines. The input parameters and output table for each of the HDPE discharge pipes is provided on the following three pages. The BESS area basins use 3 pipes with invert elevations of 77.5 feet, and 6 pipes with invert elevations of 78.0 feet. The switchyard basin uses 8 pipes with invert elevations of 83.5 feet. BESS area discharge in the table below is interpolated from the output tables.

**BESS AREA BASINS:**

<u>Basin Stage</u>	<u>Culvert w/Inv. El=77.5'</u>		<u>Culvert w/Inv. El=78.0'</u>		<u>Q Total</u>
	<u>Each</u>	<u>x3</u>	<u>Each</u>	<u>x6</u>	
	<u>Q (cfs)</u>	<u>Q (cfs)</u>	<u>Q (cfs)</u>	<u>Q (cfs)</u>	<u>(cfs)</u>
77.5	0.00	0.00	0.00	0.00	0.00
78.0	0.54	1.62	0.00	0.00	1.62
78.5	1.85	5.55	0.66	3.96	9.51
79.0	3.14	9.42	1.80	10.80	20.22
79.5	3.97	11.91	3.14	18.84	30.75
80.0	4.62	13.86	3.96	23.76	37.62

**SWITCHYARD BASIN:**

<u>Basin Stage</u>	<u>Culvert w/Inv. El=83.5'</u>	
	<u>Each</u>	<u>x8</u>
	<u>Q (cfs)</u>	<u>Q (cfs)</u>
83.50	0.00	0.00
84.06	0.80	6.40
84.56	2.00	16.00
85.00	3.14	25.12

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**Proposed Site Basins: Stage - Discharge Relationships:** (Continued)

**BESS Reservoir - Southwest Basin**

Discharge pipe analysis for a 12-inch HDPE discharge pipeline approximately 24 feet in length, with an upstream invert elevation of 77.5 feet and a downstream invert of 77.4 feet. Input data and the rating table are provided below.

Crossing Data - BESS Discharge 77.5

Crossing Properties

Name: **BESS Discharge 77.5**

Parameter	Value	Units
<b>DISCHARGE DATA</b>		
Discharge Method	Minimum, Design, and Maximum	
Minimum Flow	0.000	cfs
Design Flow	2.000	cfs
Maximum Flow	4.000	cfs
<b>TAILWATER DATA</b>		
Channel Type	Enter Constant Tailwater Elevation	
Channel Invert Elevation	77.400	ft
Constant Tailwater Elevation	77.500	ft
Rating Curve	<a href="#">View...</a>	
<b>ROADWAY DATA</b>		
Roadway Profile Shape	Constant Roadway Elevation	
First Roadway Station	0.000	ft
Crest Length	200.000	ft
Crest Elevation	80.000	ft
Roadway Surface	Gravel	
Top Width	8.000	ft

Culvert Properties

Culvert 1

Add Culvert  
Duplicate Culvert  
Delete Culvert

Parameter	Value	Units
<b>CULVERT DATA</b>		
Name	Culvert 1	
Shape	Circular	
Material	Smooth HDPE	
Diameter	1.000	ft
Embedment Depth	0.000	in
Manning's n	0.012	
Culvert Type	Straight	
Inlet Configuration	Thin Edge Projecting	
Inlet Depression?	No	
<b>SITE DATA</b>		
Site Data Input Option	Culvert Invert Data	
Inlet Station	0.000	ft
Inlet Elevation	77.500	ft
Outlet Station	24.000	ft
Outlet Elevation	77.400	ft
Number of Barrels	1	

Help Click on any icon for help on a specific topic Low Flow AOP Energy Dissipation Analyze Crossing OK Cancel

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 1 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
77.50	0.00	0.00	0.00	1
77.93	0.40	0.40	0.00	1
78.13	0.80	0.80	0.00	1
78.28	1.20	1.20	0.00	1
78.42	1.60	1.60	0.00	1
78.55	2.00	2.00	0.00	1
78.68	2.40	2.40	0.00	1
78.83	2.80	2.80	0.00	1
79.03	3.20	3.20	0.00	1
79.26	3.60	3.60	0.00	1
79.52	4.00	4.00	0.00	1
80.00	4.62	4.62	0.00	Overtopping



**Owner:** Sacramento Municipal Utility District  
**Plant:** Country Acres Solar Study  
**Address:** Placer County, CA  
**Project No.:** 406242 **File No.**  
**Title:** Hydrologic Analysis

**Page:** **A52**

**Proposed Site Basins: Stage - Discharge Relationships:** (Continued)

**BESS Reservoir - Northwest Basin**

Discharge pipe analysis for a 12-inch HDPE discharge pipeline approximately 20 feet in length, with an upstream invert elevation of 78.0 feet and a downstream invert of 77.9 feet. Input data and the rating table are provided below.

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 1 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
78.00	0.00	0.00	0.00	1
78.39	0.40	0.40	0.00	1
78.56	0.80	0.80	0.00	1
78.80	1.20	1.20	0.00	1
78.94	1.60	1.60	0.00	1
79.06	2.00	2.00	0.00	1
79.18	2.40	2.40	0.00	1
79.33	2.80	2.80	0.00	1
79.53	3.20	3.20	0.00	1
79.76	3.60	3.60	0.00	1
80.00	4.00	3.96	0.00	70
80.00	3.96	3.96	0.00	Overtopping

**Owner:** Sacramento Municipal Utility District  
**Plant:** Country Acres Solar Study  
**Address:** Placer County, CA  
**Project No.:** 406242 **File No.**  
**Title:** Hydrologic Analysis

**Page:** **A53**

**Proposed Site Basins: Stage - Discharge Relationships:** (Continued)

**Switchyard Reservoir**

Discharge pipe analysis for a 12-inch HDPE discharge pipeline approximately 20 feet in length, with an upstream invert elevation of 83.5 feet and a downstream invert of 83.4 feet. Input data and the rating table are provided below.

The screenshot shows the BESS Discharge 78.0 software interface. The 'Crossing Properties' window is on the left, and the 'Culvert Properties' window is on the right.

**Crossing Properties:**

- Name: Switch Discharge
- DISCHARGE DATA**
  - Discharge Method: Minimum, Design, and Maximum
  - Minimum Flow: 0.000 cfs
  - Design Flow: 2.000 cfs
  - Maximum Flow: 4.000 cfs
- TAILWATER DATA**
  - Channel Type: Enter Constant Tailwater Elevation
  - Channel Invert Elevation: 83.400 ft
  - Constant Tailwater Elevation: 83.500 ft
  - Rating Curve: View...
- ROADWAY DATA**
  - Roadway Profile Shape: Constant Roadway Elevation
  - First Roadway Station: 0.000 ft
  - Crest Length: 200.000 ft
  - Crest Elevation: 85.000 ft
  - Roadway Surface: Gravel
  - Top Width: 8.000 ft

**Culvert Properties:**

- Culvert 1
  - Add Culvert
  - Duplicate Culvert
  - Delete Culvert
- CULVERT DATA**
  - Name: Culvert 1
  - Shape: Circular
  - Material: Smooth HDPE
  - Diameter: 1.000 ft
  - Embedment Depth: 0.000 in
  - Manning's n: 0.012
  - Culvert Type: Straight
  - Inlet Configuration: Thin Edge Projecting
  - Inlet Depression?: No
- SITE DATA**
  - Site Data Input Option: Culvert Invert Data
  - Inlet Station: 0.000 ft
  - Inlet Elevation: 83.500 ft
  - Outlet Station: 20.000 ft
  - Outlet Elevation: 83.400 ft
  - Number of Barrels: 1

Buttons at the bottom: Help, Click on any icon for help on a specific topic, Low Flow, AOP, Energy Dissipation, Analyze Crossing, OK, Cancel.

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 1 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
83.50	0.00	0.00	0.00	1
83.89	0.40	0.40	0.00	1
84.06	0.80	0.80	0.00	1
84.30	1.20	1.20	0.00	1
84.44	1.60	1.60	0.00	1
84.56	2.00	2.00	0.00	1
84.68	2.40	2.40	0.00	1
84.83	2.80	2.80	0.00	1
85.00	3.20	3.14	0.03	51
85.01	3.60	3.15	0.43	5
85.01	4.00	3.16	0.82	4
85.00	3.14	3.14	0.00	Overtopping

**Owner:** Sacramento Municipal Utility District  
**Plant:** Country Acres Solar Study  
**Address:** Placer County, CA  
**Project No.:** 406242  
**Title:** Hydrologic Analysis

**Page:** A54

**File No.**

#### **HYDROLOGIC MODEL RESULTS:**

The HEC-HMS Hydrologic Modeling System (Ref. 2) was used to model the performance of the site in response to the 2, 10, and 100-Year, 24-Hour design precipitation events. Models were created for the parcels containing the solar PV panels, and for the Switchyard, Substation and BESS areas. For each design event, the post-development peak discharge was limited to the pre-development value.

For the parcels in existing condition, the peak stormwater discharge in response to the 2, 10, and 100-Year precipitation events was 254.4 cfs, 434.7 cfs, and 646.2 cfs, respectively.

For the parcels in the proposed final condition, the peak stormwater discharge in response to the 2, 10, and 100-Year precipitation events was 208.5 cfs, 369.2 cfs, and 557.5 cfs, respectively. Detention basins were not required to meet the post-development peak discharge limitation.

For the Switchyard, Substation, and BESS areas in the existing condition, the peak stormwater discharge in response to the 2, 10, and 100-Year precipitation events was 10.3 cfs, 19.4 cfs, and 29.8 cfs, respectively.

For the Switchyard, Substation, and BESS areas in the proposed final condition, the peak stormwater discharge in response to the 2, 10, and 100-Year precipitation events was 7.9 cfs, 15.6 cfs, and 24.2 cfs, respectively. Detention basins were provided in the BESS and Switchyard areas in order to meet the post-development peak discharge limitation.

The BESS area basins are hydraulically connected so that they drawdown evenly. The peak stage in the basins in response to the 100-Year event is 79.0 feet. The basins crest elevation is 80.0 feet, which provided 12 inches of freeboard in response to the 100-Year event.

The peak stage in the Switch area basin in response to the 100-Year event is 84.2 feet. The basin crest is set at 85.2 feet, to provide a minimum 12 inches of freeboard.

HEC-HMS results for the site in its existing and proposed conditions, for all events, are provided on Pages A55 - A72.

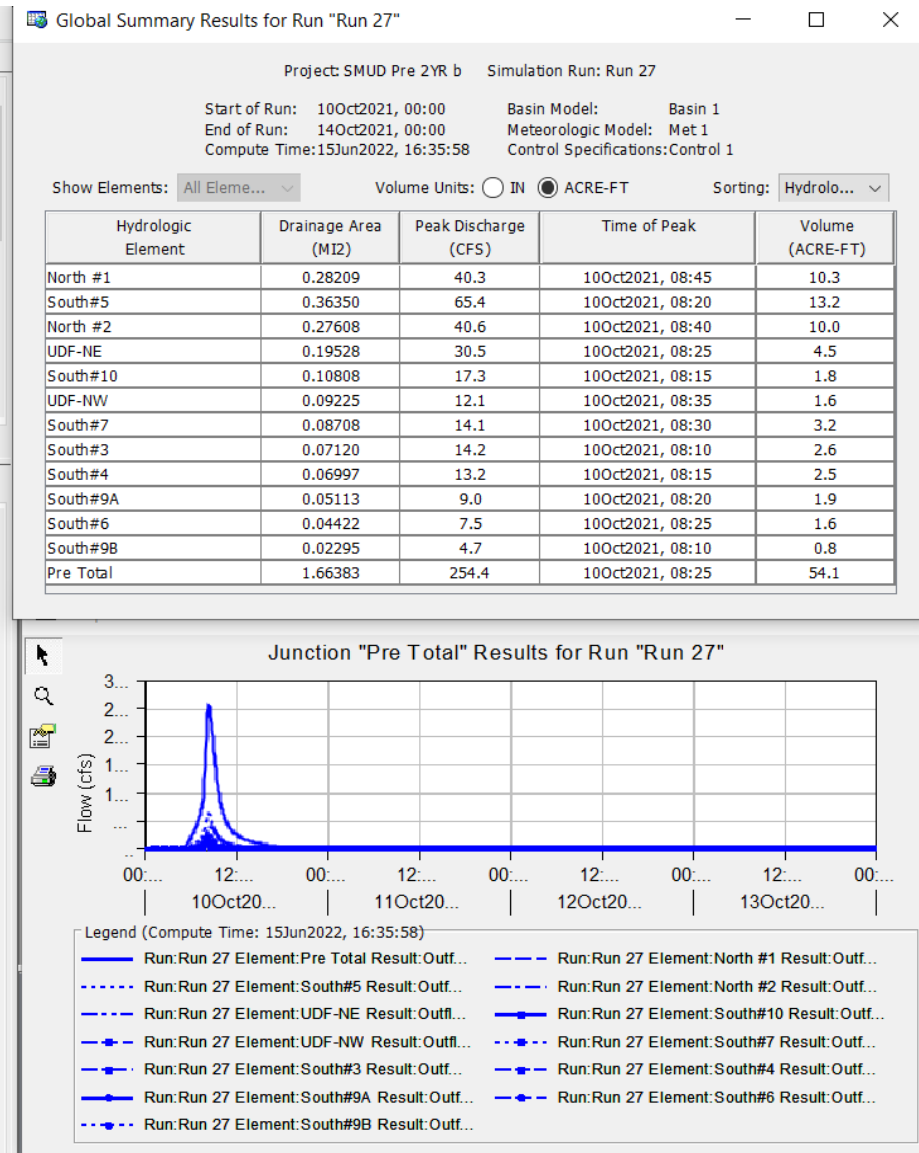
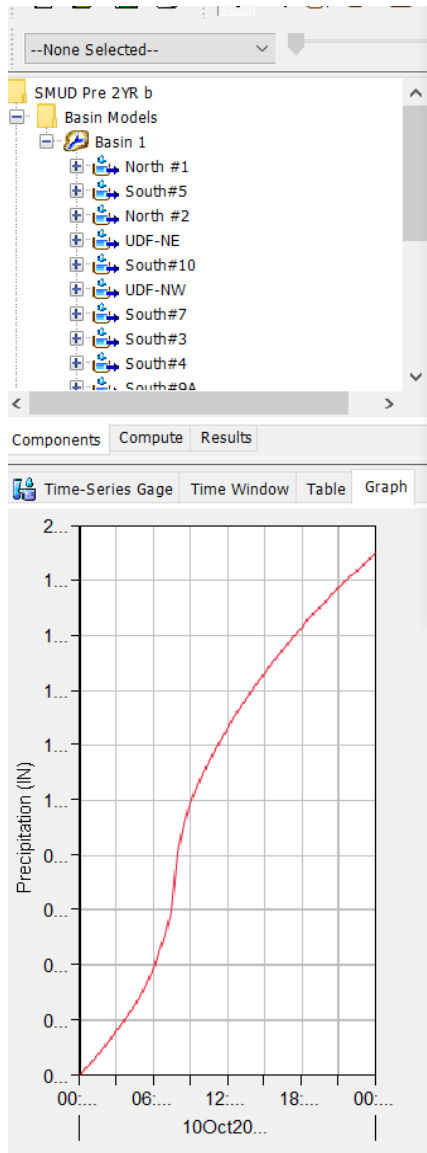
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Hydrologic Analysis

Page: A55

File No.

### HYDROLOGIC MODEL RESULTS - Parcels:

HEC-HMS computed results for the parcels in existing condition in response to the 2-year event.



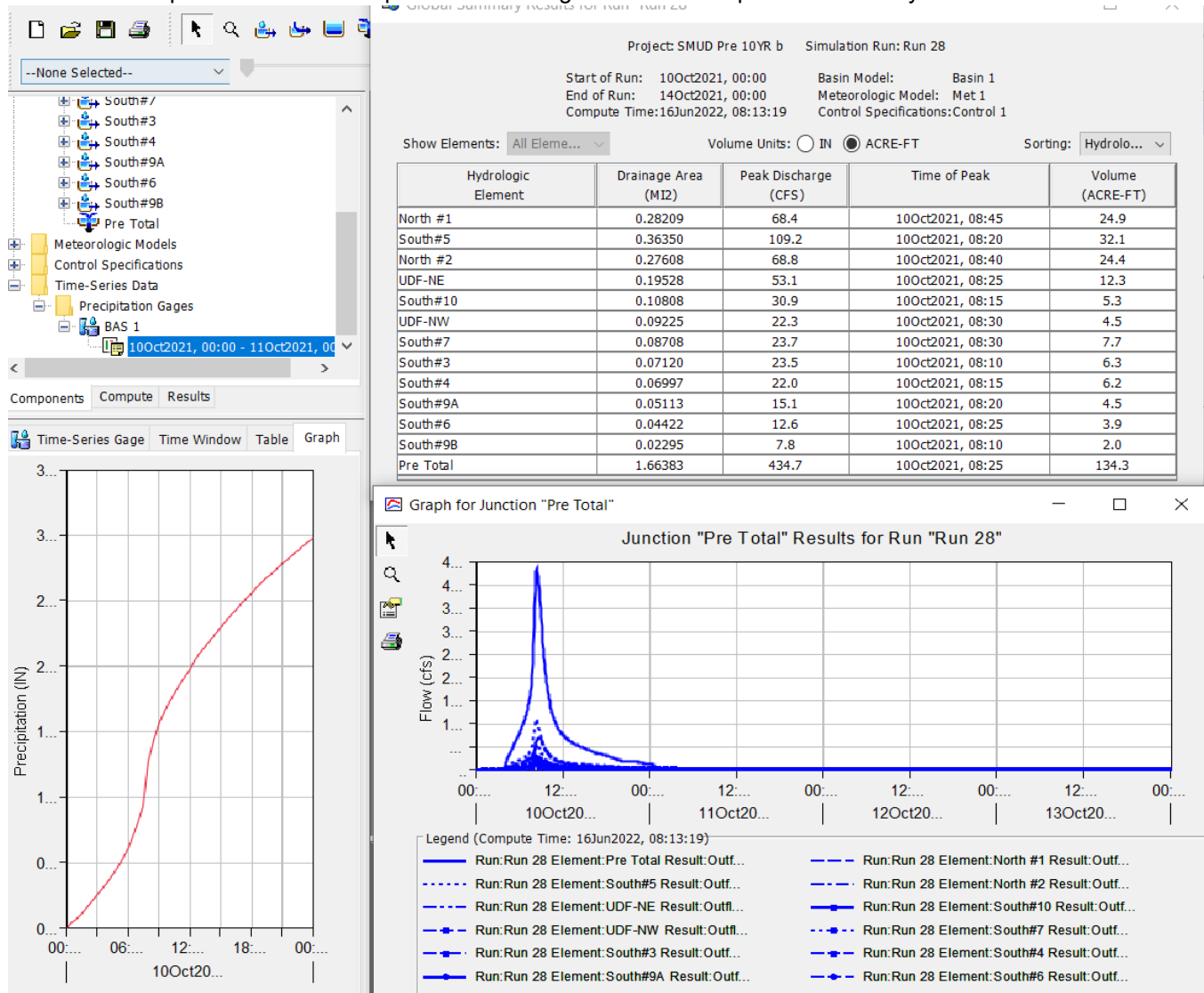
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Hydrologic Analysis

Page: **A56**

File No.

### HYDROLOGIC MODEL RESULTS - Parcels:

HEC-HMS computed results for the parcels in existing condition in response to the 10-year event.



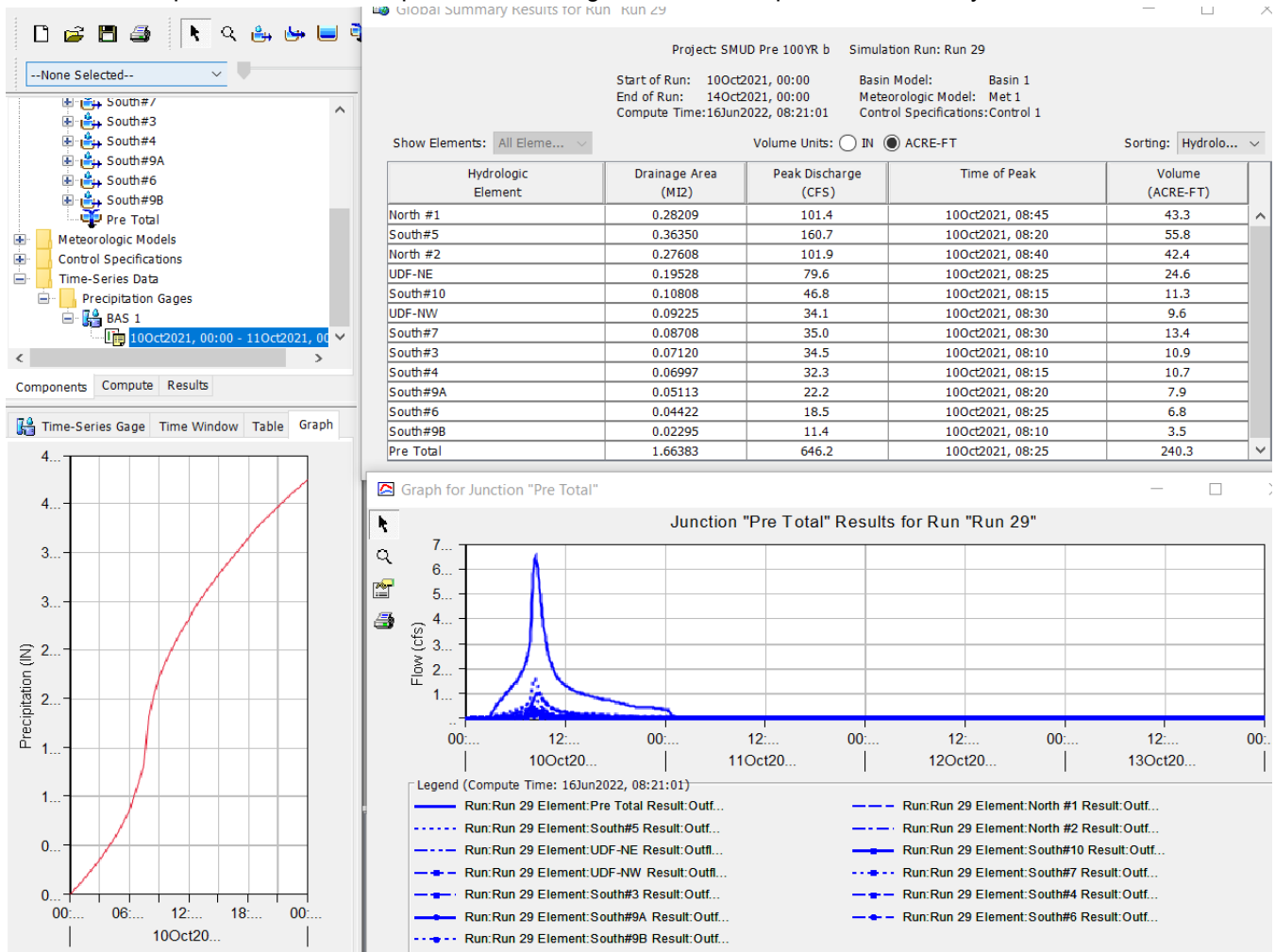
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Hydrologic Analysis

Page: **A57**

File No.

### HYDROLOGIC MODEL RESULTS - Parcels:

HEC-HMS computed results for the parcels in existing condition in response to the 100-year event.



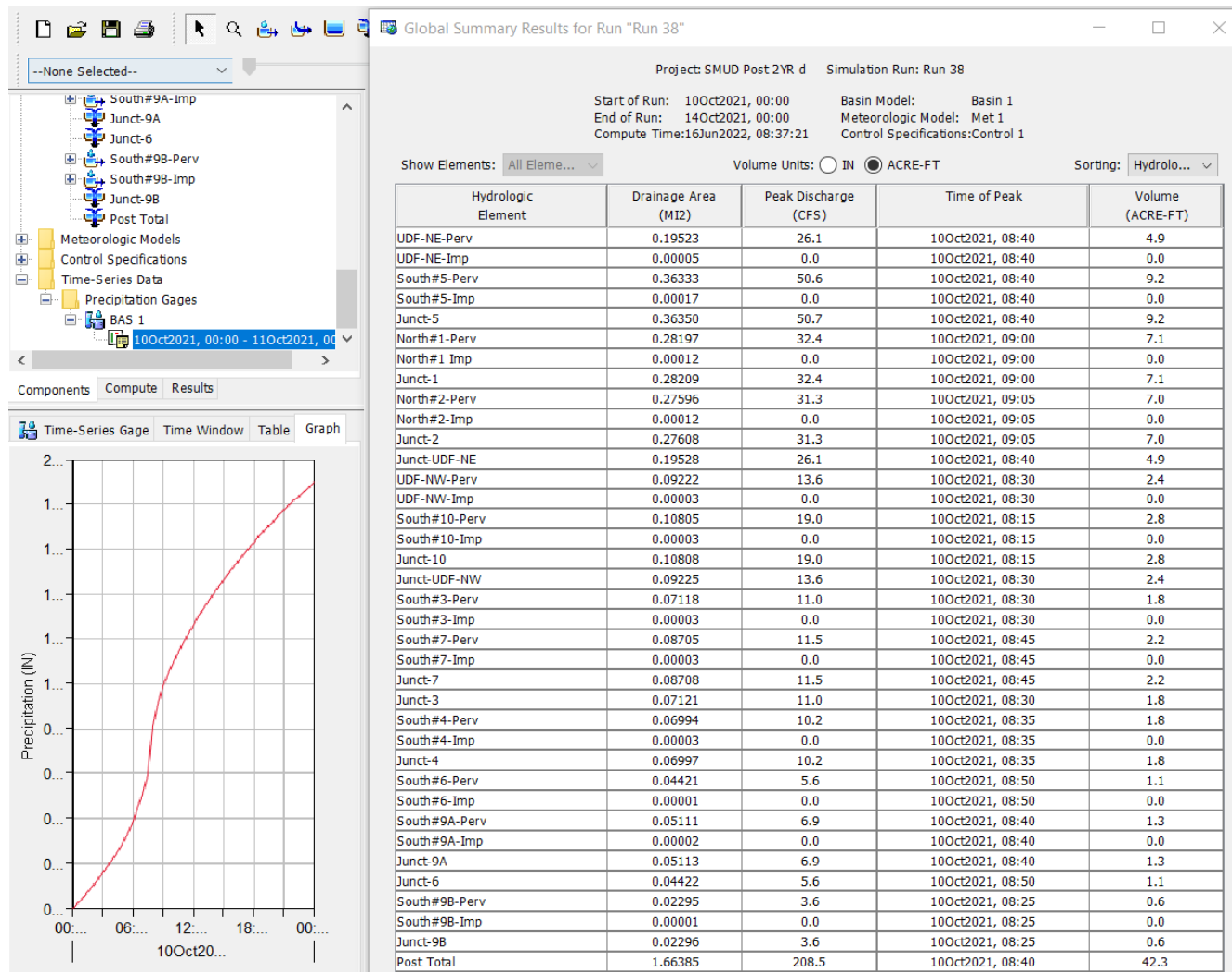
Owner: **Sacramento Municipal Utility District**  
Plant: **Country Acres Solar Study**  
Address: **Placer County, CA**  
Project No.: **406242**  
Title: **Hydrologic Analysis**

Page: **A58**

File No.

### HYDROLOGIC MODEL RESULTS - Parcels:

HEC-HMS computed results for the parcels in the proposed condition in response to the 2-year event.



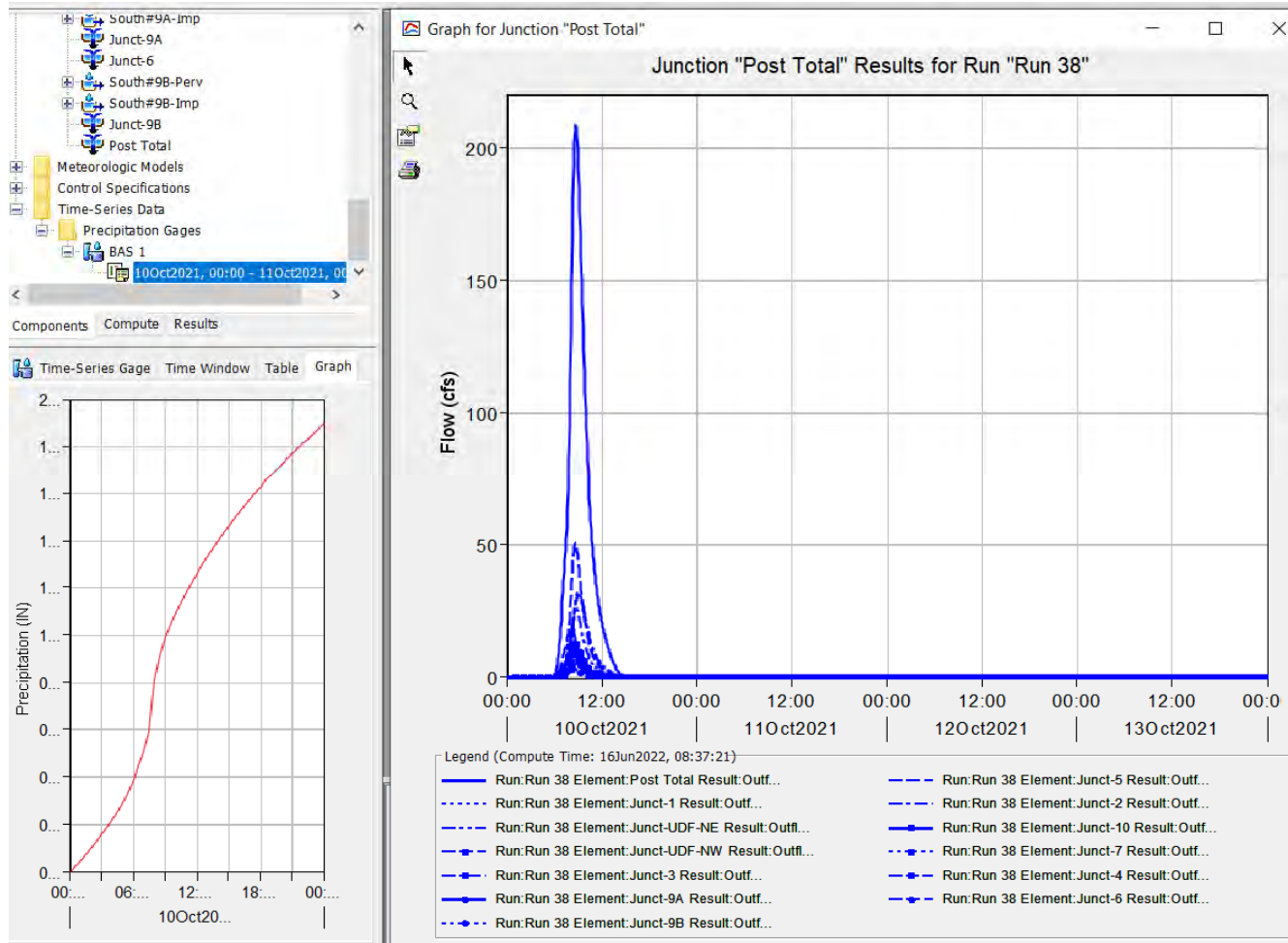
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Hydrologic Analysis

Page: A59

File No.

### HYDROLOGIC MODEL RESULTS - Parcels:

HEC-HMS computed results for the parcels in the proposed condition in response to the 2-year event. (cont)





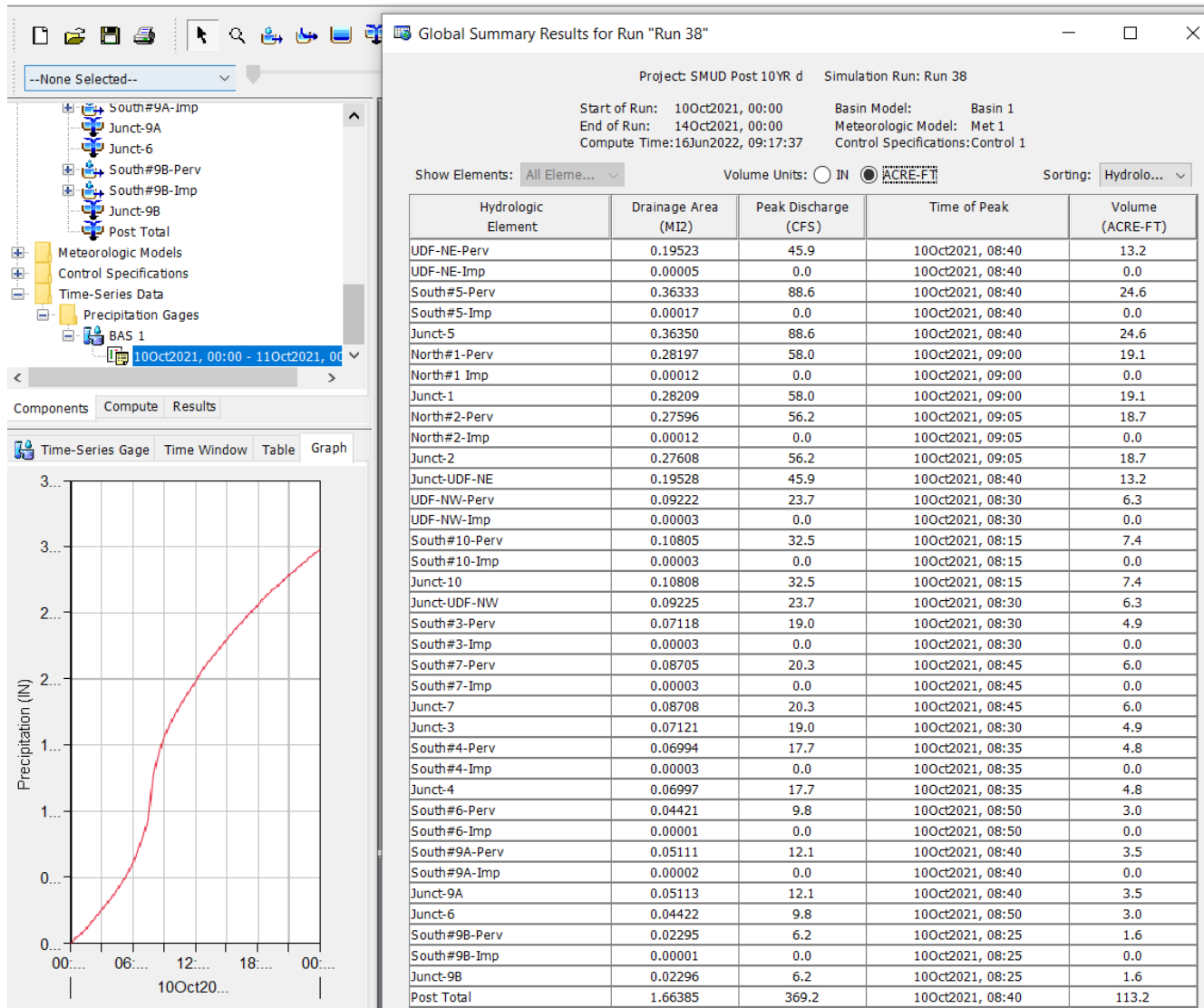
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Plant: **Country Acres Solar Study**  
Address: **Placer County, CA**  
Project No.: **406242**  
Title: **Hydrologic Analysis**

Page: **A60**

File No.

### **HYDROLOGIC MODEL RESULTS - Parcels:**

HEC-HMS computed results for the parcels in the proposed condition in response to the 10-year event.



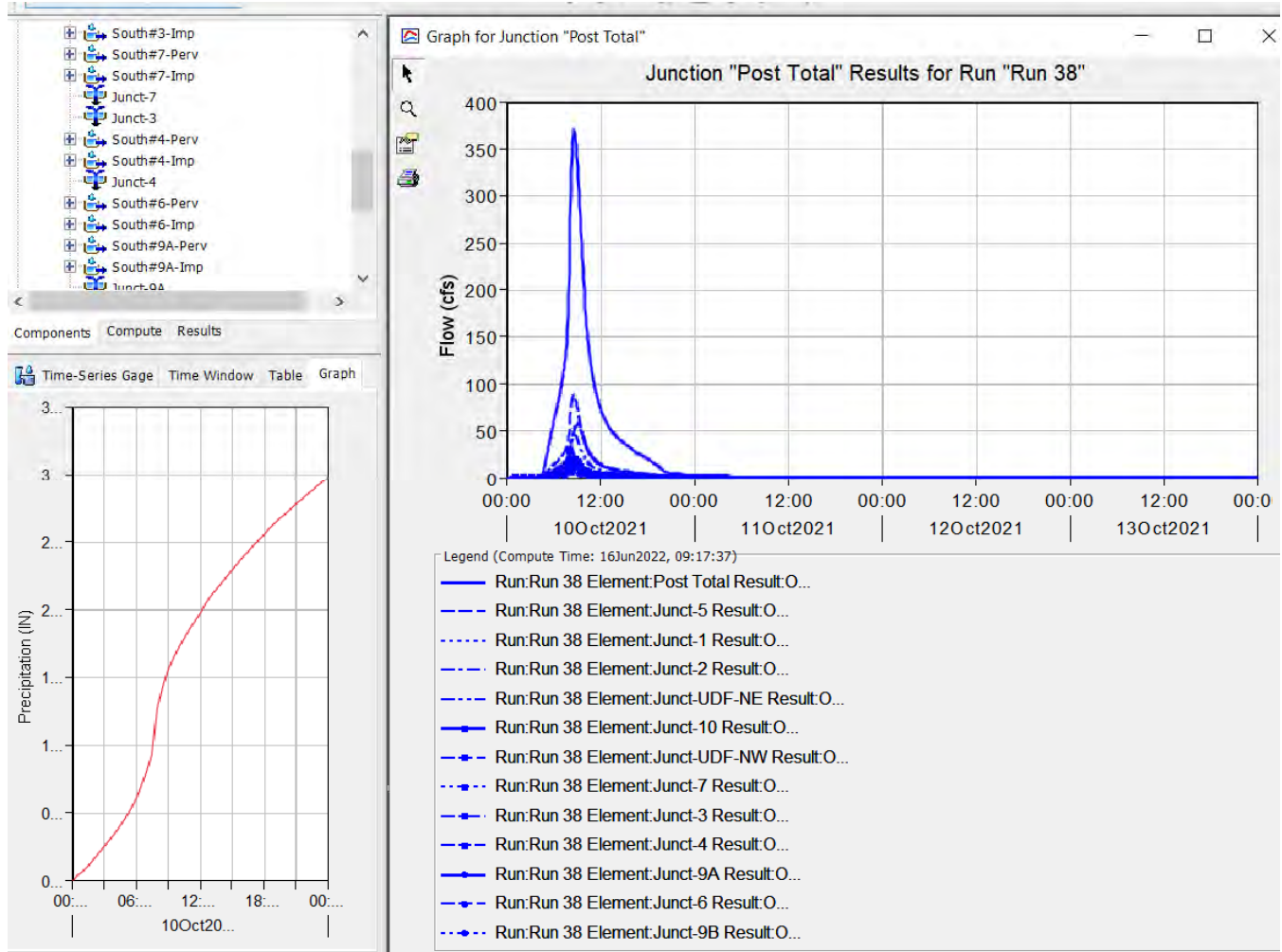
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Hydrologic Analysis

Page: A61

File No.

### HYDROLOGIC MODEL RESULTS - Parcels:

HEC-HMS computed results for the parcels in the proposed condition in response to the 10-YR event. (cont)



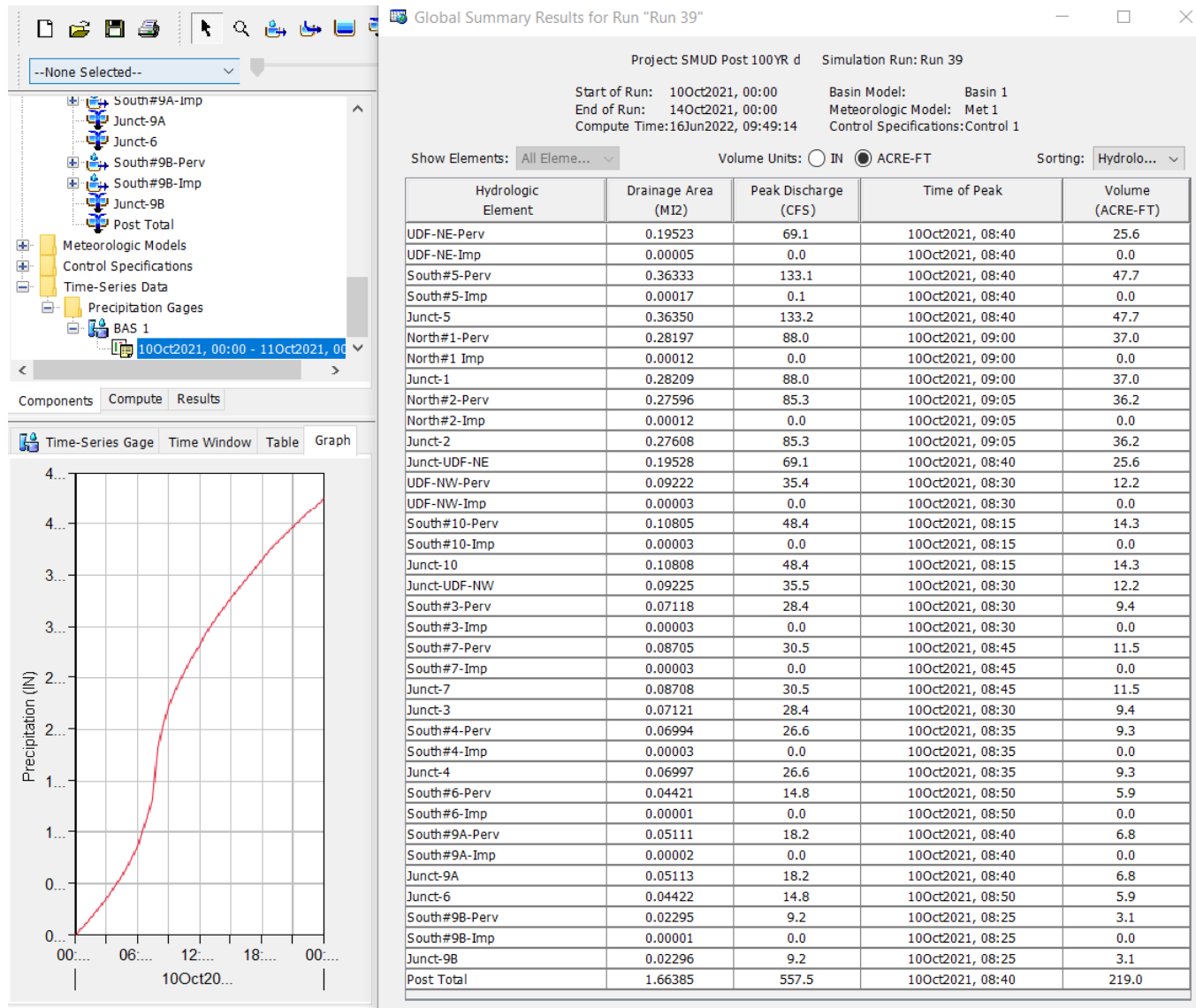
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Hydrologic Analysis

Page: **A62**

File No.

### HYDROLOGIC MODEL RESULTS - Parcels:

HEC-HMS computed results for the parcels in the proposed condition in response to the 100-YR event.



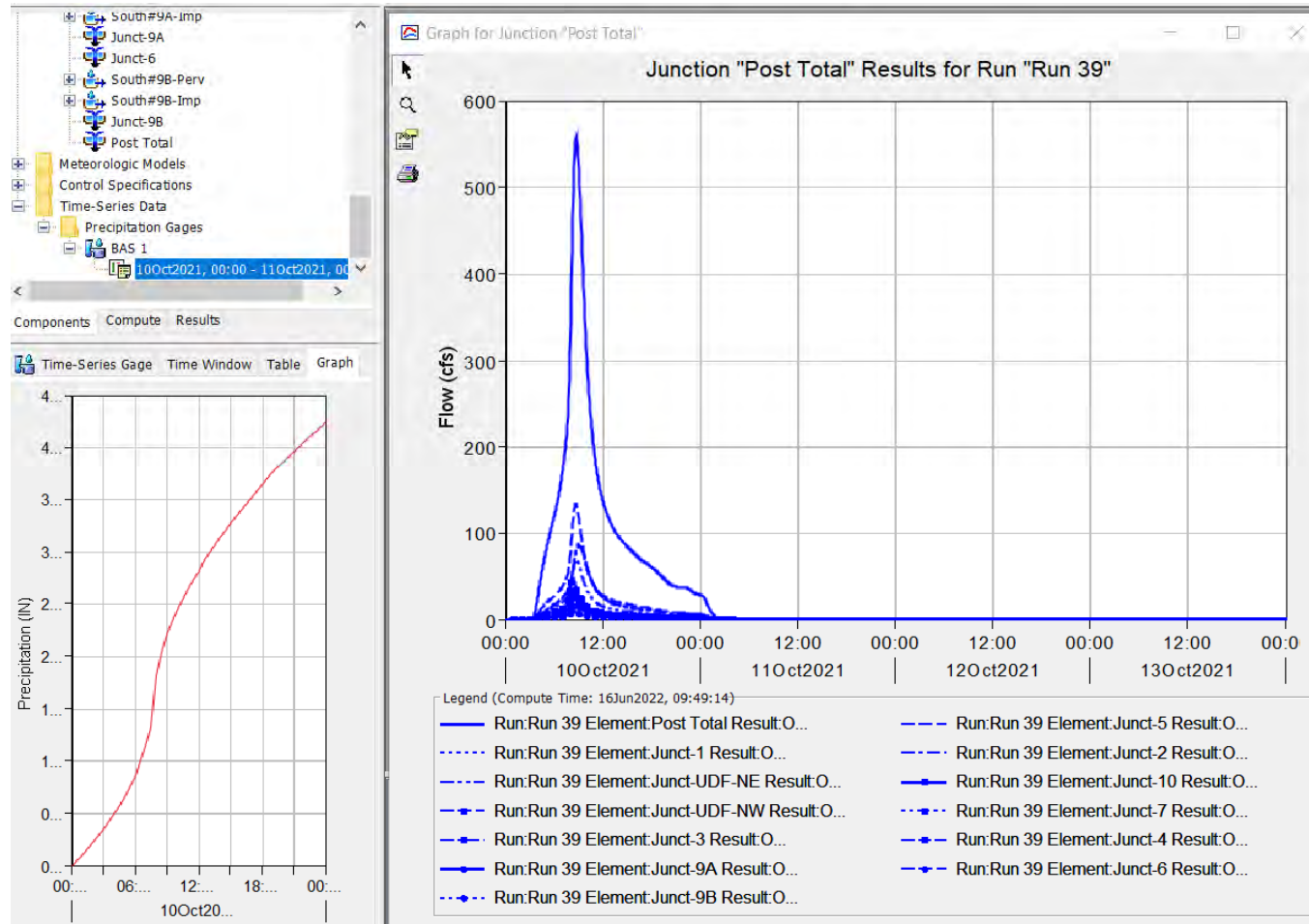
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Hydrologic Analysis

Page: A63

File No.

### HYDROLOGIC MODEL RESULTS - Parcels:

HEC-HMS computed results for the parcels in the proposed condition in response to the 100-YR event. (cont)





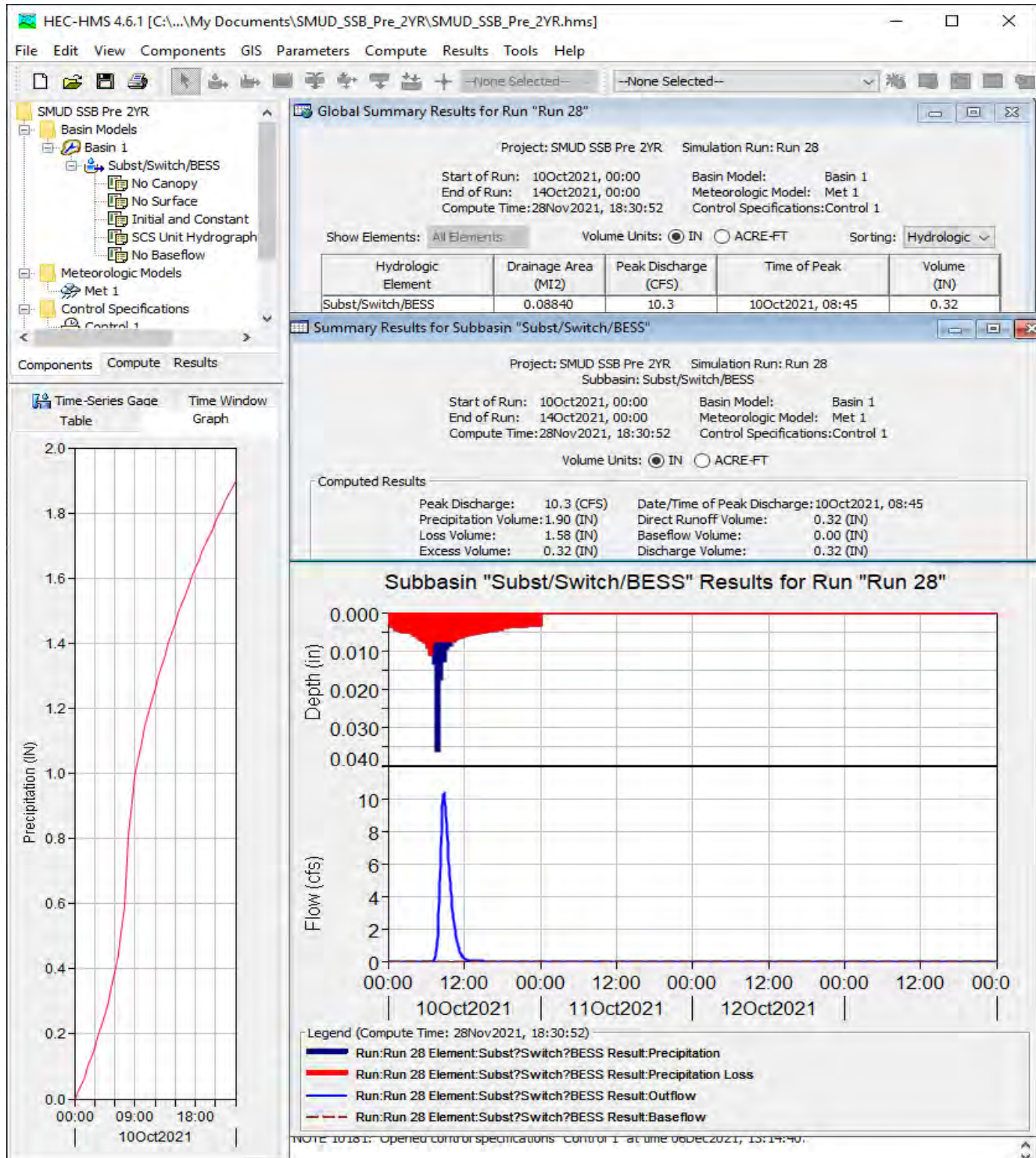
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Hydrologic Analysis

Page: A64

File No.

### HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:

HEC-HMS computed results for the site in its existing condition in response to the 2-year event.



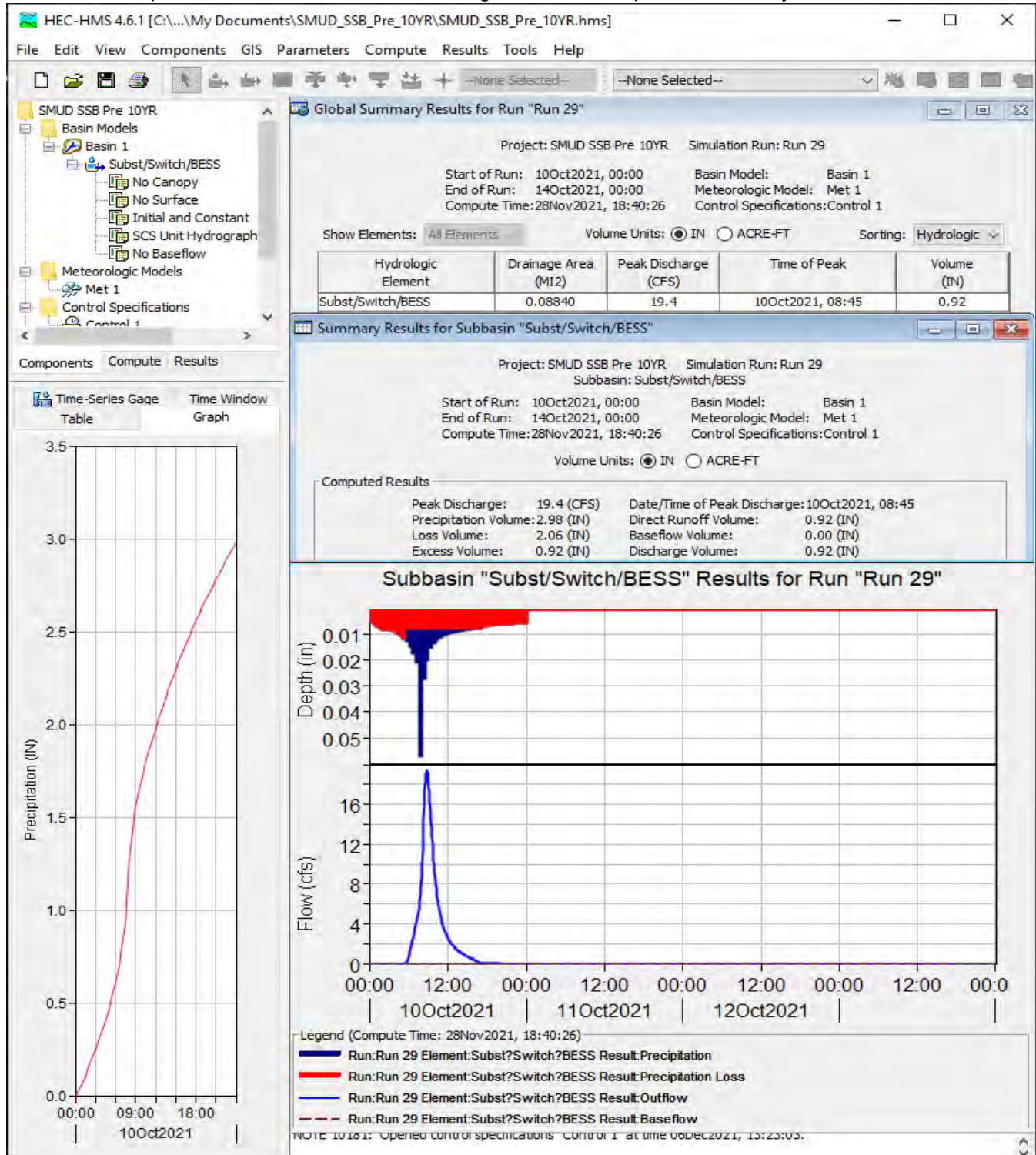
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Hydrologic Analysis

Page: A65

File No.

### HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:

HEC-HMS computed results for the site in its existing condition in response to the 10-year event.





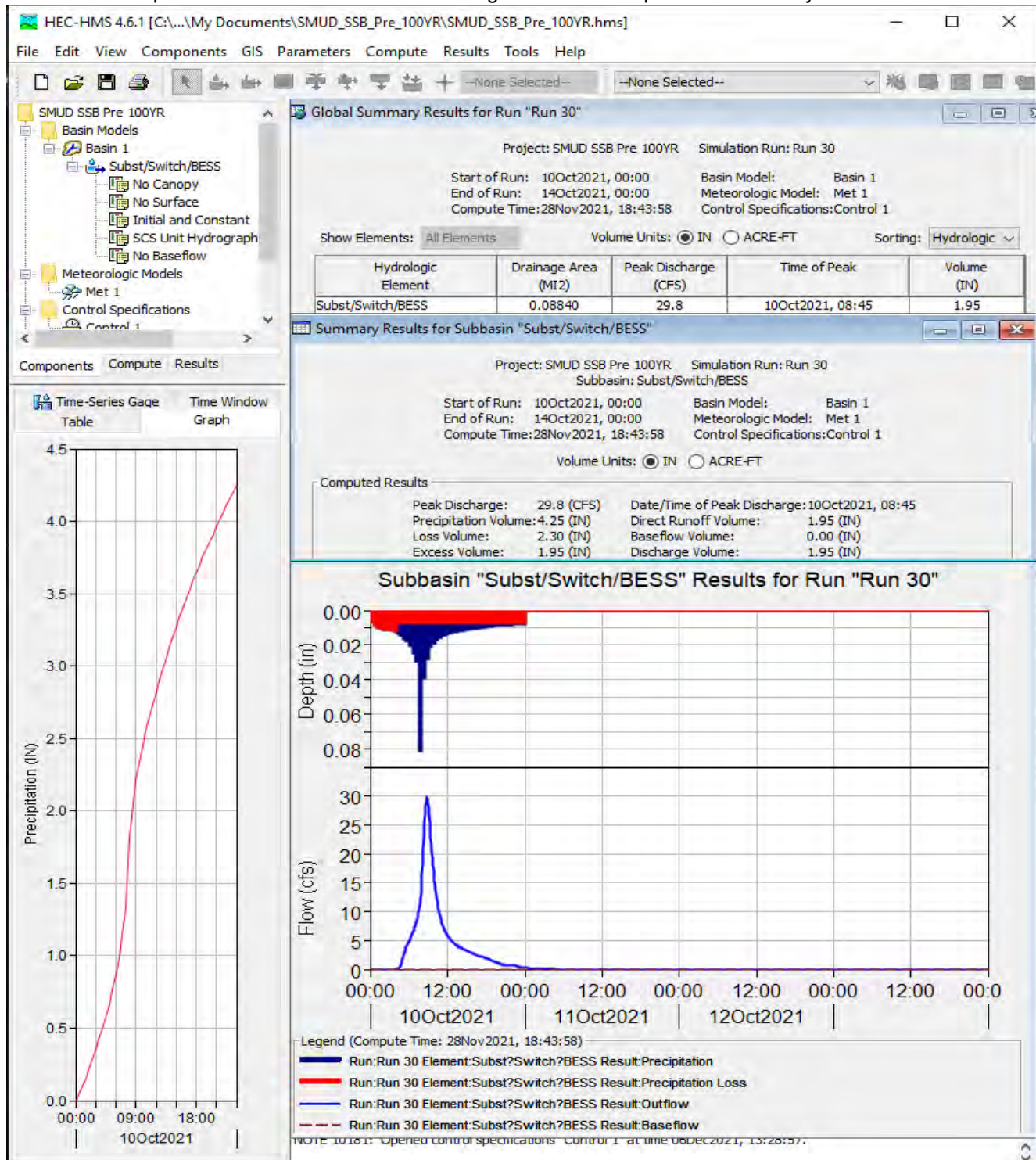
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Hydrologic Analysis

Page: A66

File No.

### HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:

HEC-HMS computed results for the site in its existing condition in response to the 100-year event.



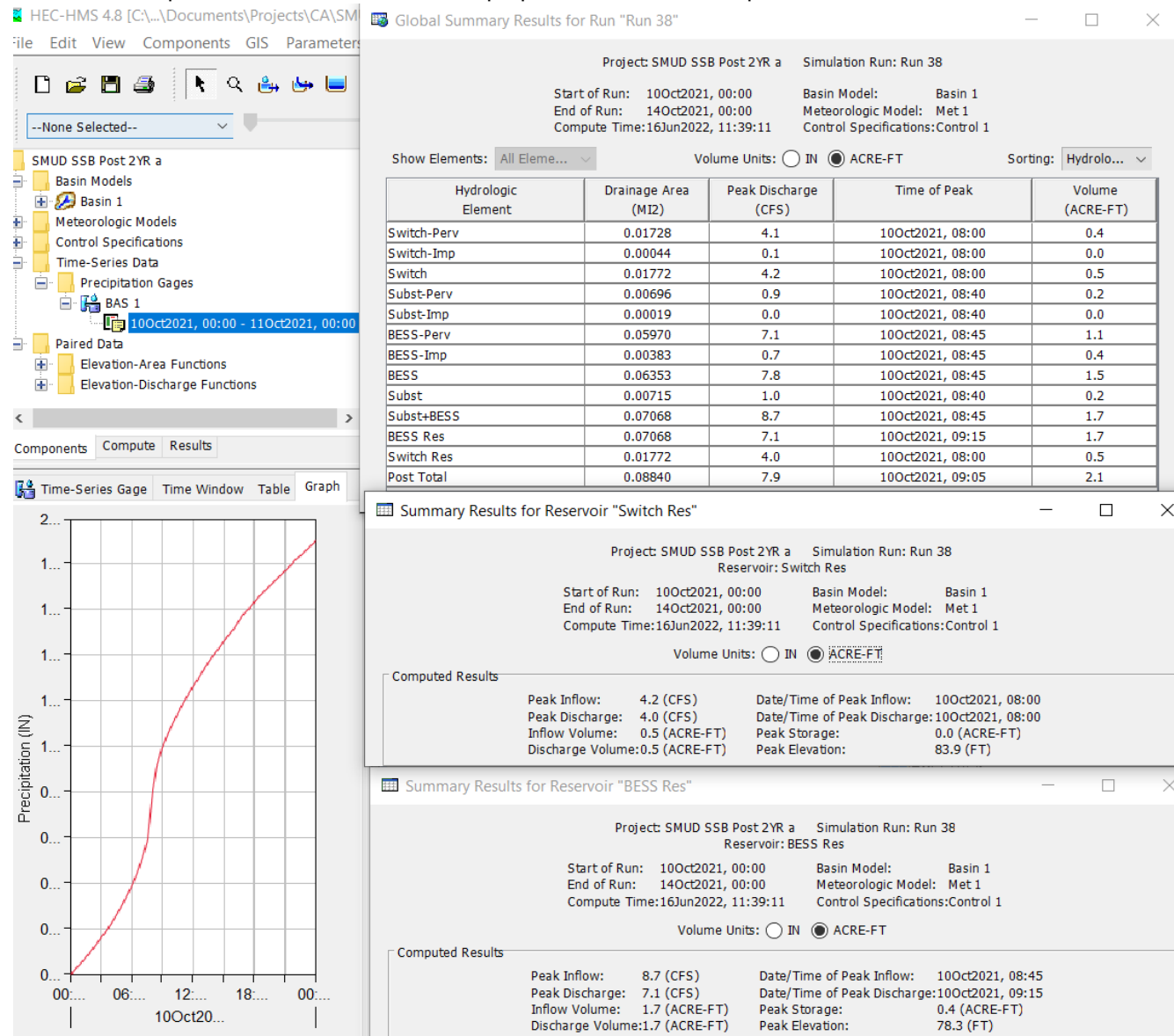
Owner: **Sacramento Municipal Utility District**  
Plant: **Country Acres Solar Study**  
Address: **Placer County, CA**  
Project No.: **406242**  
Title: **Hydrologic Analysis**

Page: **A67**

File No.

### **HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:**

HEC-HMS computed results for the site in the proposed condition in response to the 2-YR event.





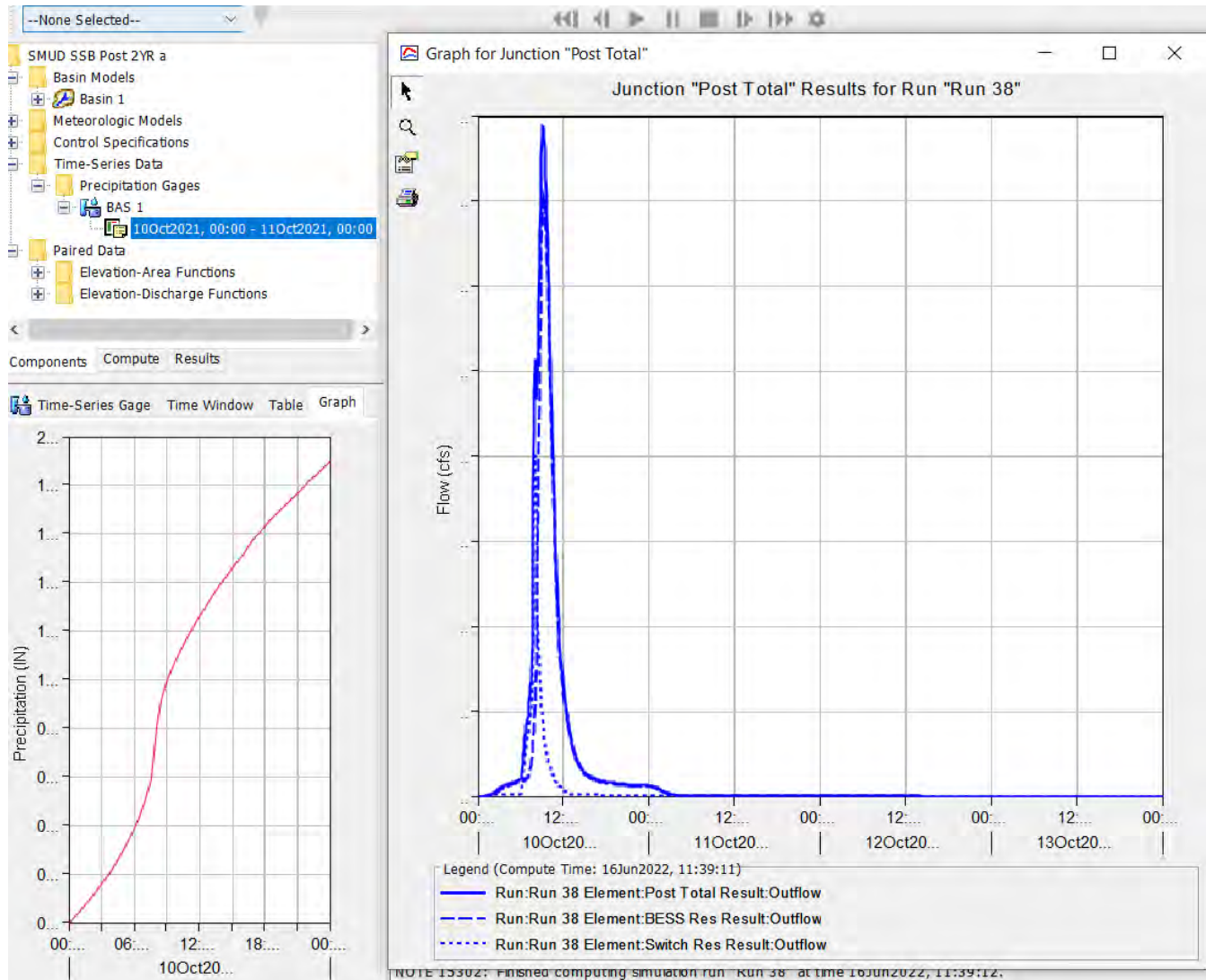
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Hydrologic Analysis

Page: A68

File No.

### HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:

HEC-HMS computed results for the site in the proposed condition in response to the 2-YR event. (cont)



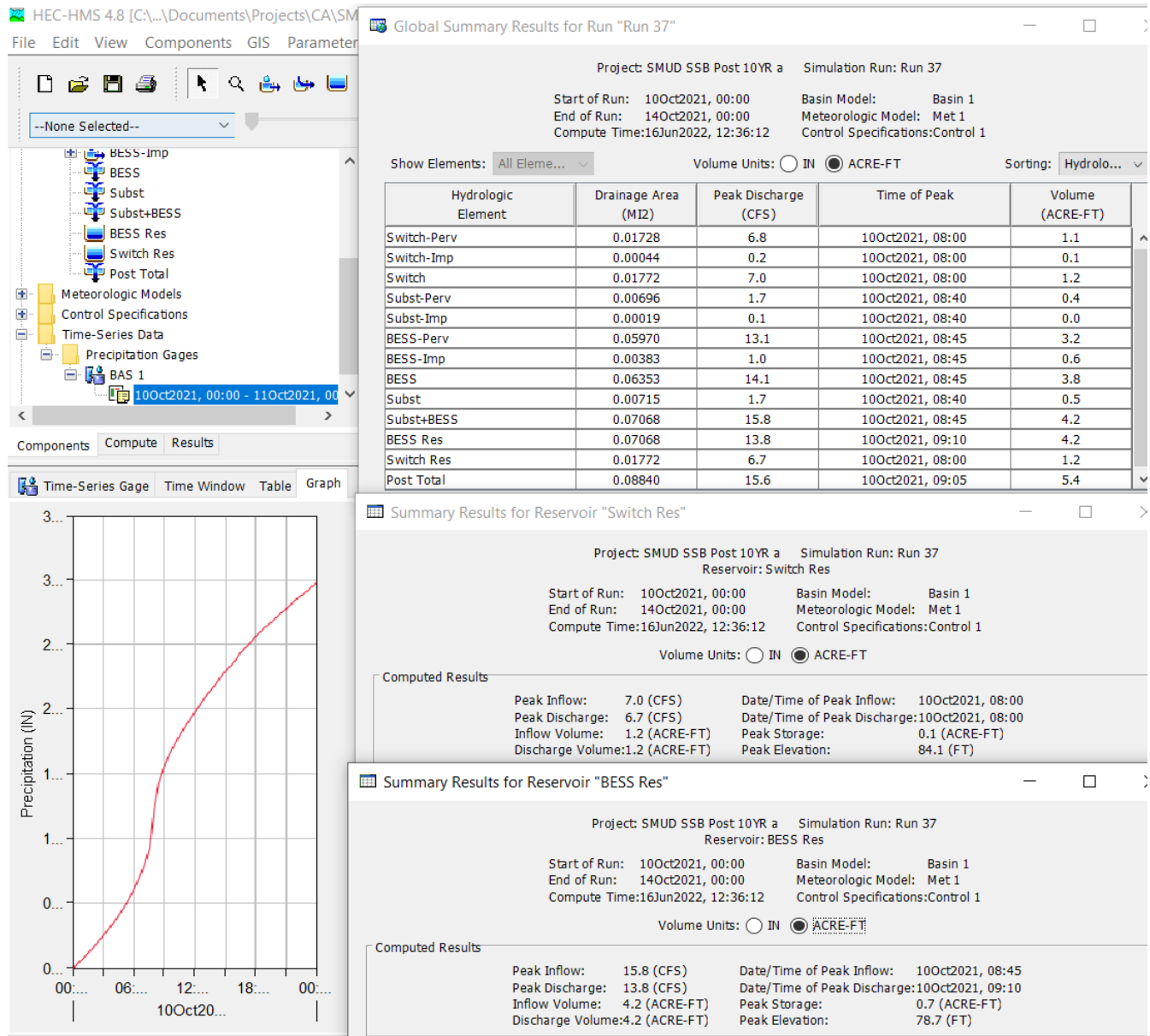
Owner: **Sacramento Municipal Utility District**  
Plant: **Country Acres Solar Study**  
Address: **Placer County, CA**  
Project No.: **406242**  
Title: **Hydrologic Analysis**

Page: **A69**

File No.

### **HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:**

HEC-HMS computed results for the site in the proposed condition in response to the 10-YR event.



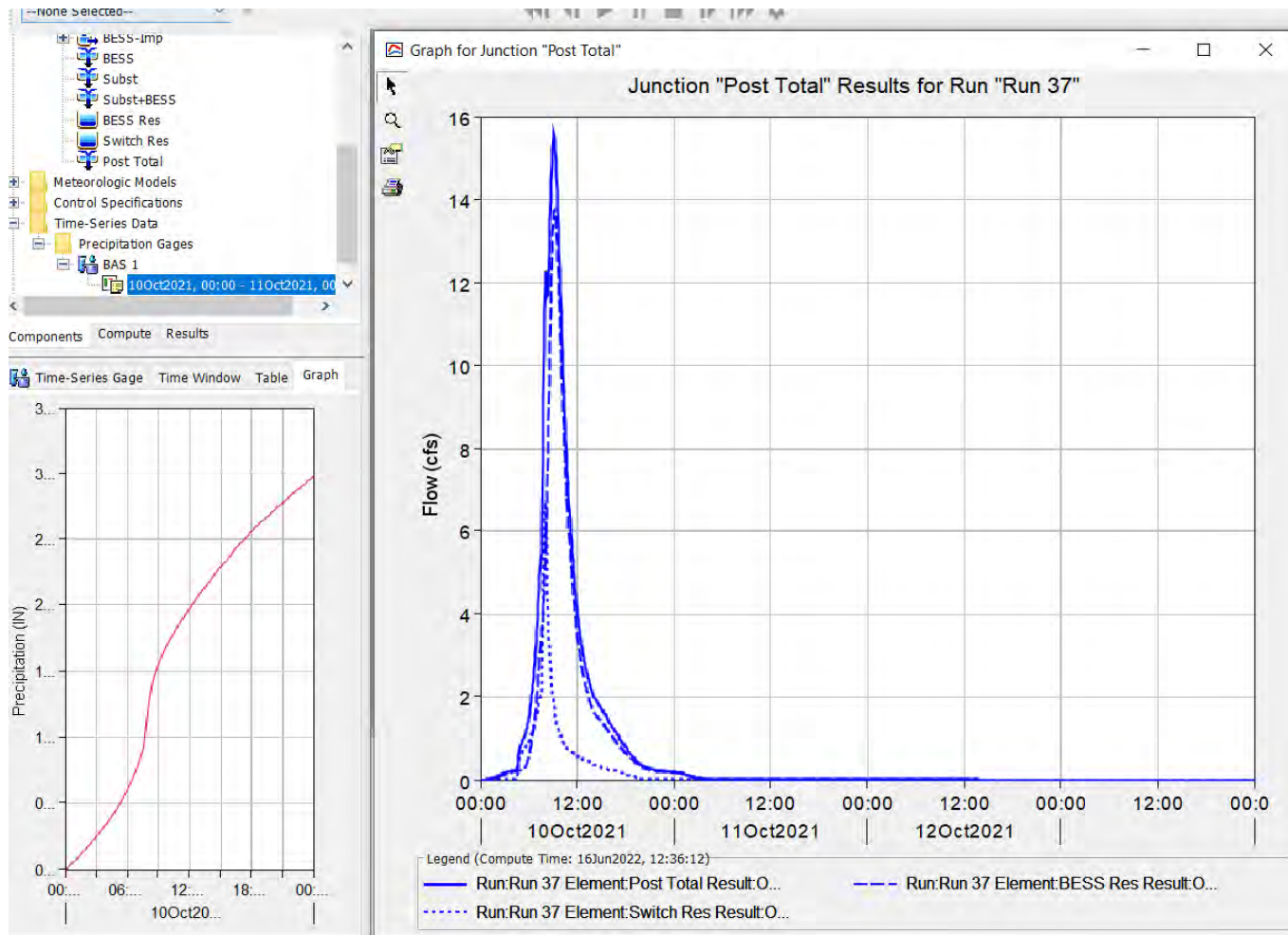
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Hydrologic Analysis

Page: A70

File No.

**HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:**

HEC-HMS computed results for the site in the proposed condition in response to the 10-YR event. (cont)





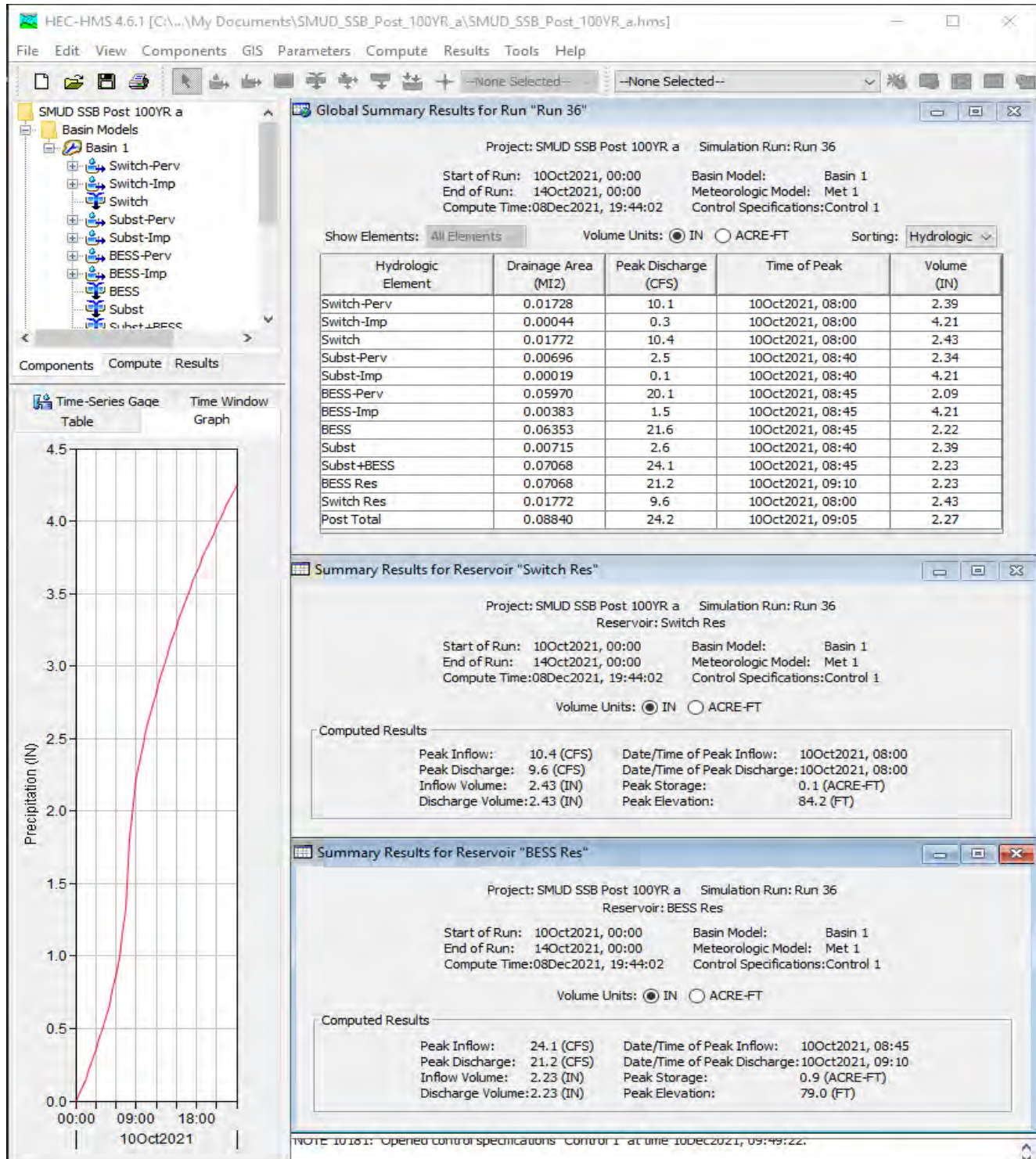
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Hydrologic Analysis

Page: A71

File No.

### HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:

HEC-HMS computed results for the site in the proposed condition in response to the 100-YR event.



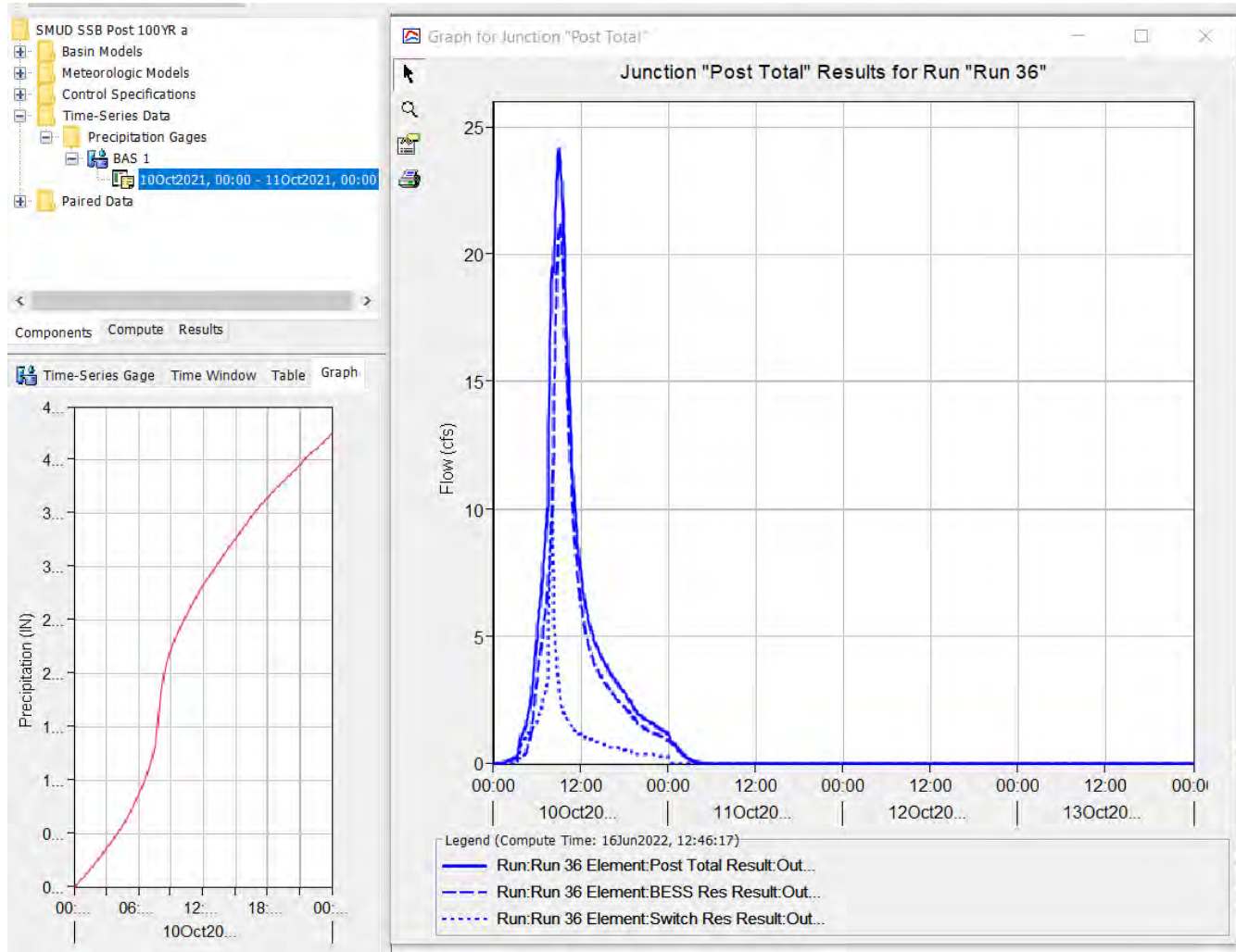
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Hydrologic Analysis

Page: A72

File No.

**HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:**

HEC-HMS computed results for the site in the proposed condition in response to the 100-YR event. (cont)





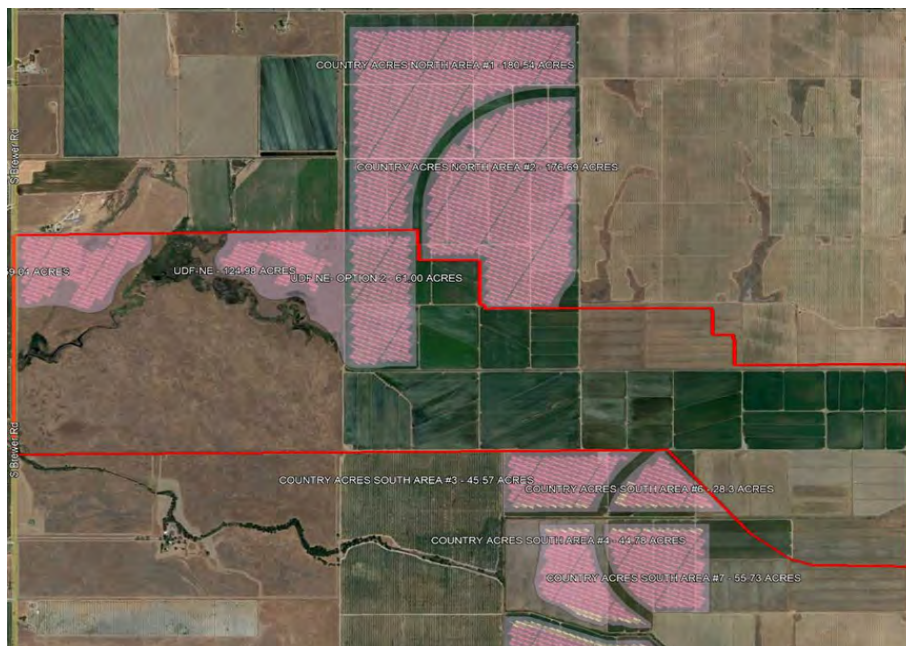
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Hydrologic Analysis

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### Water Quality Analysis:

The Water Quality Analysis is based on the requirements of the West Placer Storm Water Quality Design Manual (Ref. 10), within the compliance boundary defined by the Placer County Online Map (Ref. 11).

The area outlined in red in the figure below delineates the Project Planning Area which impacts this project. Parcels UDF-NW and UDF-NE are located within this boundary.

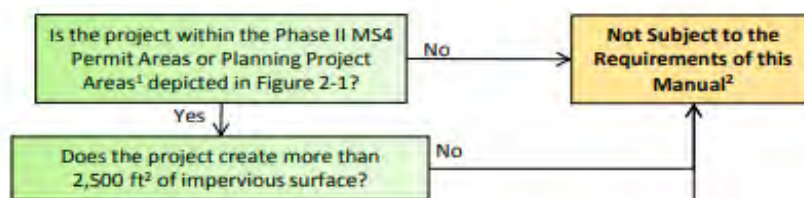


Chapter 2 • Storm Water Quality Design Manual

West Placer Storm Water Quality Design Manual

## 2.2 Project Categorization

The distinction between Small Projects and Regulated Projects is based on the amount of impervious surface that is created or replaced. The decision tree, below, may be used to assist in determining the project category.



A portion of the decision tree from Chapter 2 of the West Placer Storm Water Quality Design Manual is presented above. From Page A41 of this calculation, a total of 2345 square feet of impervious area is created in Parcels UDF-NW and UDF-NE, which is less than the 2500 square feet which defines a small project. Thus, the project is not subject to the requirements of the West Placer Storm Water Quality Design Manual.

**Owner:** Sacramento Municipal Utility District  
**Plant:** Country Acres Solar Study  
**Address:** Placer County, CA  
**Project No.:** 406242  
**Title:** Hydrologic Analysis

**Page:** A74

**File No.**

## **5.0 CONCLUSION:**

The SMUD Country Acres Hydrologic Analysis addresses the requirements of the Placer County Stormwater Management Manual and the West Placer Storm Water Quality Design Manual. Additional criteria provided by the Placer County Flood Control District and Placer County Engineering and Surveying Division was also addressed.

The proposed project includes the installation of solar PV panels on 12 parcels of land with a total area of 1064.85 acres. Inverter skids and aggregate surfaced access roads will also be constructed on the parcels. The project will be supported by the construction of a substation, switchyard, and BESS area, on an additional 55.75 acres. The project is located in rural west Placer County, California.

### **Stormwater Quantity Analysis:**

The 2, 10, and 100-Year recurrence interval events are the design precipitation events in Placer County. For each event, the post-development peak discharge can not exceed the pre-development value. The parcels containing the proposed solar PV panels are considered separately from the Switchyard, Substation, and BESS areas. The HEC-HMS Hydrologic Modeling System software package was used to model the response of the system to the design precipitation events.

For the parcels in existing condition, the peak stormwater discharge in response to the 2, 10, and 100-Year precipitation events was 254.4 cfs, 434.7 cfs, and 646.2 cfs, respectively.

For the parcels in the proposed final condition, the peak stormwater discharge in response to the 2, 10, and 100-Year precipitation events was 208.5 cfs, 369.2 cfs, and 557.5 cfs, respectively. Detention basins were not required to meet the post-development peak discharge limitation.

For the Switchyard, Substation, and BESS areas in the existing condition, the peak stormwater discharge in response to the 2, 10, and 100-Year precipitation events was 10.3 cfs, 19.4 cfs, and 29.8 cfs, respectively.

For the Switchyard, Substation, and BESS areas in the proposed final condition, the peak stormwater discharge in response to the 2, 10, and 100-Year precipitation events was 7.9 cfs, 15.6 cfs, and 24.2 cfs, respectively. Detention basins were provided in the BESS and Switchyard areas in order to meet the post-development peak discharge limitation.

The BESS area basins are hydraulically connected so that they drawdown evenly. The peak stage in the basins in response to the 100-Year event is 79.0 feet. The basins crest elevation is 80.0 feet, which provides 12 inches of freeboard in response to the 100-Year event.

The peak stage in the Switch area basin in response to the 100-Year event is 84.2 feet. The basin crest is set at 85.2 feet, to provide a minimum 12 inches of freeboard.

**Owner:** Sacramento Municipal Utility District

**Page:** A75

**Plant:** Country Acres Solar Study

**Address:** Placer County, CA

**Project No.:** 406242

**File No.**

**Title:** Hydrologic Analysis

**5.0 CONCLUSION:** (continued)

**Stormwater Quality Analysis:**

Two of the project parcels, UDF-NE and UDF-NW, are located within the compliance boundary that defines areas that are subject to the West Placer Storm Water Quality Design Manual. Project categorization is provided in Section 2.2 of the manual and is based on the amount of impervious surface that is created or replaced. A total of 2345 square feet of impervious surface is created in parcels UDF-NE and UDF-NW, which is less than the minimum value of 2500 square feet which defines a small project. Thus, the project is not subject to the requirements of the West Placer Storm Water Quality Design Manual.



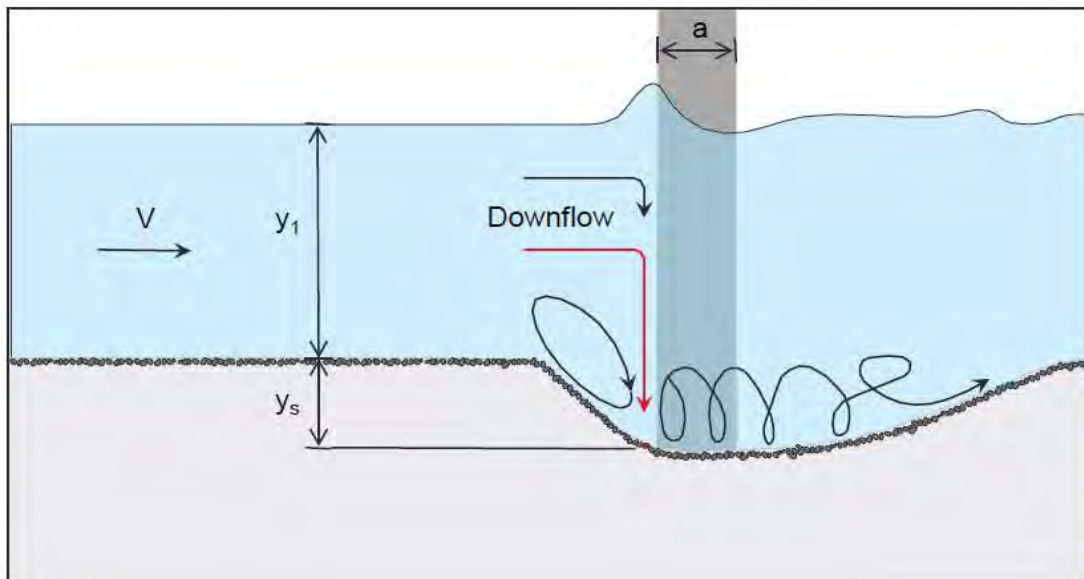
## **Attachment C. Preliminary Hydraulic Analysis Calculation**

## Evaluating Scour at Bridges Fifth Edition — Equation 7.3

$$y_s = 2.0aK_1K_2K_3\left(\frac{y_1}{a}\right)^{0.35}Fr_1^{0.43}$$

<u>Symbol</u>	<u>Input</u>	<u>Units</u>	<u>Description</u>
K1	1	N/A	Pier Nose Shape Correction Factor
Theta	66.4	Degrees	Angle of Attack
K3	1.1	N/A	Bed Condition Correction Factor
a	0.29	ft	Pier Width
L	0.67	ft	Pier Length
y1	1.10	ft	Flow Depth
v1	3.74	ft/s	Mean Velocity

<u>Symbol</u>	<u>Output</u>	<u>Units</u>	<u>Description</u>
K2	1.81	N/A	Angle of Attack Correction Factor
Fr	0.63	N/A	Froude Number
ys	1.5	ft	Scour Depth

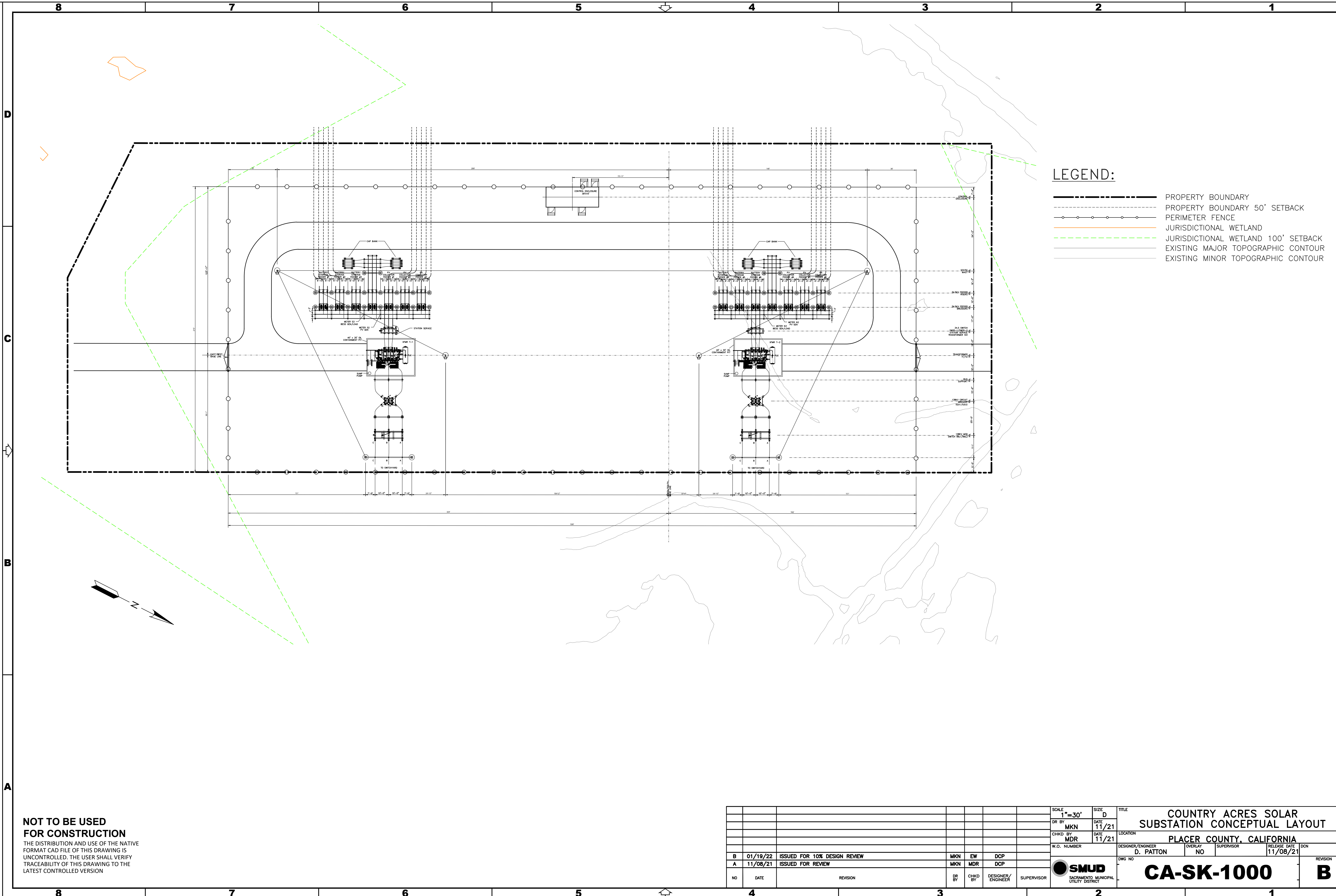


## Attachment D. Supplemental Drawings and Exhibits









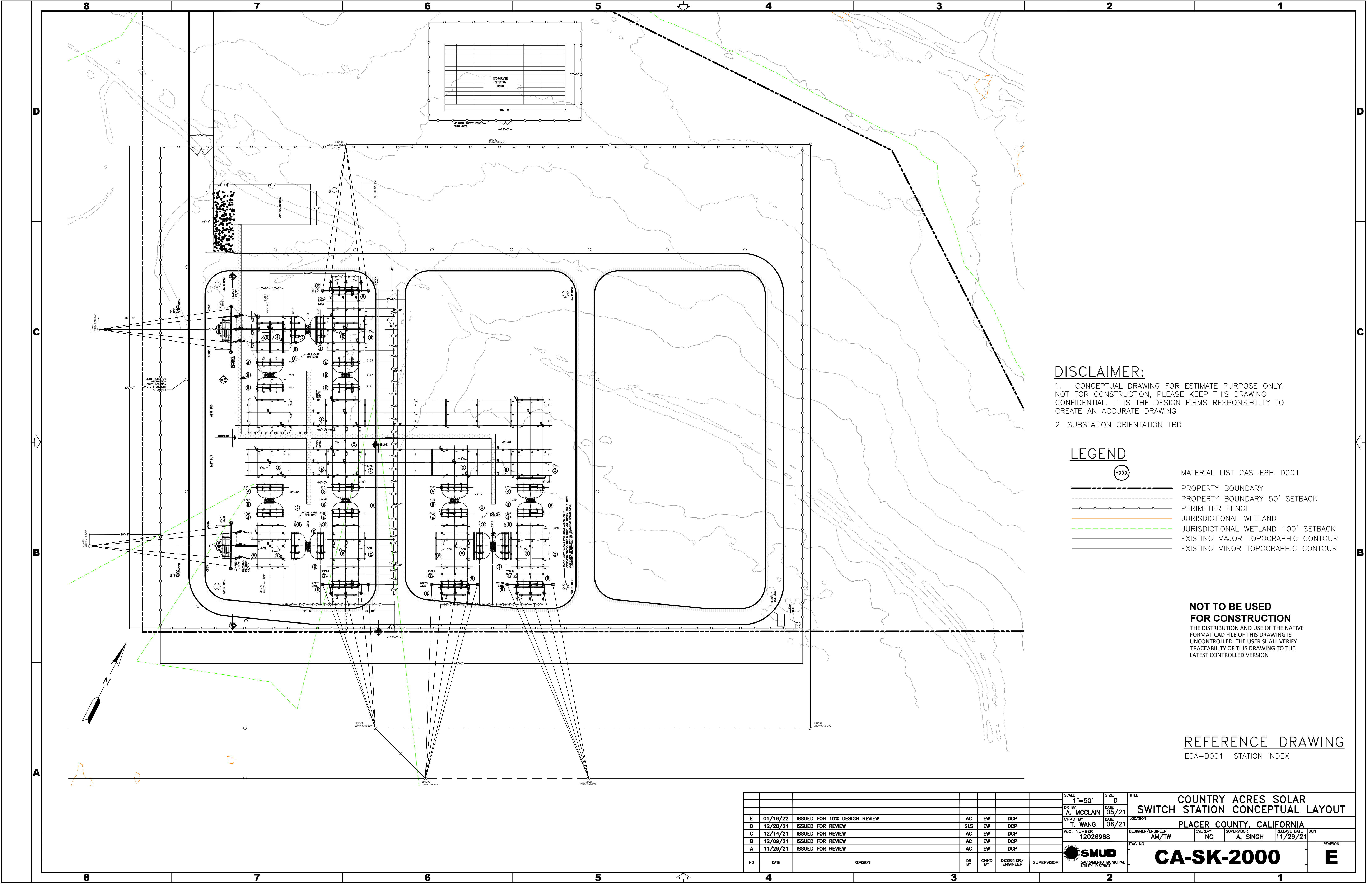
- LEGEND:**
- PROPERTY BOUNDARY
  - PROPERTY BOUNDARY 50' SETBACK
  - PERIMETER FENCE
  - JURISDICTIONAL WETLAND
  - JURISDICTIONAL WETLAND 100' SETBACK
  - EXISTING MAJOR TOPOGRAPHIC CONTOUR
  - EXISTING MINOR TOPOGRAPHIC CONTOUR

**NOT TO BE USED  
FOR CONSTRUCTION**  
THE DISTRIBUTION AND USE OF THE NATIVE  
FORMAT CAD FILE OF THIS DRAWING IS  
UNCONTROLLED. THE USER SHALL VERIFY  
TRACEABILITY OF THIS DRAWING TO THE  
LATEST CONTROLLED VERSION

		SCALE	1"=30'	SIZE	D	TITLE			
		DR BY	MKN	DATE	11/21	COUNTRY ACRES SOLAR SUBSTATION CONCEPTUAL LAYOUT			
		CHKD BY	MDR	DATE	11/21	LOCATION			
		W.O. NUMBER				PLACER COUNTY, CALIFORNIA			
		DESIGNER/ENGINEER	D. PATTON	OVERLAY	NO	SUPERVISOR		RELEASE DATE	11/08/21
		DR BY	MKN	CHKD BY	MDR	DESIGNER/ENGINEER		REVISION	
		NO	DATE	REVISION					
		DR BY	MKN	CHKD BY	MDR	DESIGNER/ENGINEER		REVISION	
		NO	DATE	REVISION					
		DR BY	MKN	CHKD BY	MDR	DESIGNER/ENGINEER		REVISION	
		NO	DATE	REVISION					

FUNCTIONAL LOCATION





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1. CONCEPTUAL DRAWING FOR ESTIMATE PURPOSE ONLY. NOT FOR CONSTRUCTION, PLEASE KEEP THIS DRAWING CONFIDENTIAL. IT IS THE DESIGN FIRMS RESPONSIBILITY TO CREATE AN ACCURATE DRAWING

2. SUBSTATION ORIENTATION TBD

**LEGEND**

(HXXX)

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—○—○—○—○—

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MATERIAL LIST CAS-E8H-D001

PROPERTY BOUNDARY

PROPERTY BOUNDARY 50' SETBACK

PERIMETER FENCE

JURISDICTIONAL WETLAND

JURISDICTIONAL WETLAND 100' SETBACK

EXISTING MAJOR TOPOGRAPHIC CONTOUR

EXISTING MINOR TOPOGRAPHIC CONTOUR

**NOT TO BE USED FOR CONSTRUCTION**

THE DISTRIBUTION AND USE OF THE NATIVE FORMAT CAD FILE OF THIS DRAWING IS UNCONTROLLED. THE USER SHALL VERIFY TRACEABILITY OF THIS DRAWING TO THE LATEST CONTROLLED VERSION

**REFERENCE DRAWING**  
EOA-D001 STATION INDEX

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FUNCTIONAL LOCATION



BESS SYSTEM SPECIFICATIONS:

SYSTEM POWER CAPACITY: 344MW  
SYSTEM ENERGY CAPACITY: 1,376MWh  
SYSTEM ACREAGE: 19.38 ACRES  
NUMBER OF INVERTERS: 131 UNITS (INVERTER/MV TRANSFORMER SKIDS)  
INVERTER SIZE: 2.75MW  
NUMBER OF BESS CONTAINERS: 524  
CONTAINER ENERGY CAPACITY: 2.63MWh (NAMEPLATE)  
BESS CELL CHEMISTRY: LFP (LITHIUM FERRO PHOSPHATE)

NOTE:  
NAMEPLATE VALUES ARE AT BEGINNING OF LIFE

LEGEND:

- PROPERTY BOUNDARY
- PROPERTY BOUNDARY 50' SETBACK
- PERIMETER FENCE
- JURISDICTIONAL WETLAND
- JURISDICTIONAL WETLAND 100' SETBACK
- EXISTING MAJOR TOPOGRAPHIC CONTOUR
- EXISTING MINOR TOPOGRAPHIC CONTOUR

TYPICAL BESS CONFIGURATION DETAIL

NOT TO BE USED  
FOR CONSTRUCTION

THE DISTRIBUTION AND USE OF THE NATIVE  
FORMAT CAD FILE OF THIS DRAWING IS  
UNCONTROLLED. THE USER SHALL VERIFY  
TRACEABILITY OF THIS DRAWING TO THE  
LATEST CONTROLLED VERSION

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FUNCTIONAL LOCATION

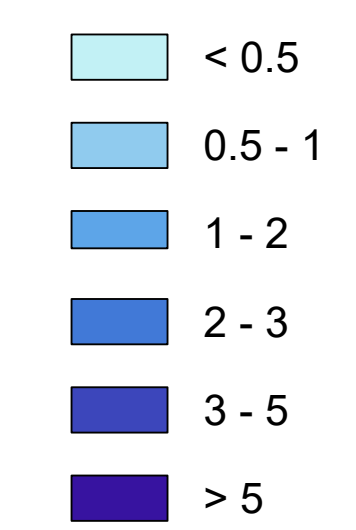




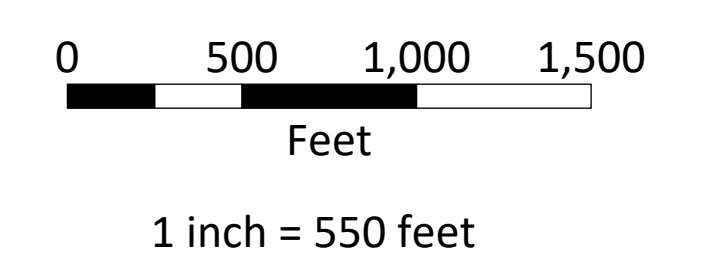
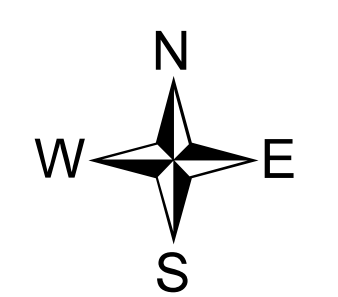


Curry Creek  
100-Year-Flood  
Existing Depths

DEPTH (FT)



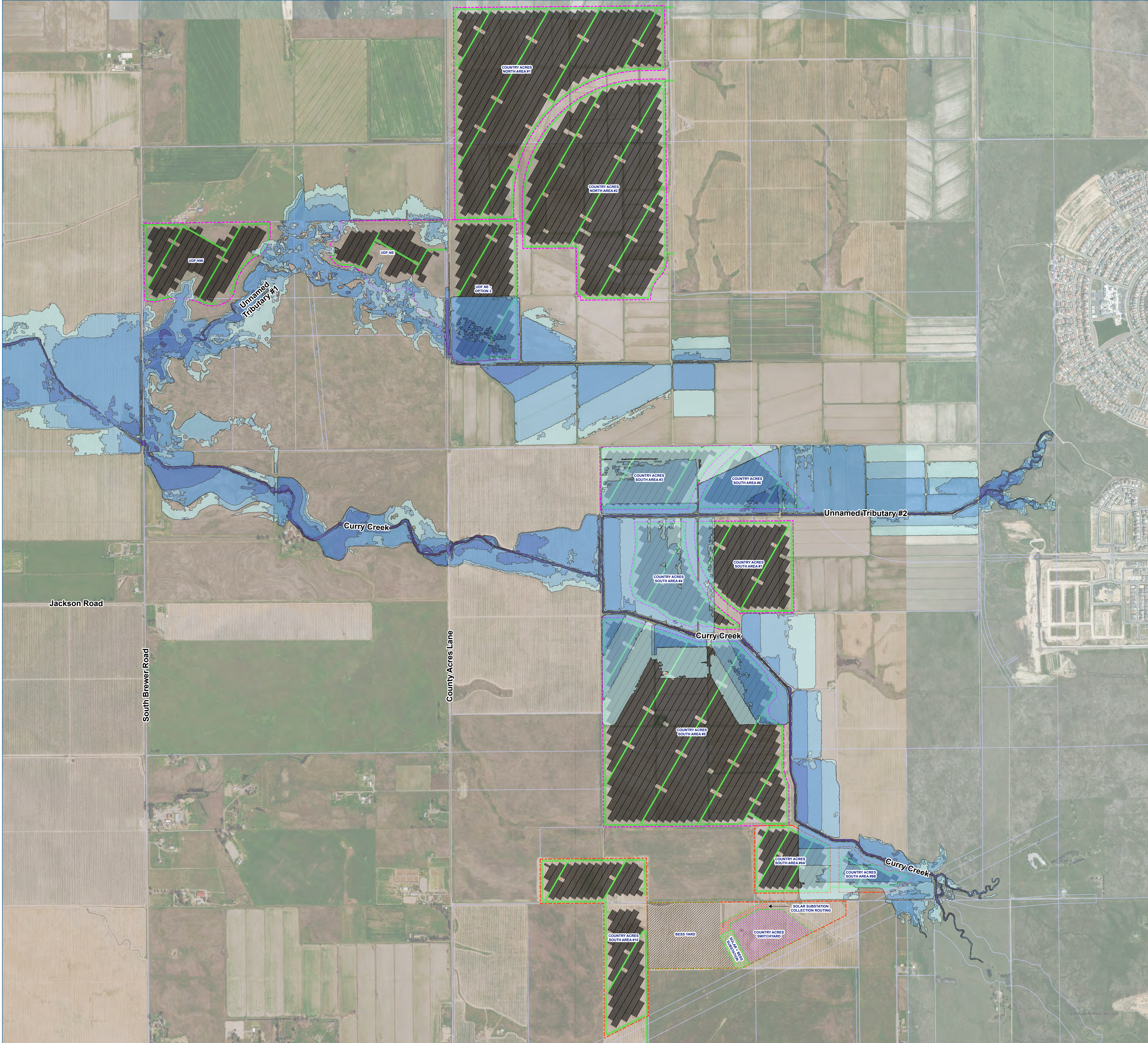
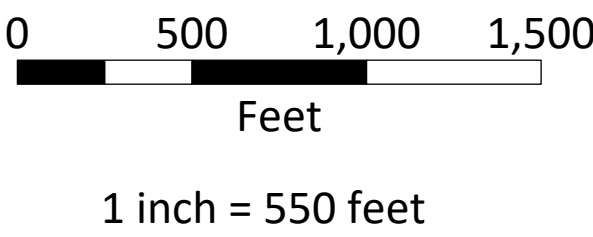
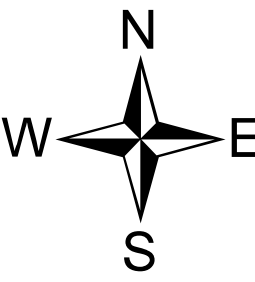
- PROJECT BOUNDARY (SMUD OWNED)
- PROJECT BOUNDARY (LEASED)
- PERIMETER & INTERIOR ACCESS ROADS
- BESS YARD
- SOLAR + BESS SUBSTATION
- COUNTRY ACRES SWITCHYARD
- SOLAR SUBSTATION COLLECTION ROUTING
- PV MODULES
- INVERTER SKIDS
- PARCEL BOUNDARIES





Curry Creek  
100-Year-Flood  
Proposed Depths

- DEPTH (FT)**
- < 0.5
  - 0.5 - 1
  - 1 - 2
  - 2 - 3
  - 3 - 5
  - > 5
- PROJECT BOUNDARY (SMUD OWNED)
- PROJECT BOUNDARY (LEASED)
- PERIMETER & INTERIOR ACCESS ROADS
- /// BESS YARD
- /// SOLAR + BESS SUBSTATION
- /// COUNTRY ACRES SWITCHYARD
- /// SOLAR SUBSTATION COLLECTION ROUTING
- PV MODULES
- INVERTER SKIDS
- PARCEL BOUNDARIES

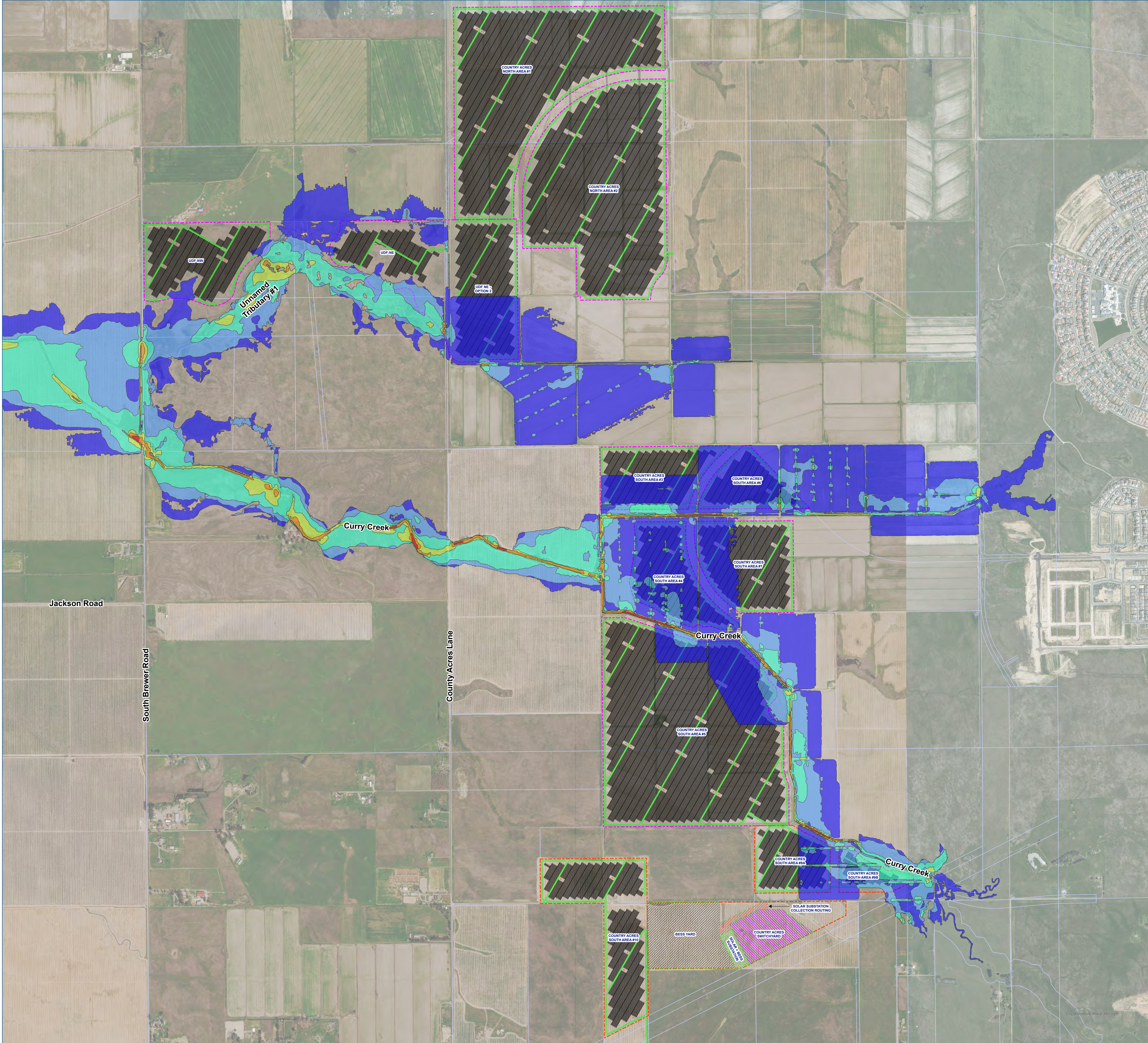
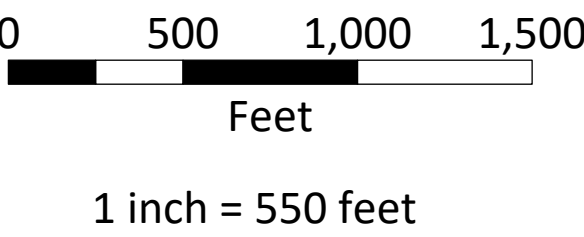
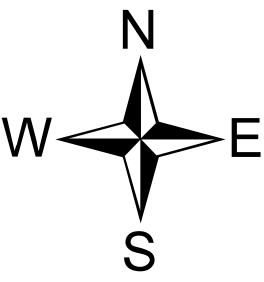




Curry Creek  
100-Year-Flood  
Existing Velocities

VELOCITY (FT/S)

- < 0.5
- 0.5 - 1
- 1 - 2
- 2 - 3
- 3 - 5
- > 5
- PROJECT BOUNDARY (SMUD OWNED)
- PROJECT BOUNDARY (LEASED)
- PERIMETER & INTERIOR ACCESS ROADS
- BESS YARD
- SOLAR + BESS SUBSTATION
- COUNTRY ACRES SWITCHYARD
- SOLAR SUBSTATION COLLECTION ROUTING
- PV MODULES
- INVERTER SKIDS
- PARCEL BOUNDARIES

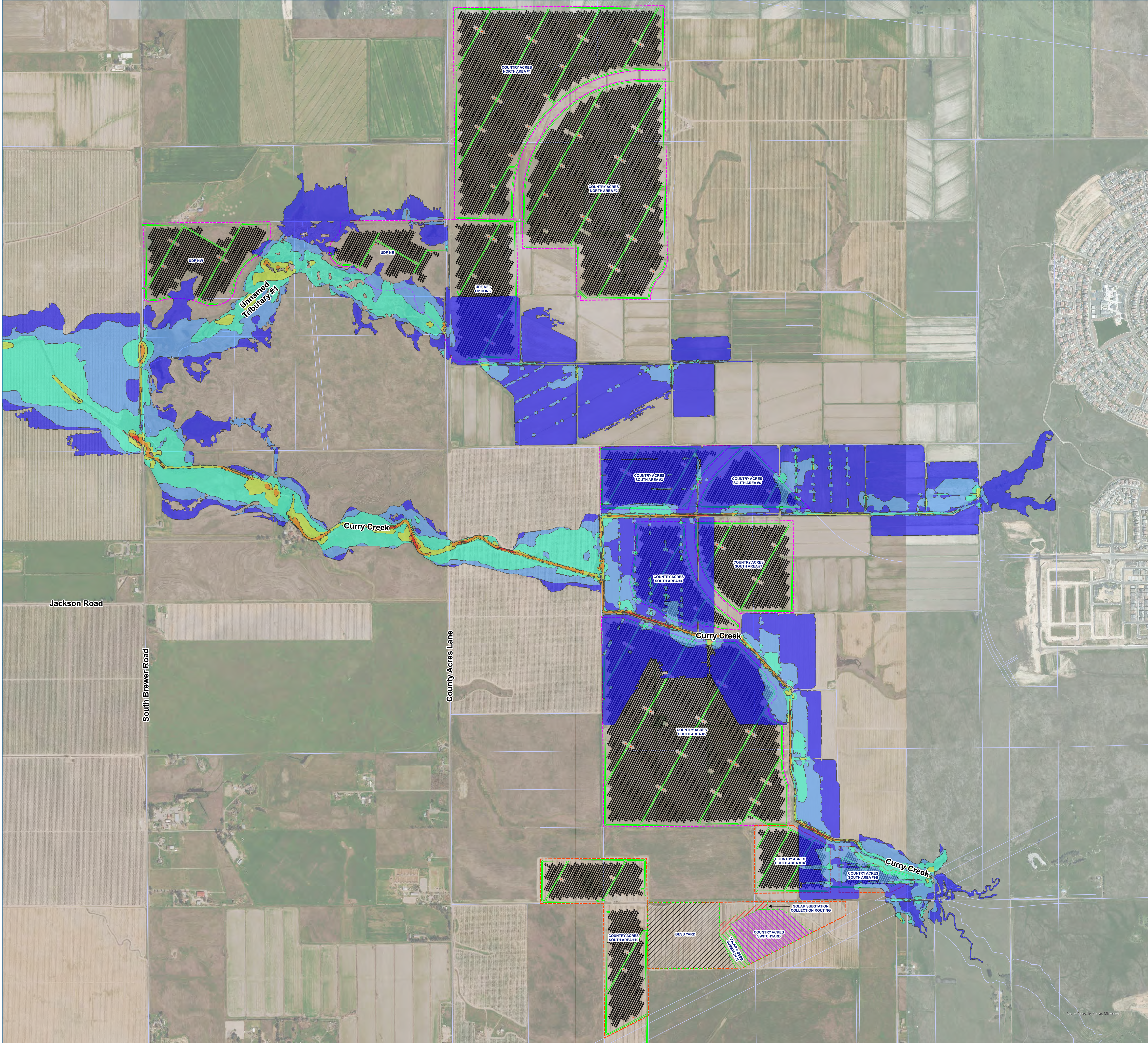
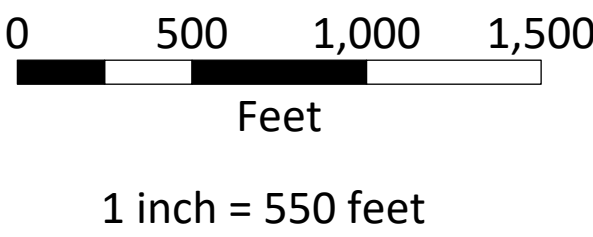
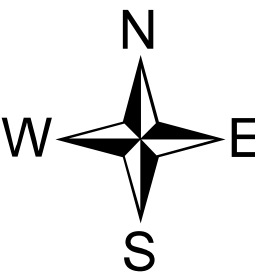




Curry Creek  
100-Year-Flood  
Proposed Velocities

VELOCITY (FT/S)

- < 0.5
- 0.5 - 1
- 1 - 2
- 2 - 3
- 3 - 5
- > 5
- PROJECT BOUNDARY (SMUD OWNED)
- PROJECT BOUNDARY (LEASED)
- PERIMETER & INTERIOR ACCESS ROADS
- BESS YARD
- SOLAR + BESS SUBSTATION
- COUNTRY ACRES SWITCHYARD
- SOLAR SUBSTATION COLLECTION ROUTING
- PV MODULES
- INVERTER SKIDS
- PARCEL BOUNDARIES

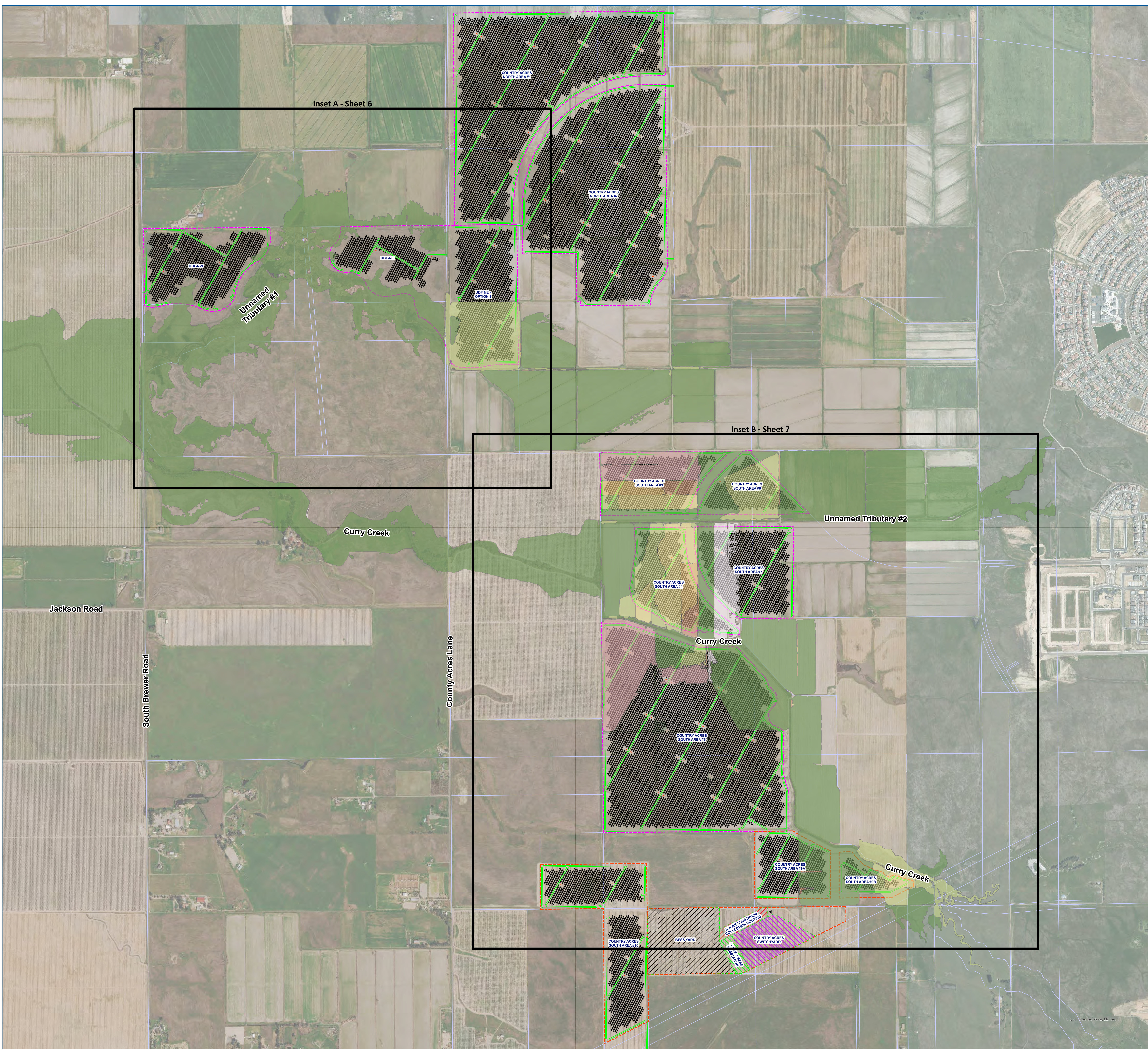
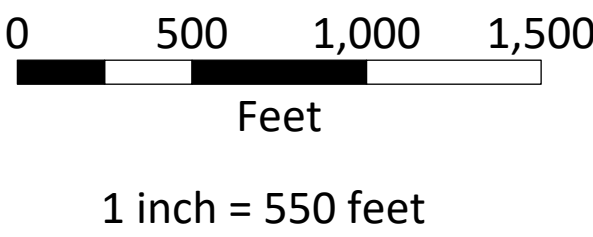
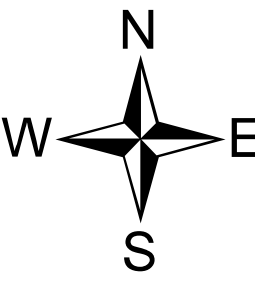




Curry Creek  
100-Year-Flood  
Proposed WSE Increase

WSE INCREASE (FT)

- NO INCREASE
- 0.01 - 0.05
- 0.05 - 0.10
- 0.10 - 0.15
- > 0.15
- EXPANDED FLOODPLAIN
- REDUCED FLOODPLAIN
- PROJECT BOUNDARY (SMUD OWNED)
- PROJECT BOUNDARY (LEASED)
- PERIMETER & INTERIOR ACCESS ROADS
- BESS YARD
- SOLAR + BESS SUBSTATION
- COUNTRY ACRES SWITCHYARD
- SOLAR SUBSTATION COLLECTION ROUTING
- PV MODULES
- INVERTER SKIDS
- PARCEL BOUNDARIES



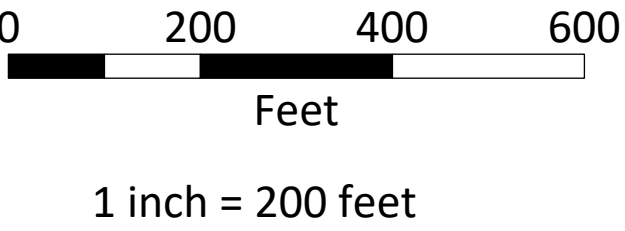
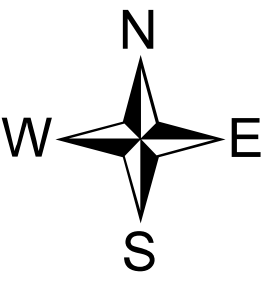




**Inset A**  
**100-Year-Flood**  
**Proposed WSE Increase**  
**Unnamed Tributary #1**

**WSE INCREASE (FT)**

- NO INCREASE
- 0.01 - 0.05
- 0.05 - 0.10
- 0.10 - 0.15
- > 0.15
- EXPANDED FLOODPLAIN
- REDUCED FLOODPLAIN
- PROJECT BOUNDARY (SMUD OWNED)
- PROJECT BOUNDARY (LEASED)
- PERIMETER & INTERIOR ACCESS ROADS
- BESS YARD
- SOLAR + BESS SUBSTATION
- COUNTRY ACRES SWITCHYARD
- SOLAR SUBSTATION COLLECTION ROUTING
- PV MODULES
- INVERTER SKIDS
- PARCEL BOUNDARIES

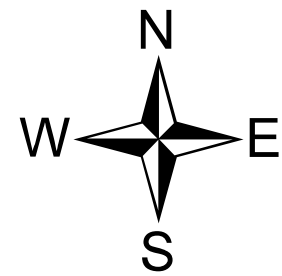






**Inset B**  
**100-Year-Flood**  
**Proposed WSE Increase**  
**Curry Creek**

- WSE INCREASE (FT)**
- NO INCREASE
  - 0.01 - 0.05
  - 0.05 - 0.10
  - 0.10 - 0.15
  - > 0.15
- FLOODPLAIN**
- EXPANDED FLOODPLAIN
  - REDUCED FLOODPLAIN
- PROJECT BOUNDARY (SMUD OWNED)**
- PROJECT BOUNDARY (LEASED)**
- PERIMETER & INTERIOR ACCESS ROADS**
- BESS YARD**
- SOLAR + BESS SUBSTATION**
- COUNTRY ACRES SWITCHYARD**
- SOLAR SUBSTATION COLLECTION ROUTING**
- PV MODULES**
- INVERTER SKIDS**
- PARCEL BOUNDARIES**



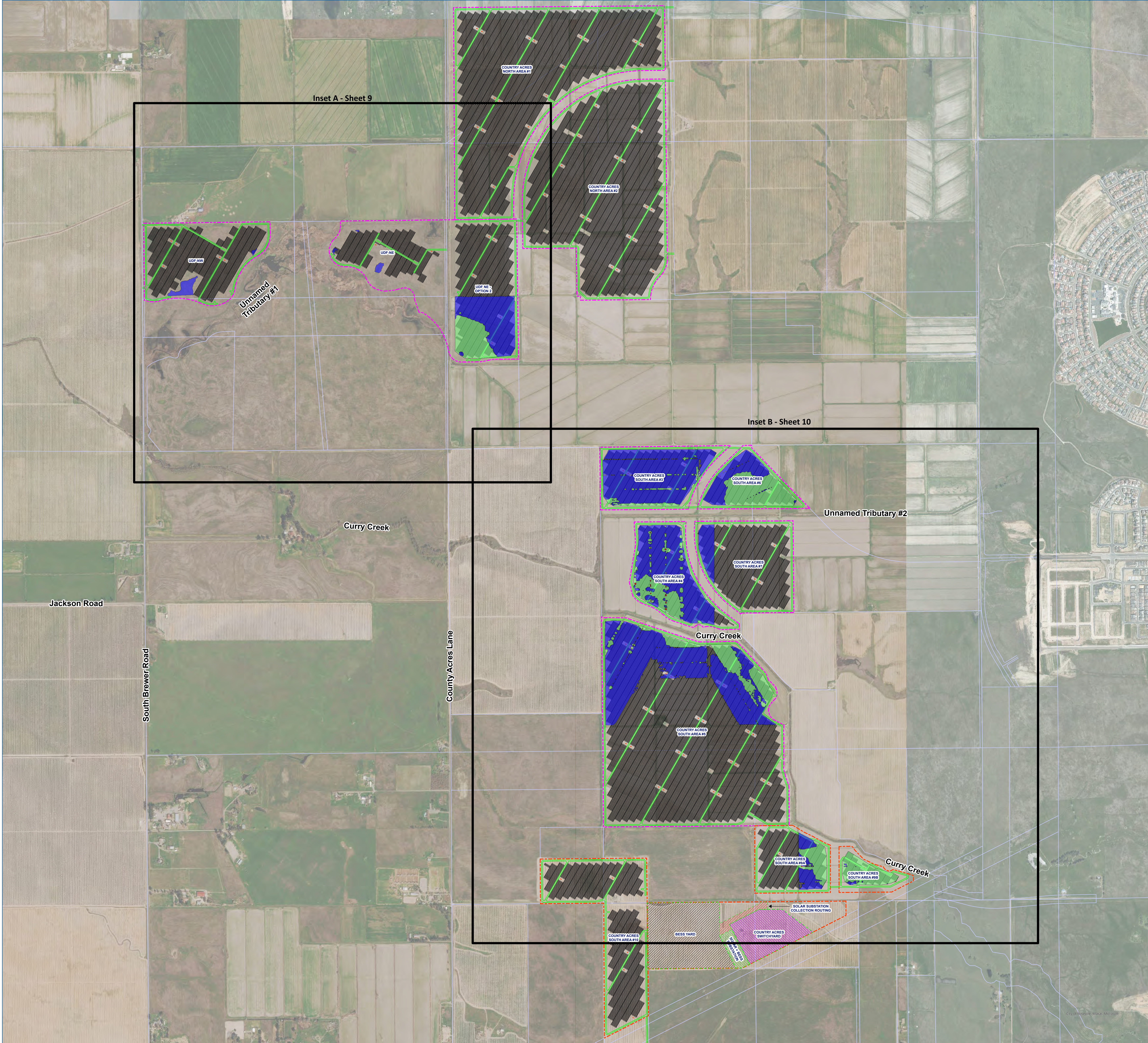
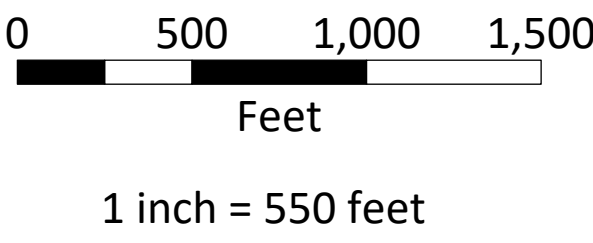
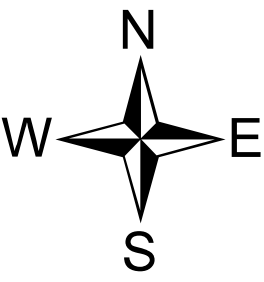
0 200 400 600  
Feet  
1 inch = 275 feet



Curry Creek  
100-Year-Flood  
Proposed Scour Depths

SCOUR DEPTH (FT)

- < 0.5
- 0.5 - 1.0
- > 1.0
- PROJECT BOUNDARY (SMUD OWNED)
- PROJECT BOUNDARY (LEASED)
- PERIMETER & INTERIOR ACCESS ROADS
- BESS YARD
- SOLAR + BESS SUBSTATION
- COUNTRY ACRES SWITCHYARD
- SOLAR SUBSTATION COLLECTION ROUTING
- PV MODULES
- INVERTER SKIDS
- PARCEL BOUNDARIES

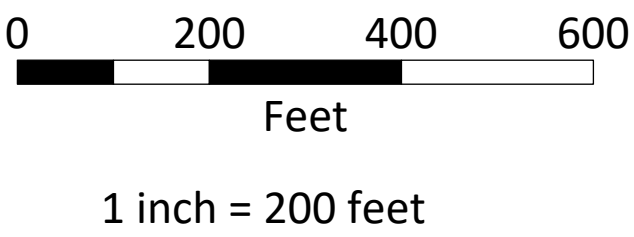
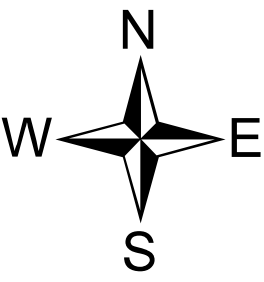




Inset A  
100-Year-Flood  
Proposed Scour Depths  
Unnamed Tributary #1

SCOUR DEPTH (FT)

- < 0.5
- 0.5 - 1.0
- > 1.0
- PROJECT BOUNDARY (SMUD OWNED)
- PROJECT BOUNDARY (LEASED)
- PERIMETER & INTERIOR ACCESS ROADS
- BESS YARD
- SOLAR + BESS SUBSTATION
- COUNTRY ACRES SWITCHYARD
- SOLAR SUBSTATION COLLECTION ROUTING
- PV MODULES
- INVERTER SKIDS
- PARCEL BOUNDARIES

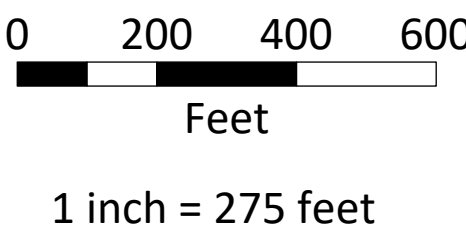
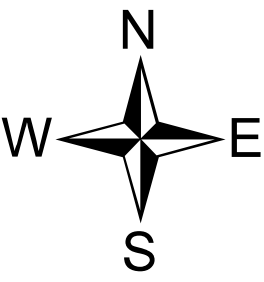




Inset B  
100-Year-Flood  
Proposed Scour Depths  
Curry Creek

SCOUR DEPTH (FT)

- < 0.5
- 0.5 - 1.0
- > 1.0
- PROJECT BOUNDARY (SMUD OWNED)
- PROJECT BOUNDARY (LEASED)
- PERIMETER & INTERIOR ACCESS ROADS
- BESS YARD
- SOLAR + BESS SUBSTATION
- COUNTRY ACRES SWITCHYARD
- SOLAR SUBSTATION COLLECTION ROUTING
- PV MODULES
- INVERTER SKIDS
- PARCEL BOUNDARIES





## **Attachment E. Kinematic Wave Transform Method Hydrology Analysis**

Client Name Sacramento Municipal Utility District Page 1 of 30Project Name Country Acres Solar Study Project No. 406242Calculation Title Kinematic Wave Analysis

Calculation No./File No. \_\_\_\_\_

Verification Method: ☐ Check and Review ☐ Alternate Calculations

**Objective:** Determine the hydrologic response of one of the solar array parcels and the Substation, Switching Station and BESS Areas to the design precipitation events using the Kinematic Wave Method for the transform, as directed by Placer County. Determine the reduction in stormwater volume for the post-development condition, as compared to the pre.

**Unverified Assumptions Requiring Subsequent Verification**

No.	Assumption	Verified By	Date

Refer to Page \_\_\_\_\_ of this calculation for additional assumptions.

**This Section Used for Software-Generated Calculations**Program Name/Number HEC-HMS Version 4.6.1Standard B&V Application Used? ☒ Yes ☐ No

If no, list approved deviation permit number below and attach approved deviation permit.

**Review and Approval**

Rev	Prepared By	Date	Verified By	Date	Approved By	Date
0	G. V. Johnson	5/23/2022				

Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242 File No.  
Title: Kinematic Wave Analysis

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**Owner:** Sacramento Municipal Utility District  
**Plant:** Country Acres Solar Study  
**Address:** Placer County, CA  
**Project No.:** 406242 **File No.**  
**Title:** Kinematic Wave Analysis

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## **1.0 REFERENCES:**

- 1) SMUD Country Acres Solar Study, Hydrologic Analysis, G.V. Johnson, Black & Veatch, Rev. 0, 12/17/2021.
- 2) HEC-HMS, Hydrologic Modeling System, U.S. Army Corps of Engineers, Version 4.6.1, Build: 8363 Date: 17Sep2020 DSS: 7-HK JAVA: 11.0.6
- 3) SMUD Country Acres Solar & BESS, Substation, Switchyard, BESS Areas, Dwg No. CA-SK-0101, Rev. C, 03/30/22.
- 4) SMUD Country Acres Solar & BESS, Overall Conceptual Site Layout, Dwg No. CA-SK-0100, Rev. D, 02/28/22.
- 5) TR55, Urban Hydrology for Small Watersheds, U.S. Department of Agriculture, Soil Conservation Service, June 1986.
- 6) HEC-HMS Users Manual, Selecting a Transform Method, Website accessed: 05/16/2022.  
[Selecting a Transform Method \(army.mil\)](#)
- 7) HEC-HMS Technical Reference Manual, Kinematic Wave Model, Website accessed: 05/16/22.  
[Kinematic Wave Model \(army.mil\)](#)
- 8) Placer County Flood Control and Water Conservation District, Stormwater Management Manual, Version 3, February 1994.
- 9) West Placer Storm Water Quality Design Manual, April 2016, Revised May 2018.
- 10) SMUD Country Acres Hydrology meeting, with representatives from SMUD, AECOM, Black & Veatch, and Placer County, May 12, 2022, 12:00 - 1:00 pm CDT.

**Owner:** Sacramento Municipal Utility District  
**Plant:** Country Acres Solar Study  
**Address:** Placer County, CA  
**Project No.:** 406242 **File No.**  
**Title:** Kinematic Wave Analysis

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## **2.0 DESIGN BASIS:**

Provide supplemental analysis, as described below, to the SMUD Country Acres Solar Study, Hydrologic Analysis, by Black & Veatch, dated 12/17/2021.

As directed by Placer County, select one of the solar array parcels and evaluate the performance of the HEC-HMS modeling by revising the transform method from the SCS Unit Hydrograph method to the Kinematic Wave transform method. (Reference 10)

Also, as directed by Placer County, revise the HEC-HMS modeling of the Substation, Switching Station, and BESS Areas to account for the updated areas, and by using the Kinematic Wave transform method. (Reference 10)

Determine the reduction in stormwater volume for the post-development condition, as compared to the pre for the entire project area. (Reference 10)

## **3.0 DEFINITION OF UNITS AND CONSTANTS:**

cfs	cubic feet per second
ac-ft	acre-feet
sq mi	square miles
sq ft	square feet
hr	hour
in	inches
ft	feet
ft/sec	feet per second
cu-ft	cubic feet

## **4.0 ANALYSIS:**

The HEC-HMS analysis will use design parameters developed in the SMUD Country Acres Hydrologic Analysis (Reference 1), updated as required for the Kinematic Wave transform method.

**Owner:** Sacramento Municipal Utility District  
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**Watershed Areas:**

The watershed areas for each of the parcels is provided in Reference 1, except for the BESS, Substation, and Switchyard areas, which are provided in Reference 4 and in the table below.

<b><u>Country Acres</u></b>	<b><u>Parcel Size</u></b>	<b><u>Parcel Size</u></b>
<b><u>Parcel Title</u></b>	<b><u>(acres)</u></b>	<b><u>(sq miles)</u></b>
BESS	23.22	0.03628
Substation	3.65	0.00570
<u>Switchyard</u>	<u>19.79</u>	<u>0.03092</u>
Total	46.66	0.07291

**Design Precipitation Events:**

Design precipitation events for this site are provided in Reference 1, as shown below.

<b><u>Event</u></b>	<b><u>Precip. (in.)</u></b>
2-Year, 24-Hour	<b>1.90</b>
10-Year, 24-Hour	<b>2.98</b>
100-Year, 24-Hour	<b>4.25</b>

**Kinematic Wave Transform Model:**

The Kinematic Wave Transform Model will be used in the supplemental HEC-HMS analysis based on the physical watershed properties developed in Reference 1, and the design guidance for the method provided in References 6 and 7.

The physical watershed properties, including area, flow length, slope and roughness characteristics, will be used as input data in the model.

In the Kinematic Wave Transform Model, a Plane is used to input the physical properties that the model uses to develop the composite runoff that is directed to a Subcollector. The Subcollector conveys the runoff to a Collector, which discharges to a Channel. The input parameters are similar to the parameters developed to support the SCS Unit Hydrograph method, except the roughness value for the Plane must be increased above the typical values used in the Manning's Equation for open channel flow. Also, the Plane uses the average flow length, which will be input as half the sheet flow length from Reference 1. (References 6 and 7).

Solar Array Parcel South #5 will be evaluated in this analysis.



Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
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Title: Kinematic Wave Analysis

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File No.

## South #5 Parcel - Kinematic Wave Analysis:

### Summary of Results:

For each precipitation event, use of the Kinematic Wave transform method produced higher peak discharges than the SCS Unit Hydrograph method. Post-development discharges were lower than the corresponding pre-development discharges in response to all storm events.

<u>Transform Method</u>	<u>Pre or Post</u>	<u>2 YR Peak</u>	<u>10 YR Peak</u>	<u>100 YR Peak</u>
		<u>(cfs)</u>	<u>(cfs)</u>	<u>(cfs)</u>
SCS UH	Pre	65.4	109.2	160.7
SCS UH	Post	50.7	88.6	135.2
Kinematic Wave	Pre	73.2	131.1	201.4
Kinematic Wave	Post	53.9	105.3	168.5

### Kinematic Wave Input Data: Pre-Development

#### Plane 1

**Basin Name: Basin 1**  
**Element Name: South#5**

\*Length (FT)

\*Slope (FT/FT)

\*Roughness:

\*Area (%)

Routing Steps:

#### Subcollector

**Basin Name: Basin 1**  
**Element Name: South#5**

\*Length (FT)

\*Slope (FT/FT)

\*Manning's n:

Subreaches:

\*Area (MI2)

Shape:

\*Bottom Width (FT)

\*Side Slope (xH:1V)

#### Collector

**Basin Name: Basin 1**  
**Element Name: South#5**

\*Length (FT)

\*Slope (FT/FT)

\*Manning's n:

Subreaches:

\*Area (MI2)

Shape:

\*Bottom Width (FT)

\*Side Slope (xH:1V)

#### Channel

**Basin Name: Basin 1**  
**Element Name: South#5**

Route Upstream:

Routing Method:

\*Length (FT)

\*Slope (FT/FT)

Subreaches:

Shape:

\*Manning's n:

\*Bottom Width (FT)

\*Side Slope (xH:1V)

**Owner:** Sacramento Municipal Utility District  
**Plant:** Country Acres Solar Study  
**Address:** Placer County, CA  
**Project No.:** 406242  
**Title:** Kinematic Wave Analysis

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**File No.**

## South #5 Parcel - Kinematic Wave Analysis:

### Kinematic Wave Input Data: Post-Development

Shown below is the input data for the post-development HEC-HMS model for the South #5 Parcel, for the pervious portion of the watershed. The impervious Kinematic Wave input data is similar to the pervious, but the areas for the Subcollector and Collector are adjusted to reflect the total impervious area. The 100 foot channel length represents the distance from the parcel to the Curry Creek channel.

### Plane 1

<b>Basin Name: Basin 1</b>	
<b>Element Name: South#5-Perv</b>	
*Length (FT)	150
*Slope (FT/FT)	0.003
*Roughness:	0.18
*Area (%)	100
Routing Steps:	5

### Subcollector

<b>Basin Name: Basin 1</b>	
<b>Element Name: South#5-Perv</b>	
*Length (FT)	1000
*Slope (FT/FT)	0.0075
*Manning's n:	0.13
Subreaches:	5
*Area (MI2)	0.24
Shape:	Trapezoid
*Bottom Width (FT)	50
*Side Slope (xH:1V)	50

### Collector

<b>Basin Name: Basin 1</b>	
<b>Element Name: South#5-Perv</b>	
*Length (FT)	650
*Slope (FT/FT)	0.003
*Manning's n:	0.13
Subreaches:	5
*Area (MI2)	0.36333
Shape:	Trapezoid
*Bottom Width (FT)	30
*Side Slope (xH:1V)	30

### Channel

<b>Basin Name: Basin 1</b>	
<b>Element Name: South#5-Perv</b>	
Route Upstream:	No
Routing Method:	Kinematic Wave
*Length (FT)	100
*Slope (FT/FT)	0.005
Subreaches:	5
Shape:	Trapezoid
*Manning's n:	0.13
*Bottom Width (FT)	30
*Side Slope (xH:1V)	30

Owner: Sacramento Municipal Utility District  
 Plant: Country Acres Solar Study  
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 Title: Kinematic Wave Analysis

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File No.

## Substation, Switchyard and BESS Areas - Kinematic Wave Analysis:

### Summary of Results:

Kinematic Wave results aren't compared to the SCS UH results from Reference 1, because of changes to the watershed areas. Post-development discharges were lower than the corresponding pre-development discharges in response to all storm events. Time-of-concentration flow paths and physical parameters from Reference 1 are still applicable with the revised subbasin areas.

		2 YR Peak	10 YR Peak	100 YR Peak
<u>Transform Method</u>	<u>Pre or Post</u>	<u>(cfs)</u>	<u>(cfs)</u>	<u>(cfs)</u>
Kinematic Wave	Pre	8.9	20.0	32.4
Kinematic Wave	Post	7.0	13.1	22.7

### Kinematic Wave Input Data: Pre-Development

#### Plane 1

**Basin Name: Basin 1**  
**Element Name: Subst/Switch/BESS**

\*Length (FT)

\*Slope (FT/FT)

\*Roughness:

\*Area (%)

Routing Steps:

#### Subcollector

**Basin Name: Basin 1**  
**Element Name: Subst/Switch/BESS**

\*Length (FT)

\*Slope (FT/FT)

\*Manning's n:

Subreaches:

\*Area (MI2)

Shape:

\*Bottom Width (FT)

\*Side Slope (xH:1V)

#### Collector

**Basin Name: Basin 1**  
**Element Name: Subst/Switch/BESS**

\*Length (FT)

\*Slope (FT/FT)

\*Manning's n:

Subreaches:

\*Area (MI2)

Shape:

\*Bottom Width (FT)

\*Side Slope (xH:1V)

#### Channel

**Basin Name: Basin 1**  
**Element Name: Subst/Switch/BESS**

Route Upstream:

Routing Method:

\*Length (FT)

\*Slope (FT/FT)

Subreaches:

Shape:

\*Manning's n:

\*Bottom Width (FT)

\*Side Slope (xH:1V)

Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
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File No.

## Substation, Switchyard and BESS Areas - Kinematic Wave Analysis:

### Kinematic Wave Input Data: Post-Development Substation

Shown below is the input data for the post-development HEC-HMS model for the Substation, for the pervious portion of the watershed. The impervious Kinematic Wave input data is similar to the pervious, but the areas for the Subcollector and Collector are adjusted to reflect the total impervious area.

#### Plane 1

<b>Basin Name: Basin 1</b>	
<b>Element Name: Subst-Perv</b>	
*Length (FT)	150
*Slope (FT/FT)	0.004
*Roughness:	0.18
*Area (%)	100
Routing Steps:	5

#### Subcollector

<b>Basin Name: Basin 1</b>	
<b>Element Name: Subst-Perv</b>	
*Length (FT)	625
*Slope (FT/FT)	0.004
*Manning's n:	0.13
Subreaches:	5
*Area (MI2)	0.0027
Shape:	Trapezoid
*Bottom Width (FT)	30
*Side Slope (xH:1V)	30

#### Collector

<b>Basin Name: Basin 1</b>	
<b>Element Name: Subst-Perv</b>	
*Length (FT)	600
*Slope (FT/FT)	0.004
*Manning's n:	0.13
Subreaches:	5
*Area (MI2)	0.00555
Shape:	Trapezoid
*Bottom Width (FT)	20
*Side Slope (xH:1V)	20

#### Channel

<b>Basin Name: Basin 1</b>	
<b>Element Name: Subst-Perv</b>	
Route Upstream:	No
Routing Method:	Kinematic Wave
*Length (FT)	600
*Slope (FT/FT)	0.004
Subreaches:	5
Shape:	Trapezoid
*Manning's n:	0.13
*Bottom Width (FT)	10
*Side Slope (xH:1V)	10

Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Kinematic Wave Analysis

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File No.

### Substation, Switchyard and BESS Areas - Kinematic Wave Analysis:

#### Kinematic Wave Input Data: Post-Development Switchyard

Shown below is the input data for the post-development HEC-HMS model for the Switchyard, for the pervious portion of the watershed. The impervious Kinematic Wave input data is similar to the pervious, but the areas for the Subcollector and Collector are adjusted to reflect the total impervious area.

#### Plane 1

<b>Basin Name: Basin 1</b>	
<b>Element Name: Switch-Perv</b>	
*Length (FT)	150
*Slope (FT/FT)	0.010
*Roughness:	0.02
*Area (%)	100
Routing Steps:	5

#### Subcollector

<b>Basin Name: Basin 1</b>	
<b>Element Name: Switch-Perv</b>	
*Length (FT)	100
*Slope (FT/FT)	0.010
*Manning's n:	0.011
Subreaches:	5
*Area (MI2)	0.015
Shape:	Trapezoid
*Bottom Width (FT)	30
*Side Slope (xH:1V)	30

#### Collector

<b>Basin Name: Basin 1</b>	
<b>Element Name: Switch-Perv</b>	
*Length (FT)	100
*Slope (FT/FT)	0.010
*Manning's n:	0.13
Subreaches:	5
*Area (MI2)	0.03015
Shape:	Trapezoid
*Bottom Width (FT)	20
*Side Slope (xH:1V)	20

#### Channel

<b>Basin Name: Basin 1</b>	
<b>Element Name: Switch-Perv</b>	
Route Upstream:	No
Routing Method:	Kinematic Wave
*Length (FT)	100
*Slope (FT/FT)	0.010
Subreaches:	5
Shape:	Trapezoid
*Manning's n:	0.13
*Bottom Width (FT)	10
*Side Slope (xH:1V)	10

Owner: Sacramento Municipal Utility District  
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File No.

## Substation, Switchyard and BESS Areas - Kinematic Wave Analysis:

### Kinematic Wave Input Data: Post-Development BESS Area

Shown below is the input data for the post-development HEC-HMS model for the BESS Area, for the pervious portion of the watershed. The impervious Kinematic Wave input data is similar to the pervious, but the areas for the Subcollector and Collector are adjusted to reflect the total impervious area.

#### Plane 1

<b>Basin Name: Basin 1</b>	
<b>Element Name: BESS-Perv</b>	
*Length (FT)	150
*Slope (FT/FT)	0.002
*Roughness:	0.18
*Area (%)	100
Routing Steps:	5

#### Subcollector

<b>Basin Name: Basin 1</b>	
<b>Element Name: BESS-Perv</b>	
*Length (FT)	475
*Slope (FT/FT)	0.004
*Manning's n:	0.13
Subreaches:	5
*Area (MI2)	0.017
Shape:	Trapezoid
*Bottom Width (FT)	30
*Side Slope (xH:1V)	30

#### Collector

<b>Basin Name: Basin 1</b>	
<b>Element Name: BESS-Perv</b>	
*Length (FT)	500
*Slope (FT/FT)	0.004
*Manning's n:	0.13
Subreaches:	5
*Area (MI2)	0.03409
Shape:	Trapezoid
*Bottom Width (FT)	20
*Side Slope (xH:1V)	20

#### Channel

<b>Basin Name: Basin 1</b>	
<b>Element Name: BESS-Perv</b>	
Route Upstream:	No
Routing Method:	Kinematic Wave
*Length (FT)	500
*Slope (FT/FT)	0.004
Subreaches:	5
Shape:	Trapezoid
*Manning's n:	0.13
*Bottom Width (FT)	10
*Side Slope (xH:1V)	10

Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Kinematic Wave Analysis

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File No.

#### **HYDROLOGIC MODEL RESULTS:**

Solar array parcel South #5 was analyzed using the Kinematic Wave Transform Method, to compare the results to the use of the SCS Unit Hydrograph Transform Method used in the Hydrology Analysis. Results for each method are provided in the table below.

<u>Transform Method</u>	<u>Pre or Post</u>	<b>2 YR Peak</b>	<b>10 YR Peak</b>	<b>100 YR Peak</b>
		<u>(cfs)</u>	<u>(cfs)</u>	<u>(cfs)</u>
SCS UH	Pre	65.4	109.2	160.7
SCS UH	Post	50.7	88.6	135.2
Kinematic Wave	Pre	73.2	131.1	201.4
Kinematic Wave	Post	53.9	105.3	168.5

For all events, peak discharges using the Kinematic Wave method exceed peak discharges using the SCS UH method. The percent increase gets larger as the events become more extreme. In response to the 2-Year event, peak discharges with the Kinematic Wave method are roughly 10 percent greater than with the SCS UH method; however, in response to the 100-Year event, the Kinematic Wave peak discharges are 25 percent greater than with the SCS UH method.

The post-development response in comparison to the pre is very similar for both methods. With the Kinematic Wave method predicting slightly more reduction of the post-development peak discharge as compared to the pre. Both models meet the requirement that post-development peak discharges do not exceed the pre.

The Switchyard, Substation, and BESS areas were analyzed using the Kinematic Wave Transform Method. As required, post-development peak discharges are less than the corresponding pre-development peak discharge. Results are provided in the table below.

<u>Transform Method</u>	<u>Pre or Post</u>	<b>2 YR Peak</b>	<b>10 YR Peak</b>	<b>100 YR Peak</b>
		<u>(cfs)</u>	<u>(cfs)</u>	<u>(cfs)</u>
Kinematic Wave	Pre	8.9	20.0	32.4
Kinematic Wave	Post	7.0	13.1	22.7

The detention basins provided in the Hydrology Analysis were included with this modeling. In the BESS area, 0.6 acre-feet of storage is predicted in response to the 100-Year event, with a peak stage of 78.7 feet. In the Switch area, 0.2 acre-feet of storage is predicted in response to the 100-Year event, with a peak stage of 84.6 feet. Embankment crest elevations will be set to provide a minimum of 2 feet of freeboard in response to the 100-Year event.

HEC-HMS results for the modeling of parcel South #5 and the Substation, Switchyard and BESS areas are provided on Pages A13 - A27.



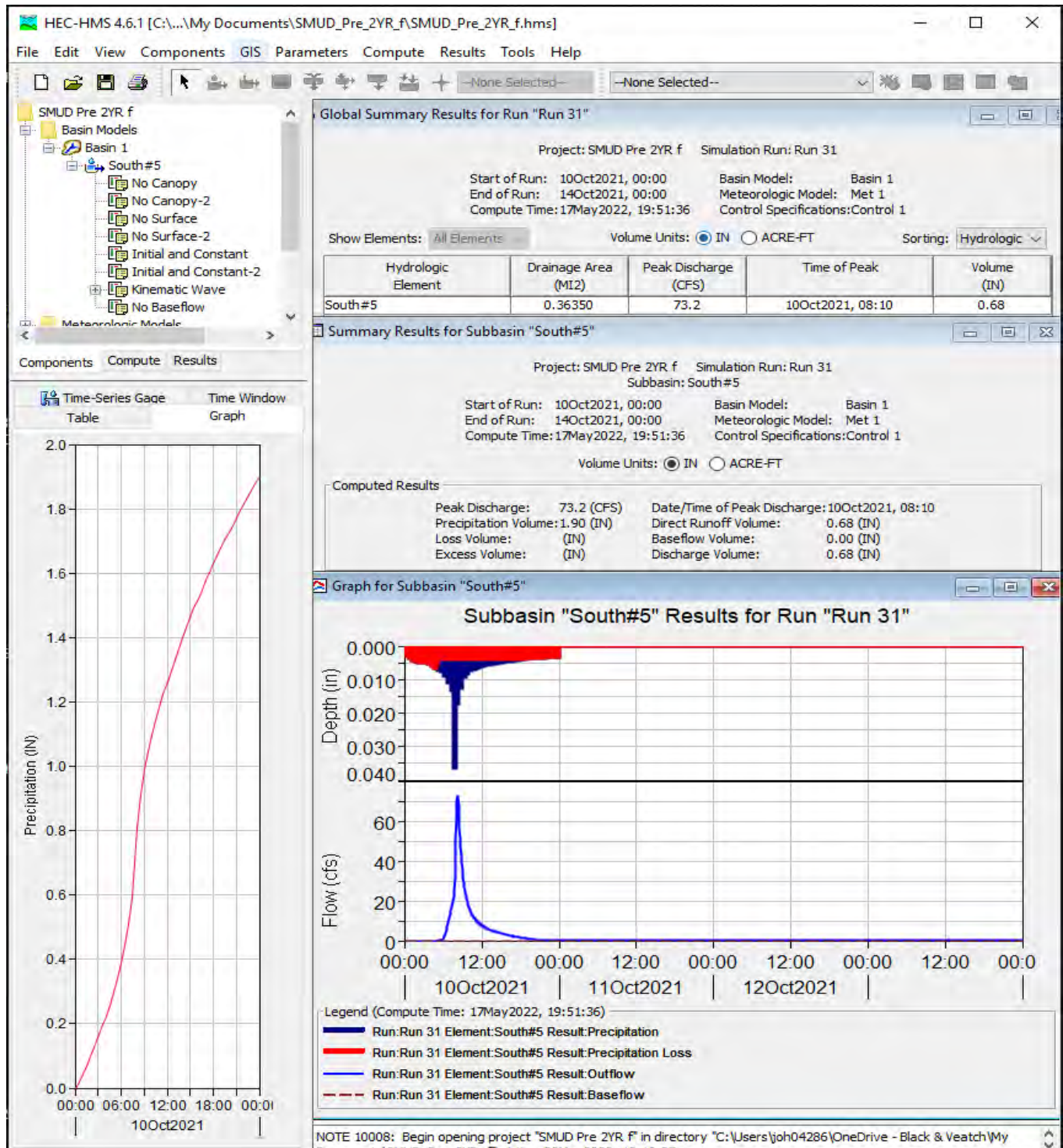
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Kinematic Wave Analysis

Page: A13

File No.

### HYDROLOGIC MODEL RESULTS - Parcel South #5:

HEC-HMS computed results for parcel South #5 in existing condition in response to the 2-year event.





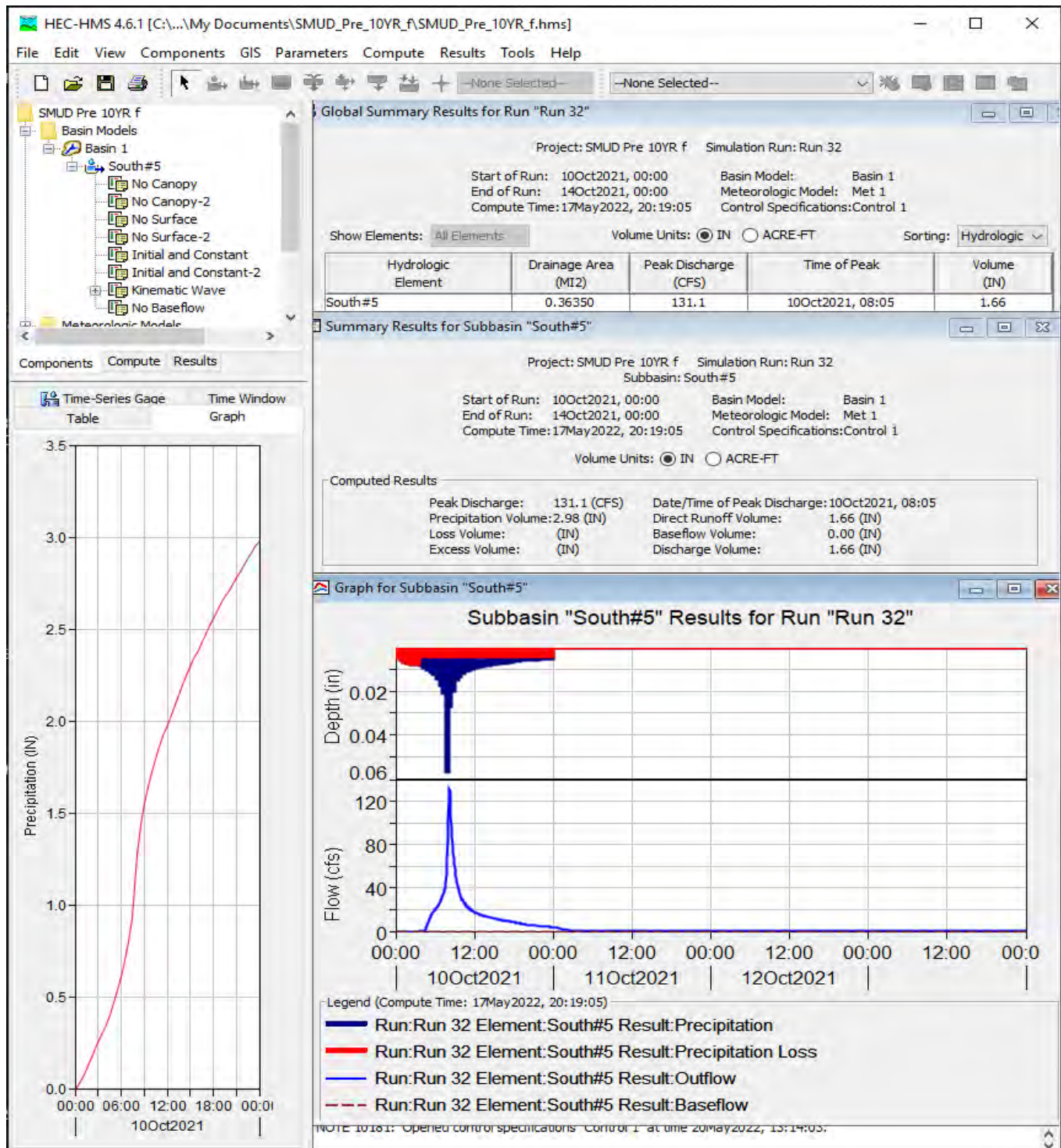
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Kinematic Wave Analysis

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File No.

### HYDROLOGIC MODEL RESULTS - Parcel South #5:

HEC-HMS computed results for parcel South #5 in existing condition in response to the 10-year event.

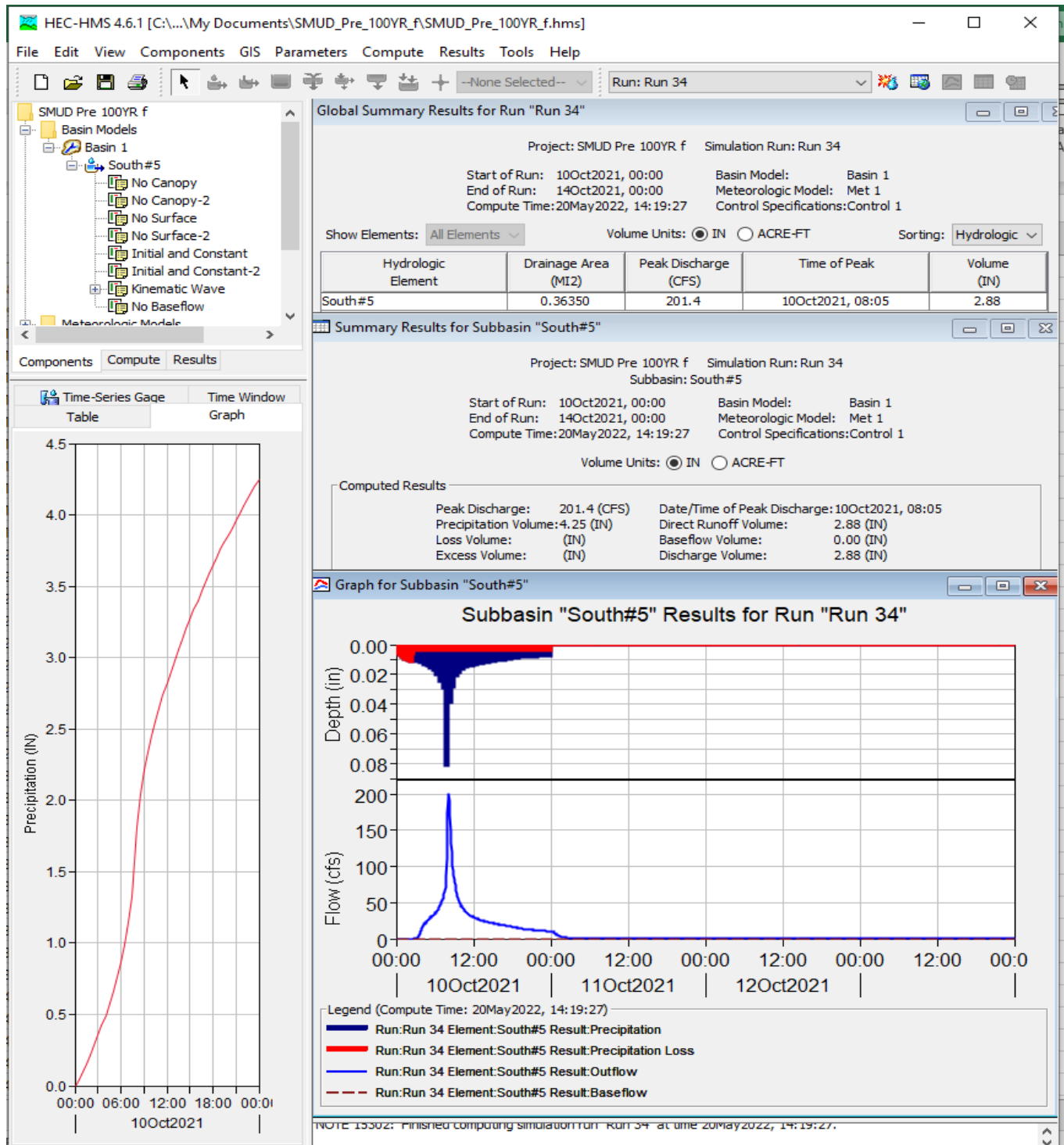


Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Kinematic Wave Analysis

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### HYDROLOGIC MODEL RESULTS - Parcel South #5:

HEC-HMS computed results for parcel South #5 in existing condition in response to the 100-year event.



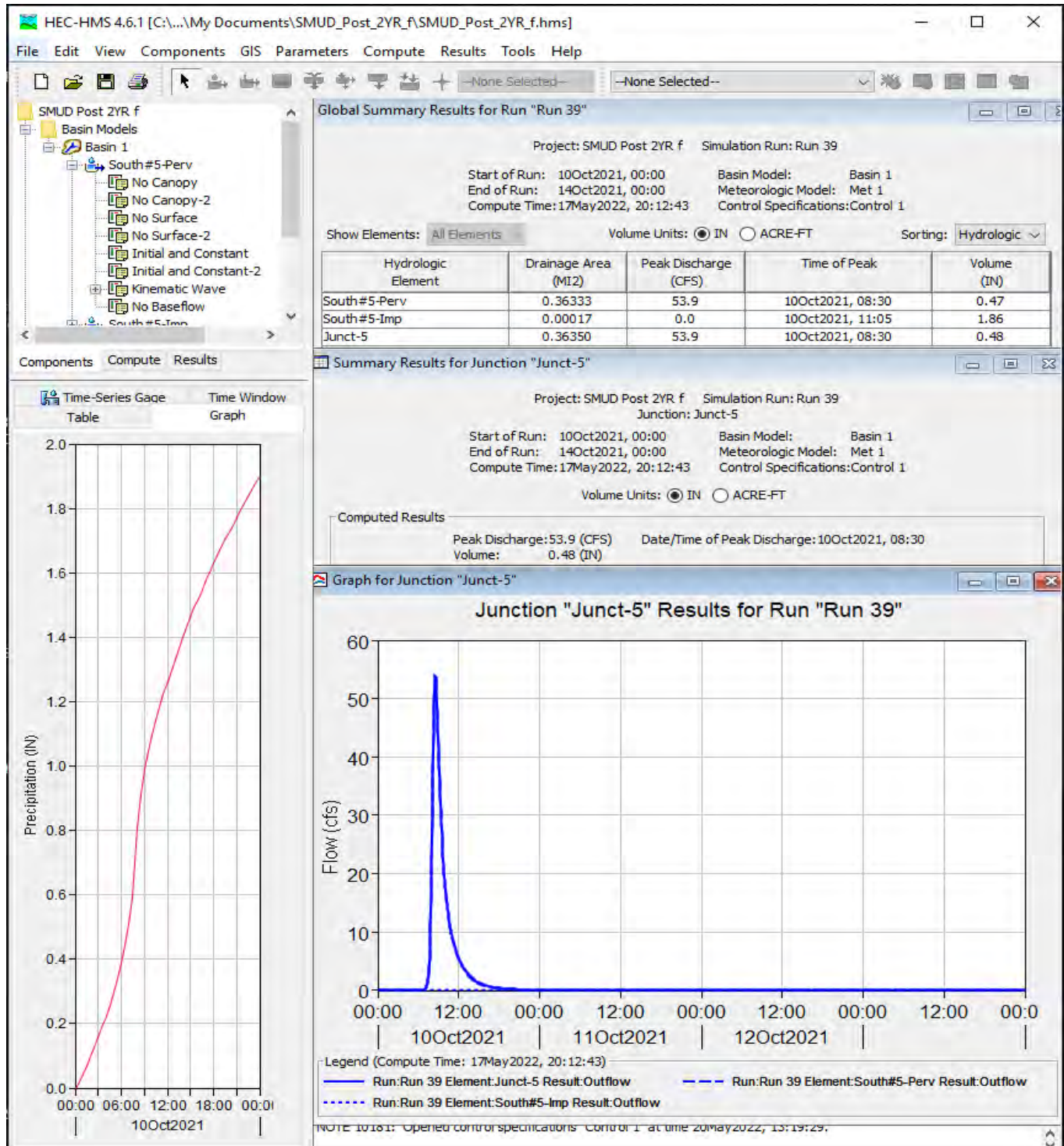
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Kinematic Wave Analysis

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File No.

### HYDROLOGIC MODEL RESULTS - Parcel South #5:

HEC-HMS computed results for parcel South #5 in the proposed condition in response to the 2-year event.





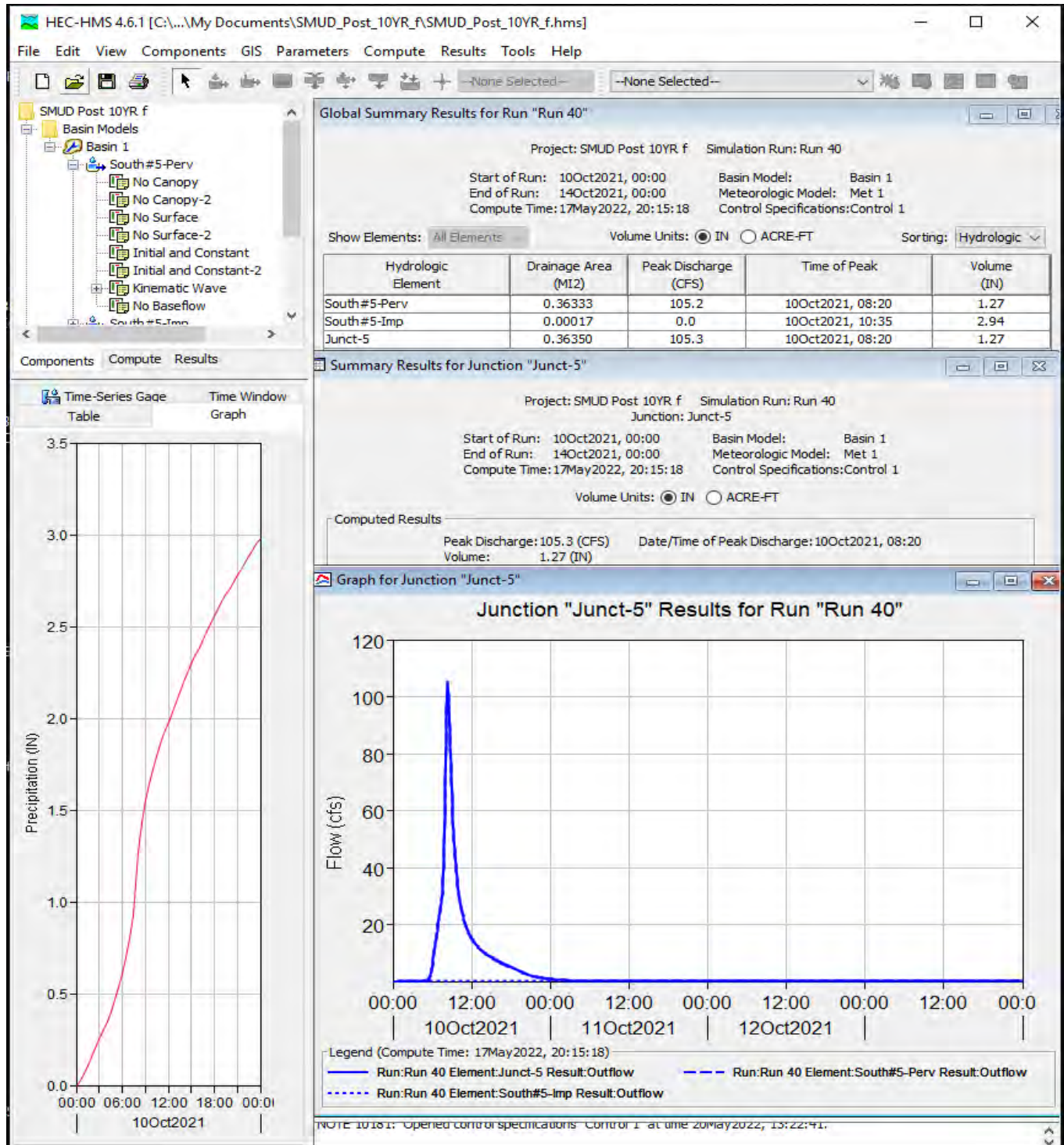
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Kinematic Wave Analysis

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File No.

### HYDROLOGIC MODEL RESULTS - Parcel South #5:

HEC-HMS computed results for parcel South #5 in the proposed condition in response to the 10-year event.



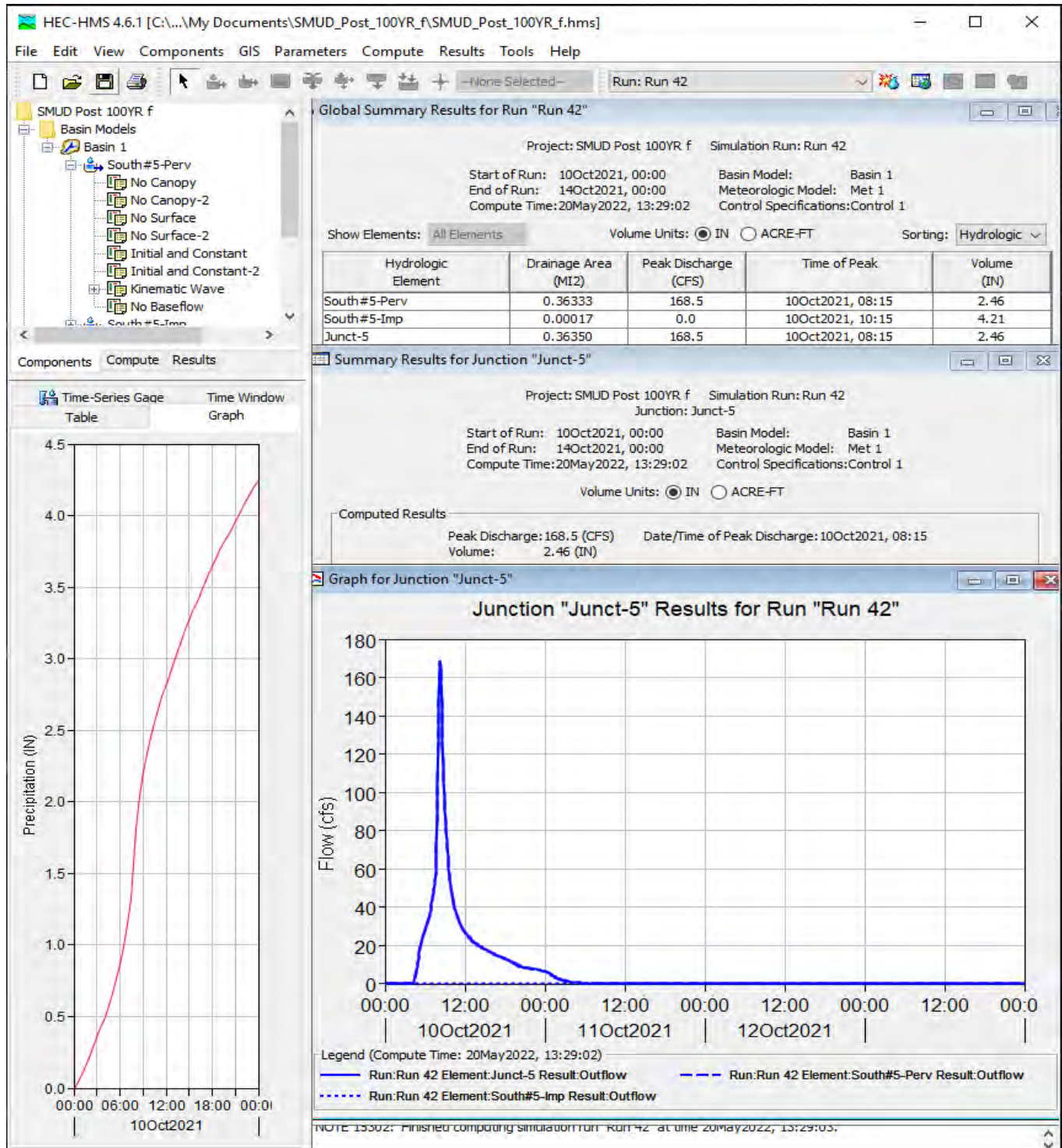
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Kinematic Wave Analysis

Page: A18

File No.

### HYDROLOGIC MODEL RESULTS - Parcel South #5:

HEC-HMS computed results for parcel South #5 in the proposed condition in response to the 100-year event.





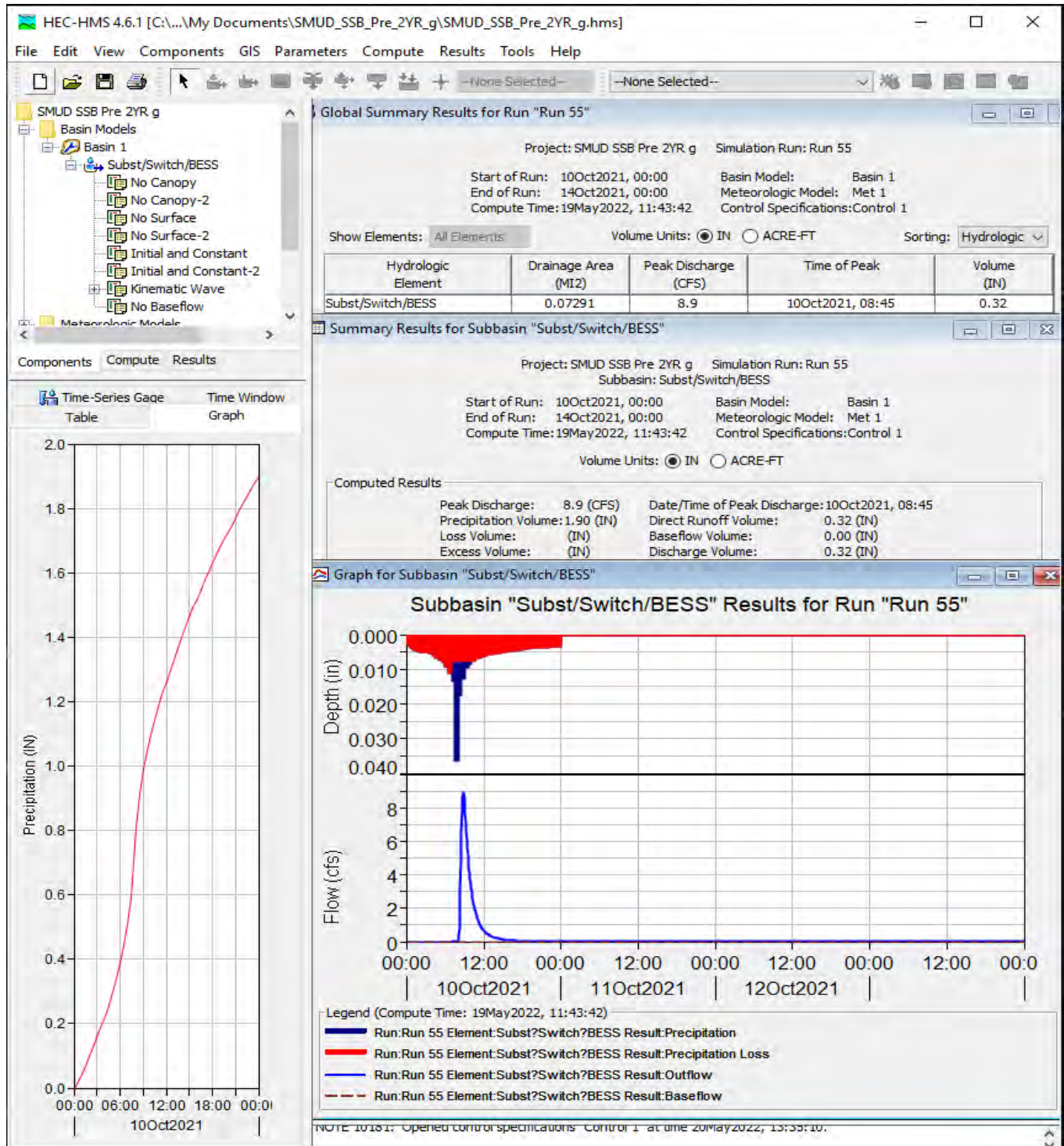
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Kinematic Wave Analysis

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File No.

### HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:

HEC-HMS computed results for the site in its existing condition in response to the 2-year event.



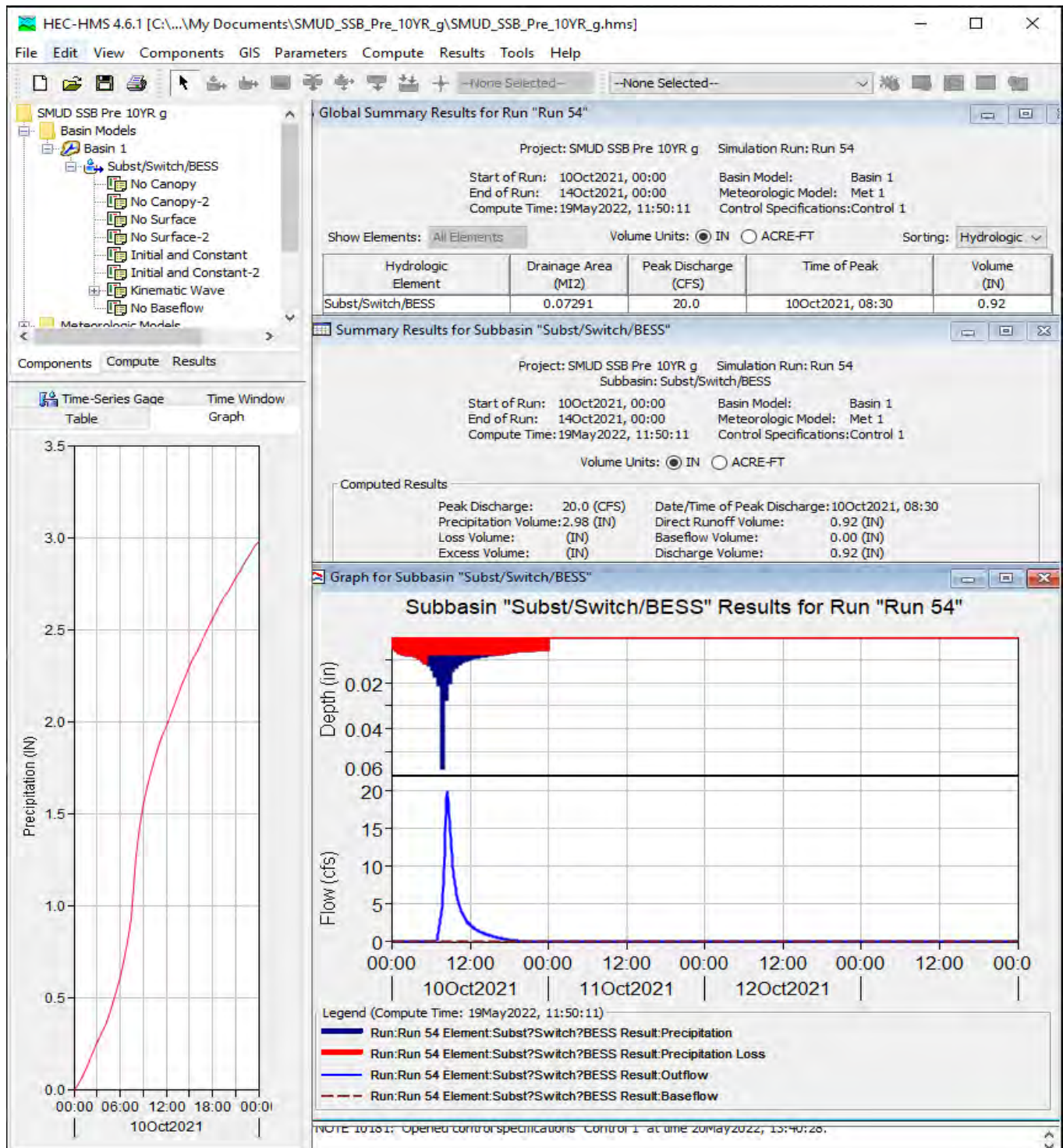
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Kinematic Wave Analysis

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File No.

### HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:

HEC-HMS computed results for the site in its existing condition in response to the 10-year event.





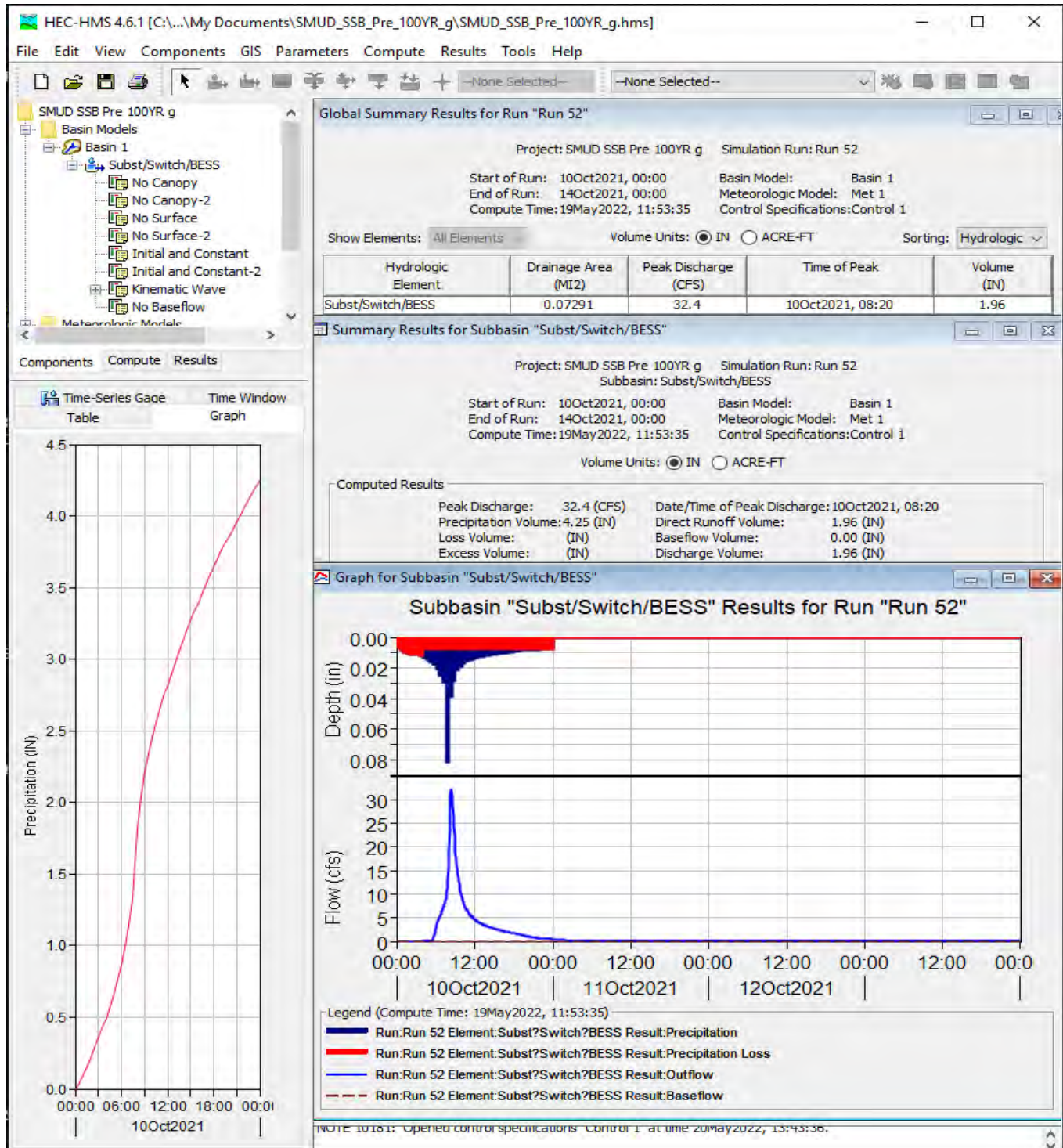
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Kinematic Wave Analysis

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File No.

### HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:

HEC-HMS computed results for the site in its existing condition in response to the 100-year event.





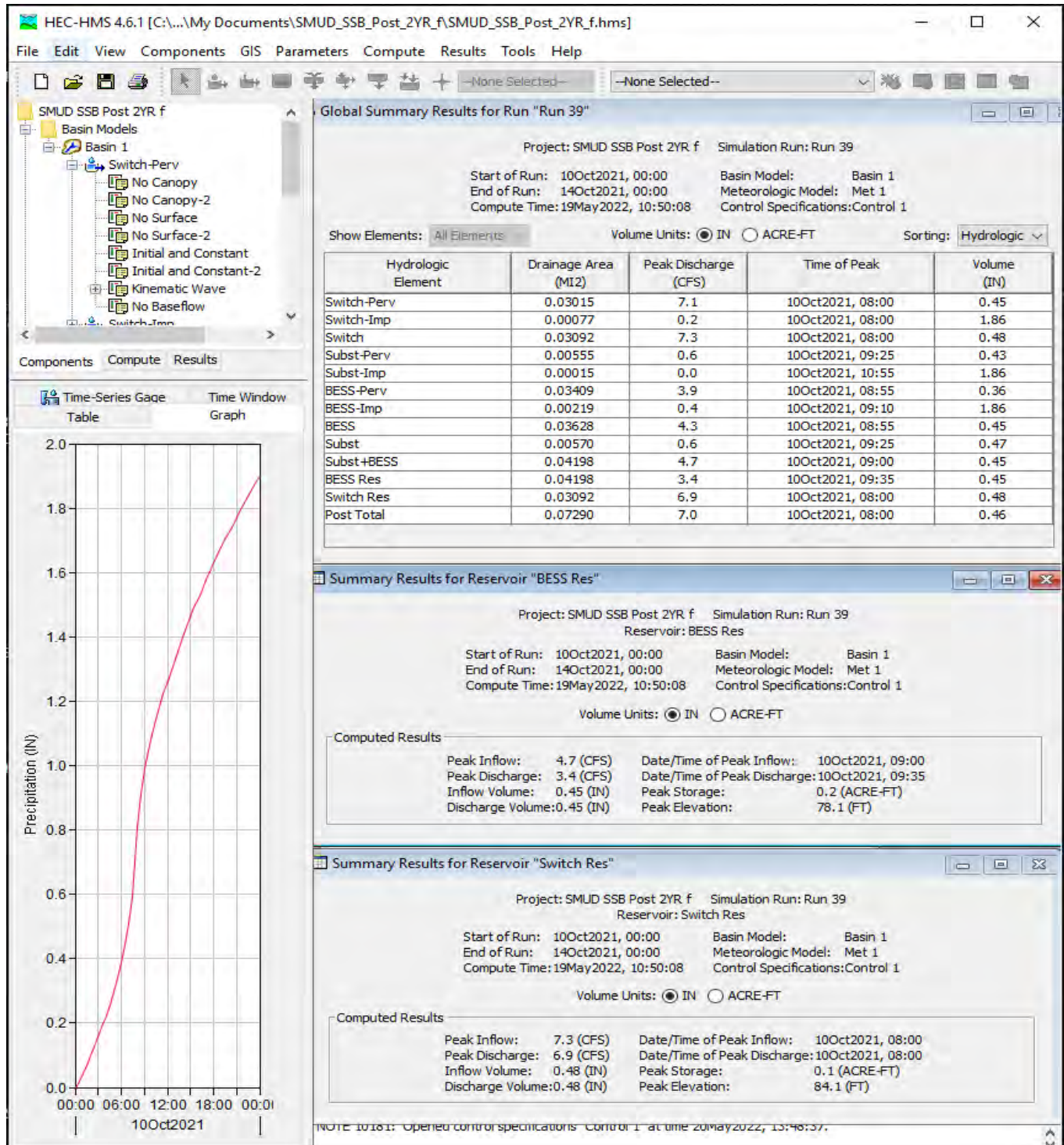
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Kinematic Wave Analysis

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File No.

### HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:

HEC-HMS computed results for the site in the proposed condition in response to the 2-YR event.

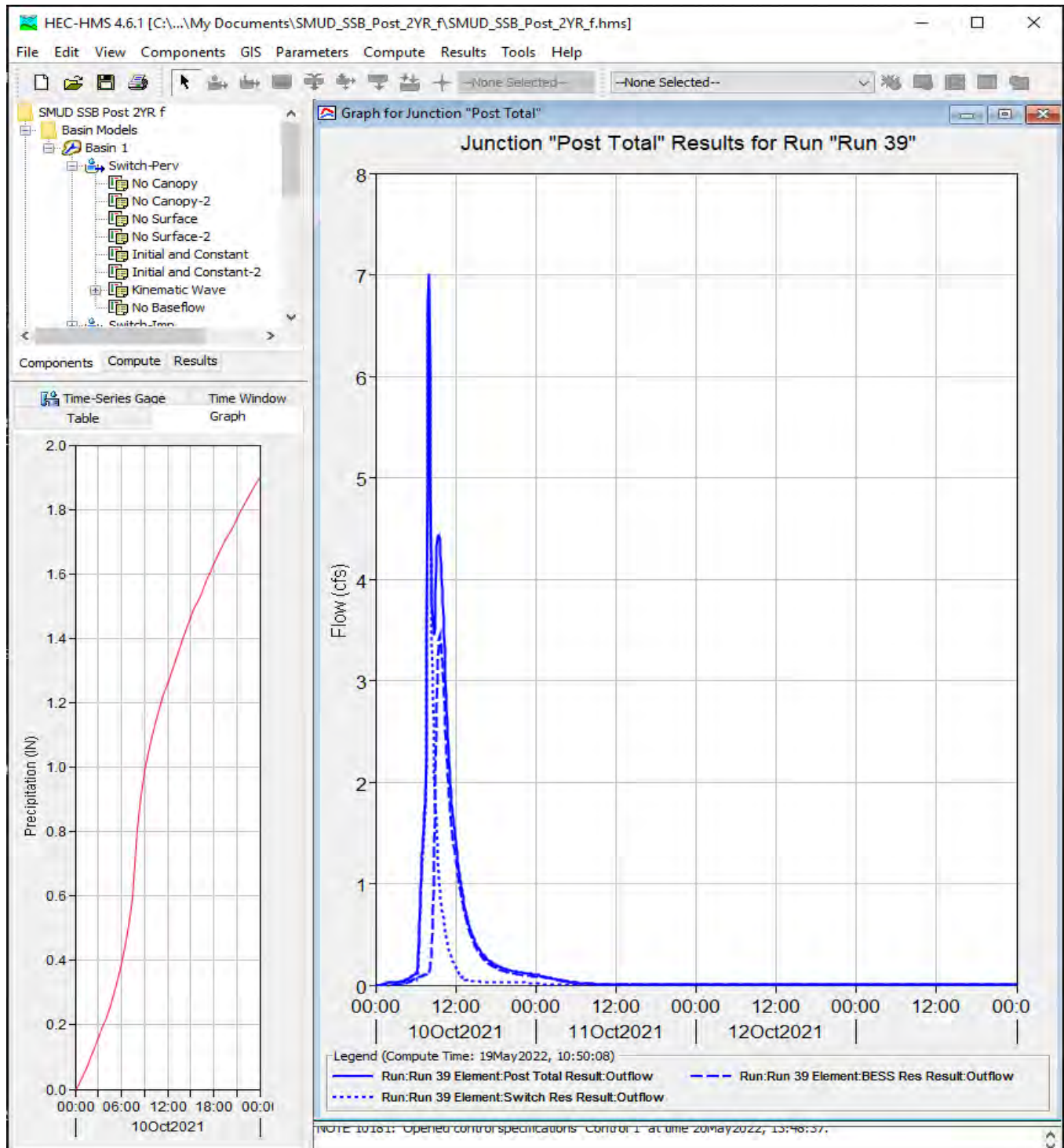


Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Kinematic Wave Analysis

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**HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:**

HEC-HMS computed results for the site in the proposed condition in response to the 2-YR event. (cont)





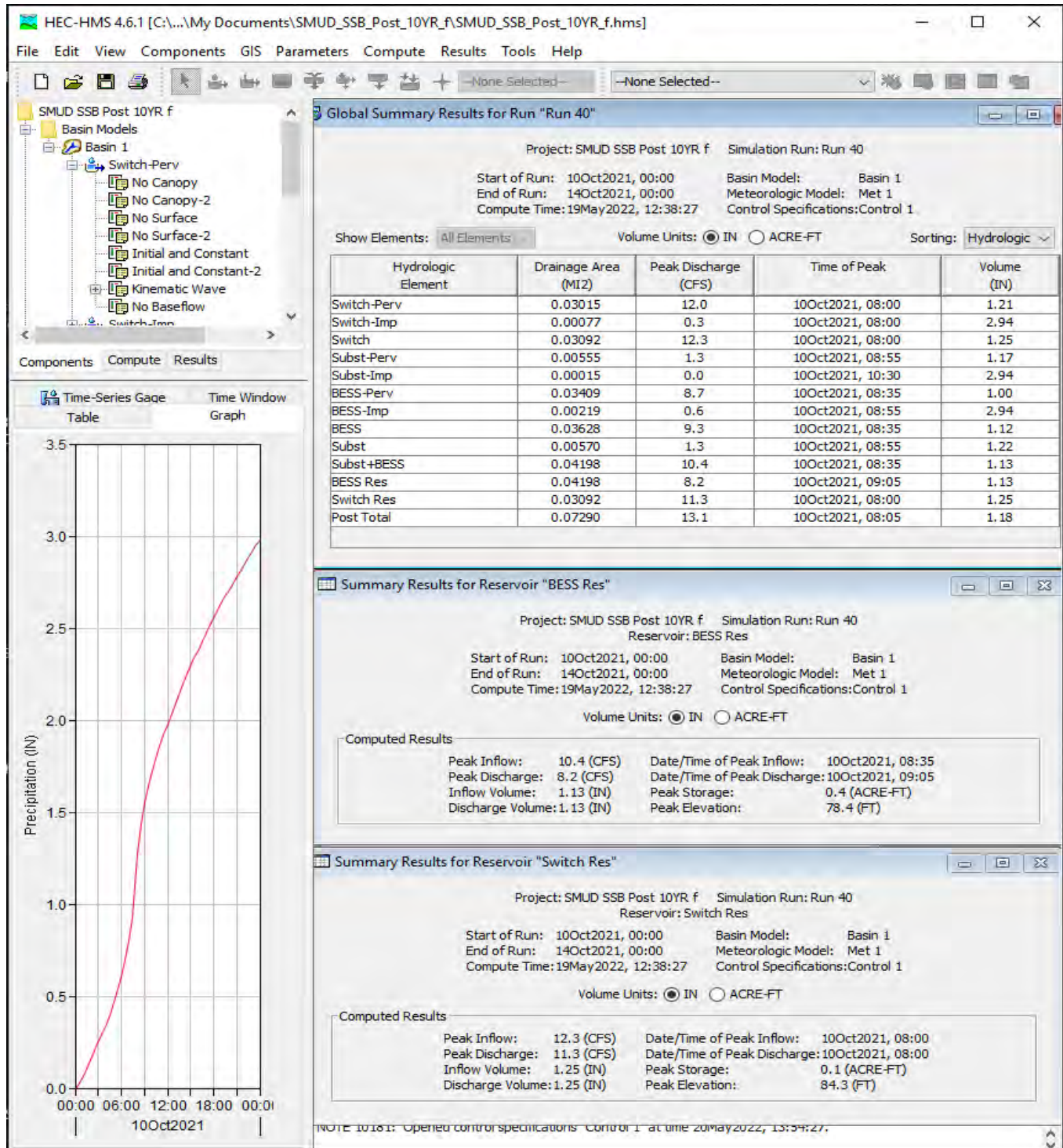
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Kinematic Wave Analysis

Page: **A24**

File No.

### HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:

HEC-HMS computed results for the site in the proposed condition in response to the 10-YR event.

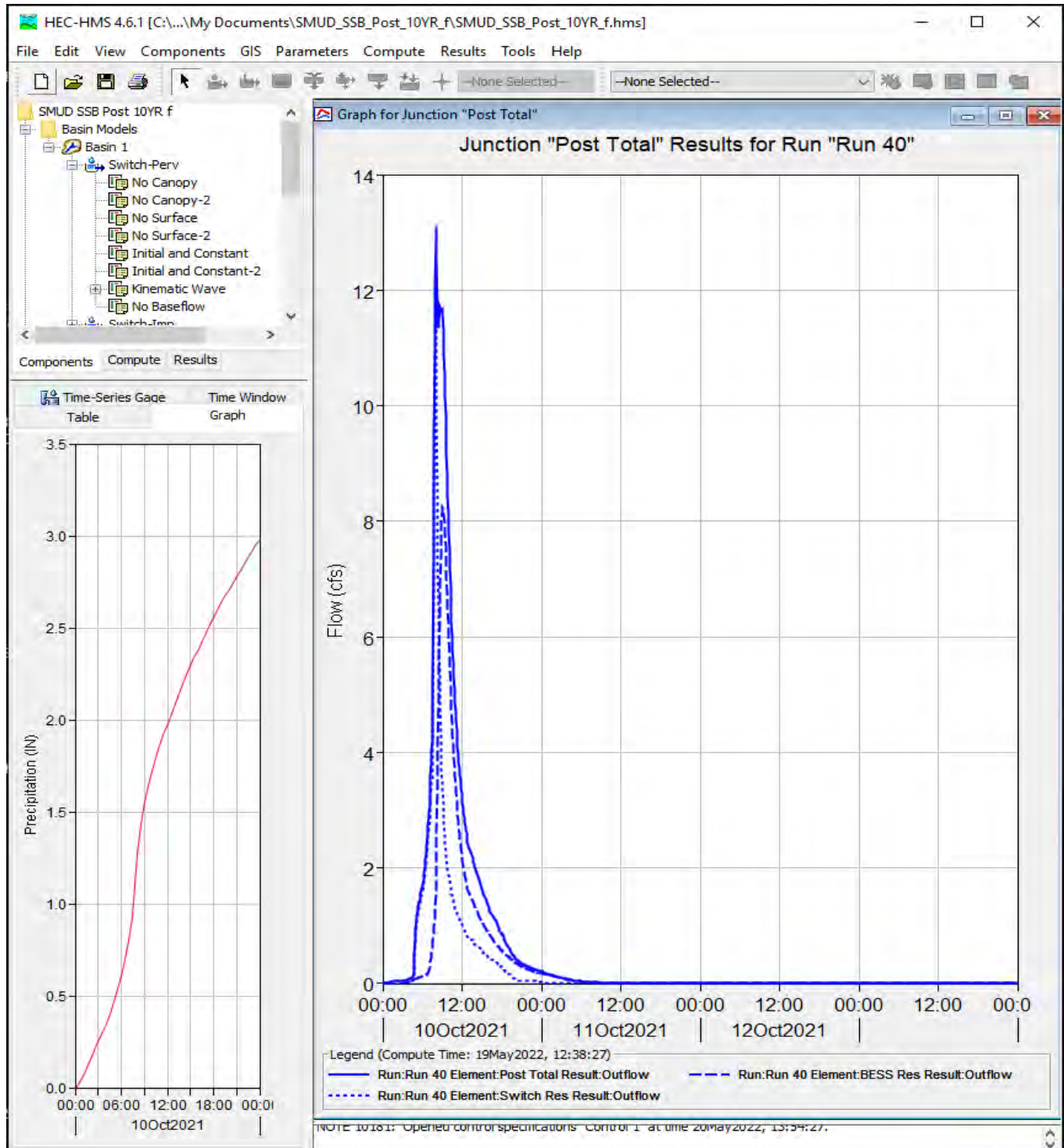


Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Kinematic Wave Analysis

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**HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:**

HEC-HMS computed results for the site in the proposed condition in response to the 10-YR event. (cont)





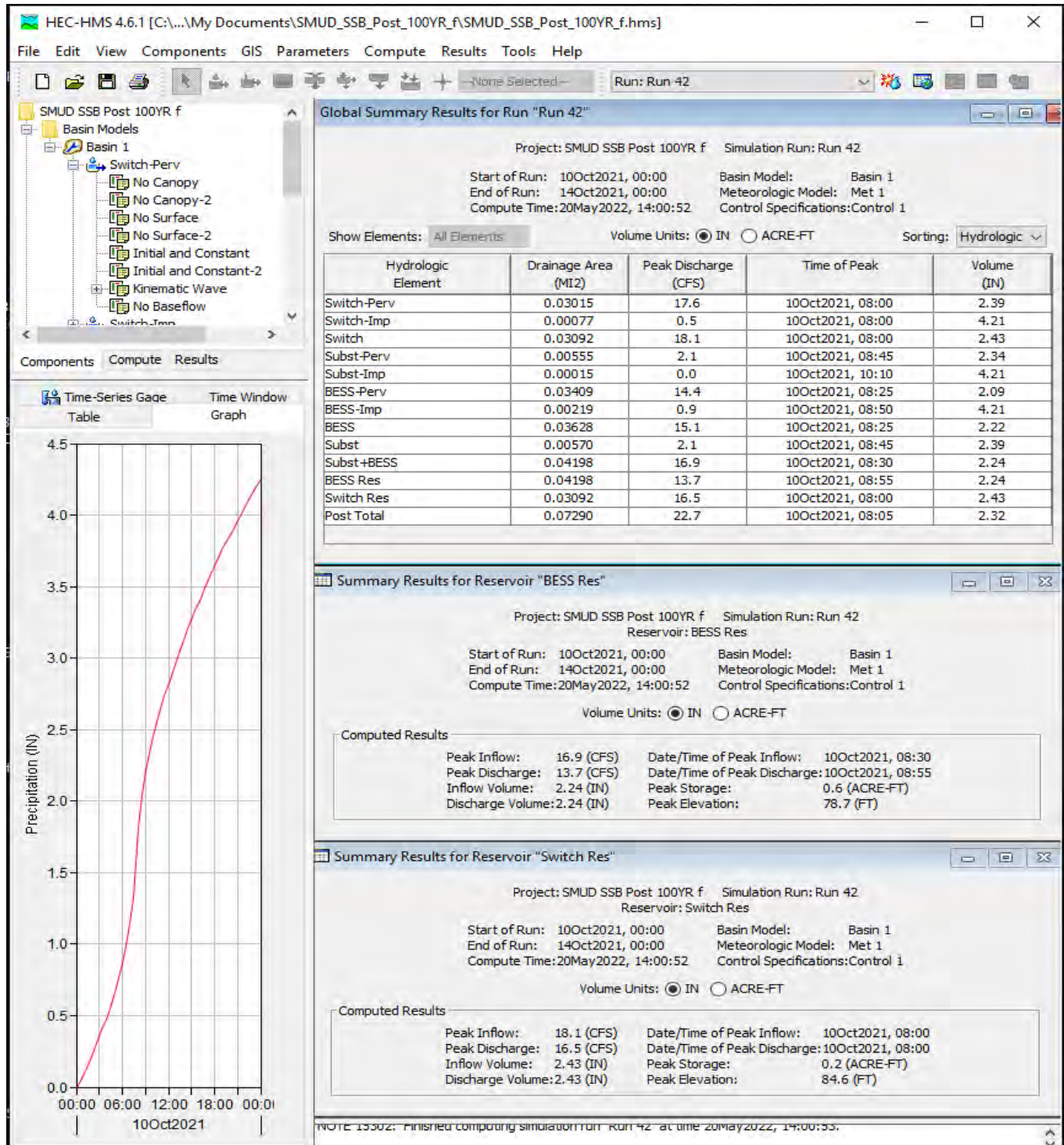
Owner: **Sacramento Municipal Utility District**  
Plant: **Country Acres Solar Study**  
Address: **Placer County, CA**  
Project No.: **406242**  
Title: **Kinematic Wave Analysis**

Page: **A26**

File No.

### **HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:**

HEC-HMS computed results for the site in the proposed condition in response to the 100-YR event.



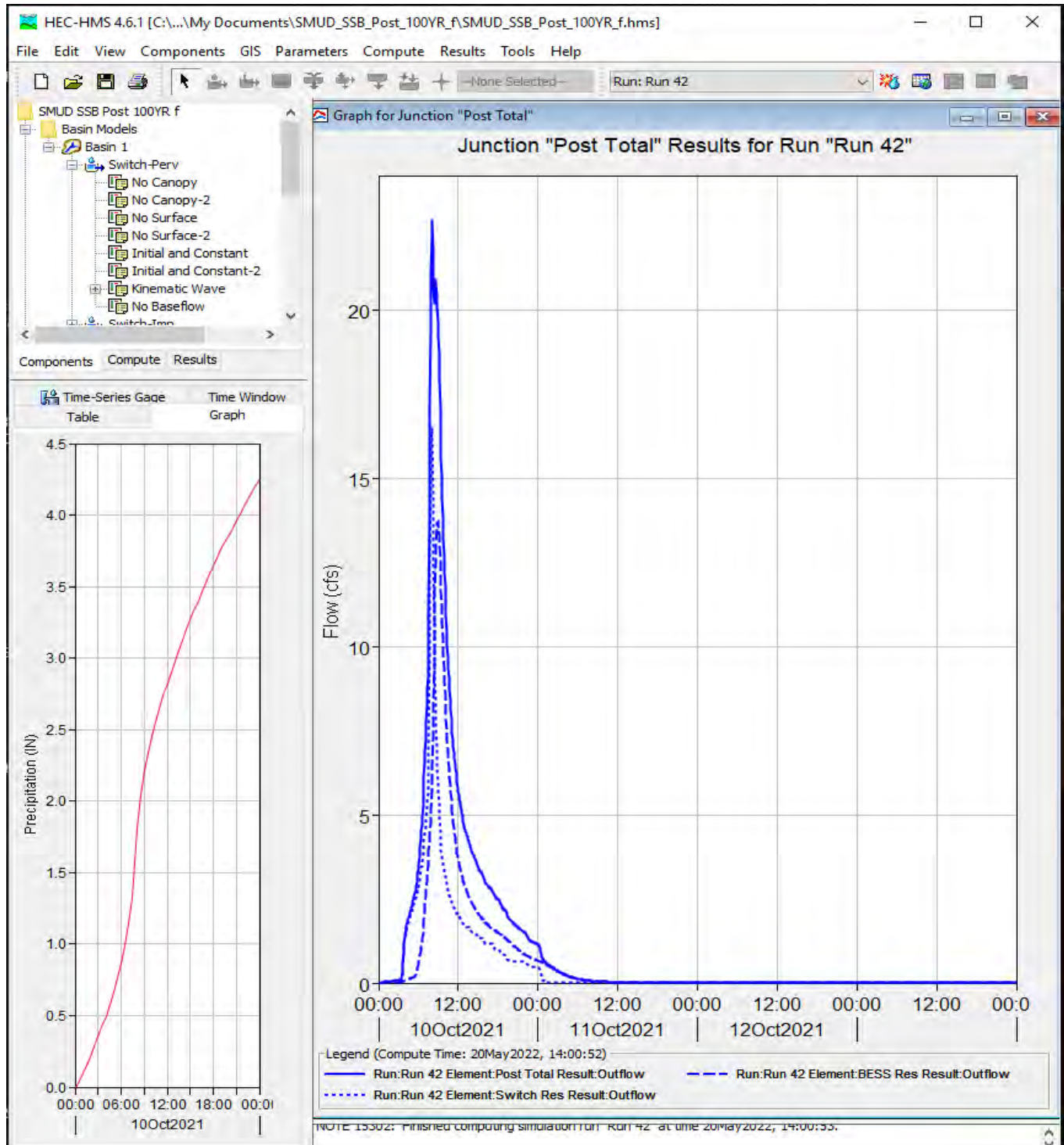
Owner: Sacramento Municipal Utility District  
Plant: Country Acres Solar Study  
Address: Placer County, CA  
Project No.: 406242  
Title: Kinematic Wave Analysis

Page: A27

File No.

**HYDROLOGIC MODEL RESULTS - Switchyard, Substation, and BESS Areas:**

HEC-HMS computed results for the site in the proposed condition in response to the 100-YR event. (cont)



**Owner:** Sacramento Municipal Utility District  
**Plant:** Country Acres Solar Study  
**Address:** Placer County, CA  
**Project No.:** 406242 **File No.**  
**Title:** Kinematic Wave Analysis

**Page:** **A28**

## VOLUME ANALYSIS

The following volume analysis is based on HEC-HMS model output data from the SMUD Hydrologic Analysis (Reference 1) and from this calculation. Parcel data is from Reference 1, and data for the Substation, Switchyard, and BESS areas is from this calculation, which accounts for the revised areas. HEC-HMS model output data is provided on Pages A55 - A72 of the Hydrologic Analysis, and Pages A19 - A27 of this analysis. Runoff volume is provided for each area in inches, which can be converted to acre-feet by converting the inches to feet and multiplying by the area in acres. All volumes are provided in the Global Summary section of the HEC-HMS output.

For the parcels, the pre-development volume is listed as "Pre Total", and the post-development volume is listed as "Post Total". For the Substation, Switching Stations and BESS Areas, the pre-development volume is listed as "Subst/Switch/BESS", and the post-development volume is listed as "Post Total". The page where each volume is located is provided in the tables below. The areas are from the Hydrologic Analysis, Page A7, and this calculation, Page A5. The Volume Reduction for each event listed below is the amount the post volume is less than the pre.

### EVENT: 2 YEAR

<u>Location:</u>	<u>Pre or Post</u>	<u>Volume (in)</u>	<u>Calc Page</u>	<u>Area (ac)</u>	<u>Volume (ac-ft)</u>
Parcels	Pre	0.61	A55	1064.85	54.13
Subst/Switch/BESS	Pre	0.32	A19	46.66	1.24
Parcels	Post	0.47	A58	1064.85	41.71
Subst/Switch/BESS	Post	0.46	A22	46.66	<u>1.79</u>
<b>Volume Reduction =</b>					<b><u>11.88</u> ac-ft</b>

### EVENT: 10 YEAR

<u>Location:</u>	<u>Pre or Post</u>	<u>Volume (in)</u>	<u>Calc Page</u>	<u>Area (ac)</u>	<u>Volume (ac-ft)</u>
Parcels	Pre	1.51	A56	1064.85	133.99
Subst/Switch/BESS	Pre	0.92	A20	46.66	3.58
Parcels	Post	1.28	A60	1064.85	113.58
Subst/Switch/BESS	Post	1.18	A24	46.66	<u>4.59</u>
<b>Volume Reduction =</b>					<b><u>19.40</u> ac-ft</b>



**Owner:** Sacramento Municipal Utility District  
**Plant:** Country Acres Solar Study  
**Address:** Placer County, CA  
**Project No.:** 406242 **File No.**  
**Title:** Kinematic Wave Analysis

**Page:** **A29**

## VOLUME ANALYSIS (continued)

**EVENT:** **100 YEAR**

<u>Location:</u>	<u>Pre or Post</u>	<u>Volume (in)</u>	<u>Calc Page</u>	<u>Area (ac)</u>	<u>Volume (ac-ft)</u>
Parcels	Pre	2.71	A57	1064.85	240.48
Subst/Switch/BESS	Pre	1.96	A21	46.66	7.62
Parcels	Post	2.47	A62	1064.85	219.18
Subst/Switch/BESS	Post	2.32	A26	46.66	<u>9.02</u>
<b>Volume Reduction =</b>					<b><u>19.90</u> ac-ft</b>

**Owner:** Sacramento Municipal Utility District  
**Plant:** Country Acres Solar Study  
**Address:** Placer County, CA  
**Project No.:** 406242  
**Title:** Kinematic Wave Analysis

**Page:** A30

**File No.**

## **5.0 CONCLUSION:**

The SMUD Country Acres Kinematic Wave Analysis provides the supplemental analysis requested by Placer County.

Solar array parcel South #5 was analyzed using the Kinematic Wave Transform Method, to compare the results to the use of the SCS Unit Hydrograph Transform Method used in the Hydrology Analysis. Using the Kinematic Wave Transform method resulted in higher peak discharges as compared to the SCS UH method. Post-development peak discharges continued to be less than the corresponding pre-development peak discharge in response to all storm events. Detailed discussion of the results is provided on Page A12 of this calculation.

The Switchyard, Substation, and BESS areas were also analyzed using the Kinematic Wave Transform Method. As required, post-development peak discharges were less than the corresponding pre-development peak discharge, in response to all storm events.

The detention basins provided in the Hydrology Analysis were included with this modeling. In the BESS area, 0.6 acre-feet of storage was predicted in response to the 100-Year event, with a peak stage of 78.7 feet. In the Switch area, 0.2 acre-feet of storage was predicted in response to the 100-Year event, with a peak stage of 84.6 feet. Embankment crest elevations will be set to provide a minimum of 2 feet of freeboard in response to the 100-Year event, as directed by Placer County. Detailed discussion of the results is provided on Page A12 of this calculation.

An analysis of the total stormwater volume discharged from the site in response to the design precipitation events is provided on Pages A28 - A29 of this calculation. For the entire project, post-development runoff volume is less than pre-development volume by a total of 11.88 acre-feet, 19.40 acre-feet, and 19.90 acre-feet, in response to the 2, 10, and 100-Year events, respectively.

## **APPENDIX E NOISE MODELLING**

---

# Traffic Noise Prediction Model, (FHWA RD-77-108)

## Model Input Sheet



**Project Name :** 60656629 - SMUD281-TA15-Country Acres

**Project Number :** 60656629

**Modeling Condition :** Existing and Construction Traffic

**Ground Type :** Soft

**K Factor :** NA

**Metric (L<sub>eq</sub>, L<sub>dn</sub>, CNEL) :** Leq

**Traffic Desc. (Peak or ADT) :** Peak

Segment	Roadway	Segment		Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
		From	To										
1	Baseline Road	Watt Avenue	East and West of Watt Avenue	450	35	50	100	0	0	87	0	13	
2	South Brewer Rd	Baseline Road	Philip Road	200	30	50	100	0	0	87	0	13	
3	Philip Road	South Brewer Rd	Project Site	200	25	300	100	0	0	87	0	13	
4	Baseline Road	Watt Avenue	East and West of Watt Avenue	30	25	50	0	0	100	87	0	13	
5	South Brewer Rd	Baseline Road	Philip Road	10	25	50	0	0	100	87	0	13	
6	Philip Road	South Brewer Rd	Project Site	10	25	300	0	0	100	87	0	13	

**Traffic Noise Prediction Model, (FHWA RD-77-108)**  
**Predicted Noise Levels**



**Project Name :** 60656629 - SMUD281-TA15-Country Acres

**Project Number :** 60656629

**Modeling Condition :** Existing and Construction Traffic

**Metric (Leq, Ldn, CNEL) :** Leq

Segment	Roadway	Segment		Noise Levels, dB Leq				Distance to Traffic Noise Contours, Feet				
		From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Baseline Road	Watt Avenue	East and West of V	59.6	72.9	0.0	73.1	80	173	373	805	1733
2	South Brewer Rd	Baseline Road	Philip Road	54.2	56.0	0.0	58.2	8	18	38	82	176
3	Philip Road	South Brewer Rd	Project Site	40.2	43.0	0.0	44.8	6	14	29	63	136
4	Baseline Road	Watt Avenue	East and West of V	0.0	72.9	62.9	73.3	83	179	386	831	1791
5	South Brewer Rd	Baseline Road	Philip Road	0.0	56.0	58.1	60.2	11	24	52	111	239
6	Philip Road	South Brewer Rd	Project Site	0.0	43.0	46.4	48.1	10	22	48	103	223

# Project-Generated Construction Source Noise Prediction Model

60656629 - SMUD281-TA15-Country Acres



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level ( $L_{eq}$ dBA)		Assumptions:	Reference Emission Noise Levels ( $L_{max}$ ) at 50 feet <sup>1</sup>	Usage Factor <sup>1</sup>
		Daytime	Nighttime			
Threshold*	611	60		Dump Truck	76	0.4
	2,433	45		Backhoe	78	0.4
Solar Construction	50	87		Backhoe	78	0.4
	100	80		Dozer	82	0.4
Nearest Residence South	750	58		Excavator	81	0.4
Nearest Residence North	950	55		Tractor	84	0.4
Nearest Residence West	1600	50		Man Lift	75	0.2
				Generator	81	0.5
				Front End Loader	79	0.4
				Vacuum Street Sweeper	82	0.1
				Roller	80	0.2
				Vacuum Street Sweeper	82	0.1
				Excavator	81	0.4
				Pickup Truck	75	0.4
				Dump Truck	76	0.4
				Welder / Torch	74	0.4

Ground Type Soft  
Ground Factor 0.50

Predicted Noise Level <sup>2</sup>	$L_{eq}$ dBA at 50 feet <sup>2</sup>
Dump Truck	72.0
Backhoe	74.0
Backhoe	74.0
Dozer	78.0
Excavator	77.0
Tractor	80.0
Man Lift	68.0
Generator	78.0
Front End Loader	75.0
Vacuum Street Sweeper	72.0
Roller	73.0
Vacuum Street Sweeper	72.0
Excavator	77.0
Pickup Truck	71.0
Dump Truck	72.0
Welder / Torch	70.0

Combined Predicted Noise Level ( $L_{eq}$  dBA at 50 feet)

87.2

Sources:

<sup>1</sup> Obtained from the FHWA Roadway Construction Noise Model, Janu

<sup>2</sup> Based on the following from the Federal Transit Noise and Vibration

$L_{eq}(equip) = E.L. + 10 \log(U.F.) - 20 \log(D/50) - 10 \log(G)$

Where: E.L. = Emission Level;

U.F. = Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

\*Project specific threshold

# Project-Generated Construction Source Noise Prediction Model

60656629 - SMUD281-TA15-Country Acres



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level ( $L_{eq}$ dBA)		Assumptions:	Reference Emission Noise Levels ( $L_{max}$ ) at 50 feet <sup>1</sup>	Usage Factor <sup>1</sup>
		Daytime	Nighttime		feet <sup>1</sup>	Factor <sup>1</sup>
Threshold*	679	60		Crane	81	0.16
	2,703	45		Backhoe	78	0.4
Storage Construction	50	88		Backhoe	78	0.4
	100	81		Man Lift	75	0.2
Nearest Residence South	750	59		Man Lift	75	0.2
Nearest Residence North	950	56		Dump Truck	76	0.4
Nearest Residence West	1600	51		Jackhammer	89	0.2
				Roller	80	0.2
				Compressor (air)	78	0.4
				Generator	81	0.5
				Vibrating Hopper	87	0.5
				Pumps	81	0.5

Ground Type Soft  
Ground Factor 0.50

Predicted Noise Level <sup>2</sup>	$L_{eq}$ dBA at 50 feet <sup>2</sup>
Crane	73.0
Backhoe	74.0
Backhoe	74.0
Man Lift	68.0
Man Lift	68.0
Dump Truck	72.0
Jackhammer	82.0
Roller	73.0
Compressor (air)	74.0
Generator	78.0
Vibrating Hopper	84.0
Pumps	78.0

Combined Predicted Noise Level ( $L_{eq}$  dBA at 50 feet)

88.3

Sources:

<sup>1</sup> Obtained from the FHWA Roadway Construction Noise Model, Janu

<sup>2</sup> Based on the following from the Federal Transit Noise and Vibration

$L_{eq}(\text{equip}) = E.L. + 10 \cdot \log(U.F.) - 20 \cdot \log(D/50) - 10 \cdot G \cdot \log(D/50)$

Where: E.L. = Emission Level;

U.F. = Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

\*Project specific threshold



# Project-Generated Construction Source Noise Prediction Model

60656629 - SMUD281-TA15-Country Acres



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level ( $L_{eq}$ dBA)		Assumptions:	Reference Emission Noise Levels ( $L_{max}$ ) at 50 feet <sup>1</sup>	Usage Factor <sup>1</sup>
		Daytime	Nighttime			
Threshold*	78		83	Generator	81	0.5
	2,588		45	Dozer	82	0.4
Substation Construction	50		88	Man Lift	75	0.2
	100		80	Man Lift	75	0.2
Nearest Residence South	750		58	Backhoe	78	0.4
Nearest Residence North	950		56	Backhoe	78	0.4
Nearest Residence West	1600		50	Excavator	81	0.4
				Compactor (ground)	83	0.2
				Jackhammer	89	0.2
				Dump Truck	76	0.4
				Welder / Torch	74	0.4
				Excavator	81	0.4
				Auger Drill Rig	84	0.2
				Concrete Mixer Truck	79	0.4
				Pickup Truck	75	0.4

Ground Type Soft  
Ground Factor 0.50

Predicted Noise Level <sup>2</sup>	$L_{eq}$ dBA at 50 feet <sup>2</sup>
Generator	78.0
Dozer	78.0
Man Lift	68.0
Man Lift	68.0
Backhoe	74.0
Backhoe	74.0
Excavator	77.0
Compactor (ground)	76.0
Jackhammer	82.0
Dump Truck	72.0
Welder / Torch	70.0
Excavator	77.0
Auger Drill Rig	77.0
Concrete Mixer Truck	75.0
Pickup Truck	71.0

Combined Predicted Noise Level ( $L_{eq}$  dBA at 50 feet)

87.9

Sources:

<sup>1</sup> Obtained from the FHWA Roadway Construction Noise Model, Janu

<sup>2</sup> Based on the following from the Federal Transit Noise and Vibration

$L_{eq}(\text{equip}) = E.L. + 10 \log (U.F.) - 20 \log (D/50) - 10 \log (G/50)$

Where: E.L. = Emission Level;

U.F. = Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

\*Project specific threshold

# Project-Generated Construction Source Noise Prediction Model

60656629 - SMUD281-TA15-Country Acres



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level ( $L_{eq}$ dBA)		Assumptions:	Reference Emission Noise Levels ( $L_{max}$ ) at 50 feet <sup>1</sup>	Usage Factor <sup>1</sup>
		Daytime	Nighttime			
Threshold*	617		60	Crane	81	0.16
	2,456		45	Generator	81	0.5
Switchyard Construction	50		87	Backhoe	78	0.4
	100		80	Man Lift	75	0.2
Nearest Residence South	750		58	Man Lift	75	0.2
Nearest Residence North	950		55	Backhoe	78	0.4
Nearest Residence West	1600		50	Excavator	81	0.4
				Compactor (ground)	83	0.2
				Jackhammer	89	0.2
				Dump Truck	76	0.4
				Welder / Torch	74	0.4
				Excavator	81	0.4
				Auger Drill Rig	84	0.2
				Pickup Truck	75	0.4

Ground Type Soft  
Ground Factor 0.50

Predicted Noise Level <sup>2</sup>	$L_{eq}$ dBA at 50 feet <sup>2</sup>
Crane	73.0
Generator	78.0
Backhoe	74.0
Man Lift	68.0
Man Lift	68.0
Backhoe	74.0
Excavator	77.0
Compactor (ground)	76.0
Jackhammer	82.0
Dump Truck	72.0
Welder / Torch	70.0
Excavator	77.0
Auger Drill Rig	77.0
Pickup Truck	71.0

Combined Predicted Noise Level ( $L_{eq}$  dBA at 50 feet)

87.3

Sources:

<sup>1</sup> Obtained from the FHWA Roadway Construction Noise Model, Janu

<sup>2</sup> Based on the following from the Federal Transit Noise and Vibration

$L_{eq}(\text{equip}) = E.L. + 10 \cdot \log(U.F.) - 20 \cdot \log(D/50) - 10 \cdot G \cdot \log(D/50)$

Where: E.L. = Emission Level;

U.F. = Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

\*Project specific threshold

# Project-Generated Maintenance Source Noise Prediction Model

60657391 - MSS Phase 2A



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level ( $L_{eq}$ dBA)		Assumptions:	Reference Emission Noise Levels ( $L_{max}$ ) at 50 feet <sup>1</sup>	Usage Factor <sup>1</sup>
		Daytime	Nighttime			
Threshold*	368		60	Pickup Truck	75	0.8
	1,466		45	Flat Bed Truck	74	0.8
Project Maintenance	50		82	Front End Loader	79	0.8
	100		74	Man Lift	75	0.2
Nearest Residence South	750		52	Dump Truck	76	0.4
Nearest Residence North	950		50	Dump Truck	76	0.4
Nearest Residence West	1600		44			

Ground Type Soft  
Ground Factor 0.50

Predicted Noise Level <sup>2</sup>	$L_{eq}$ dBA at 50 feet <sup>2</sup>
Pickup Truck	74.0
Flat Bed Truck	73.0
Front End Loader	78.0
Man Lift	68.0
Dump Truck	72.0
Dump Truck	72.0

Combined Predicted Noise Level ( $L_{eq}$  dBA at 50 feet)

81.7

Sources:

<sup>1</sup> Obtained from the FHWA Roadway Construction Noise Model, Janu

<sup>2</sup> Based on the following from the Federal Transit Noise and Vibration

$L_{eq}(equip) = E.L. + 10 \cdot \log(U.F.) - 20 \cdot \log(D/50) - 10 \cdot G \cdot \log(D/50)$

Where: E.L. = Emission Level;

U.F. = Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

\*Project specific threshold

**Long-Term 24 Hour Continuous Noise Monitoring**  
**Model Input Sheet**



**Project:** 60656629 - SMUD281-TA15-Country Acres

**Date:** Tuesday, February 08, 2022 to Wednesday, February 09, 2022

**Site:** LT-01

Hour	Leq	Lmax	L50	L90
14:00	48.2	70.0	41.3	38.2
15:00	44.5	58.5	43.1	39.7
16:00	51.5	58.4	49.2	42.0
17:00	54.1	69.5	52.8	50.3
18:00	50.7	62.9	50.3	47.0
19:00	48.3	60.5	47.4	43.1
20:00	47.7	57.5	47.2	43.2
21:00	47.6	57.6	46.2	41.0
22:00	46.3	58.9	44.3	37.7
23:00	43.2	57.2	40.4	28.1
0:00	44.1	56.5	40.5	27.3
1:00	44.9	59.7	38.3	27.2
2:00	45.1	59.6	41.3	31.0
3:00	45.7	57.1	43.7	33.0
4:00	48.7	58.3	47.4	39.4
5:00	52.6	59.7	51.7	46.7
6:00	56.7	62.7	56.2	52.5
7:00	57.8	67.8	57.2	54.6
8:00	57.3	70.5	55.7	50.0
9:00	51.9	68.2	47.0	44.1
10:00	47.2	63.1	45.5	41.6
11:00	44.3	63.9	39.7	38.2
12:00	48.1	74.0	41.2	38.8
13:00	51.2	78.7	39.0	37.3

Daytime (7 a.m. - 10 p.m.)  
 Nighttime (10 p.m. - 7 a.m.)

Averages			
Leq	Lmax	L50	L90
52.0	65.4	46.9	43.3
50.1	58.9	44.9	35.9

Daytime (7 a.m. - 10 p.m.)  
 Nighttime (10 p.m. - 7 a.m.)

Uppermost-Level			
Leq	Lmax	L50	L90
57.8	78.7	57.2	54.6
56.7	62.7	56.2	52.5

Percentage of Energy	
Daytime	72%
Nighttime	28%

Calculated L <sub>dn</sub> , dBA
56.8

**Long-Term 24 Hour Continuous Noise Monitoring**  
Model Input Sheet



**Project:** 60656629 - SMUD281-TA15-Country Acres  
**Date:** Tuesday, February 08, 2022 to Wednesday, February 09, 2022  
**Site:** LT-01

Hour	Leq	Lmax	L50	L90
14:00	48.2	83.8	41.3	38.2
15:00	44.5	80.0	43.1	39.7
16:00	51.5	87.0	49.2	42.0
17:00	54.1	89.7	52.8	50.3
18:00	50.7	86.3	50.3	47.0
19:00	48.3	83.9	47.4	43.1
20:00	47.7	83.3	47.2	43.2
21:00	47.6	83.2	46.2	41.0
22:00	46.3	81.9	44.3	37.7
23:00	43.2	78.8	40.4	28.1
0:00	44.1	79.7	40.5	27.3
1:00	44.9	80.4	38.3	27.2
2:00	45.1	80.7	41.3	31.0
3:00	45.7	81.3	43.7	33.0
4:00	48.7	84.3	47.4	39.4
5:00	52.6	88.1	51.7	46.7
6:00	56.7	92.2	56.2	52.5
7:00	57.8	93.4	57.2	54.6
8:00	57.3	92.9	55.7	50.0
9:00	51.9	87.5	47.0	44.1
10:00	47.2	82.8	45.5	41.6
11:00	44.3	79.9	39.7	38.2
12:00	48.1	83.7	41.2	38.8
13:00	51.2	86.8	39.0	37.3

Daytime (7 a.m. - 7 p.m.)  
 Evening (7 p.m. - 9 p.m.)  
 Nighttime (9 p.m. - 7 a.m.)

Averages			
Leq	Lmax	L50	L90
52.6	86.2	46.8	43.5
47.9	83.5	46.9	42.4
50.1	83.0	44.9	35.9

Daytime (7 a.m. - 7 p.m.)  
 Evening (7 p.m. - 9 p.m.)  
 Nighttime (9 p.m. - 7 a.m.)

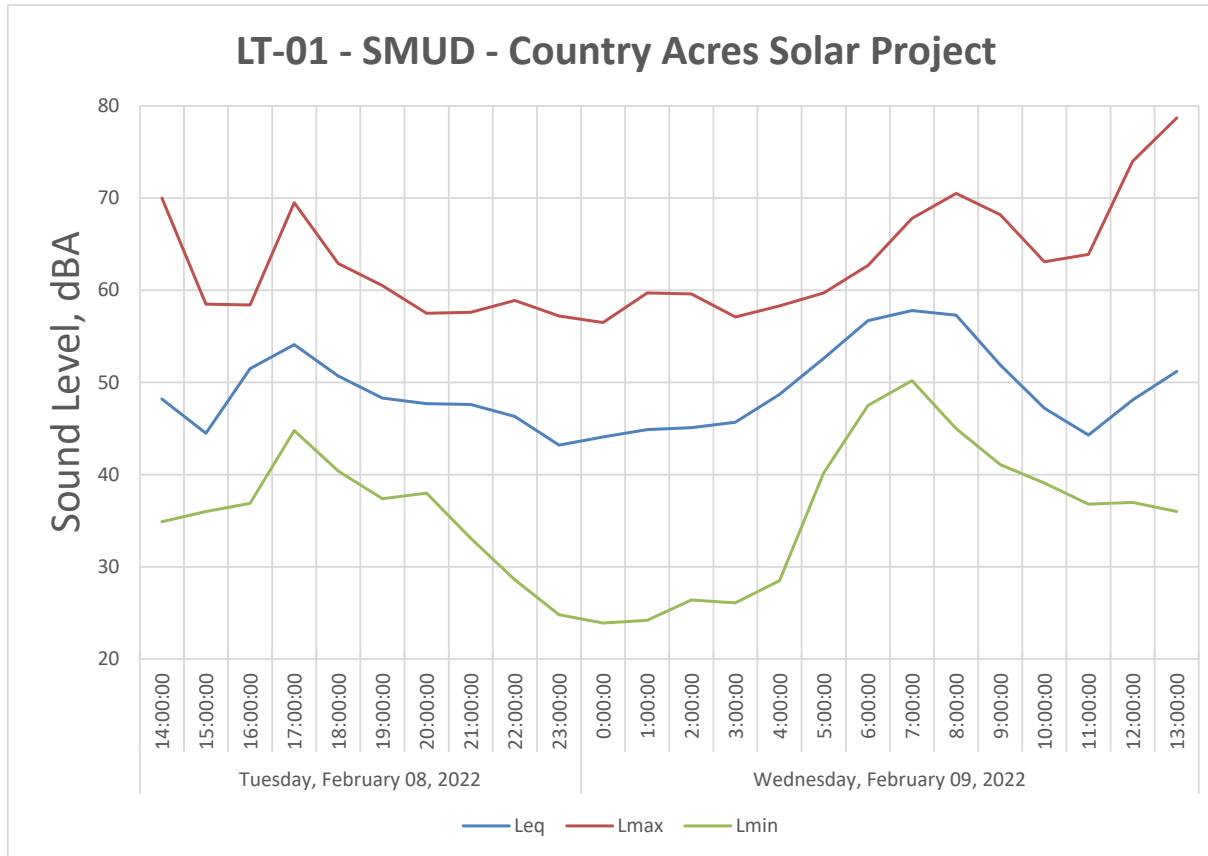
Uppermost-Level			
Leq	Lmax	L50	L90
57.8	93.4	57.2	54.6
48.3	83.9	47.4	43.2
56.7	92.2	56.2	52.5

Percentage of Energy	
Daytime	67%
Evening	6%
Nighttime	28%

Calculated CNEL, dBA
56.9



Date	Time	Leq	Lmax	Lmin
Tuesday, February 08, 2022	14:00:00	48.2	70	34.9
	15:00:00	44.5	58.5	36
	16:00:00	51.5	58.4	36.9
	17:00:00	54.1	69.5	44.8
	18:00:00	50.7	62.9	40.4
	19:00:00	48.3	60.5	37.4
	20:00:00	47.7	57.5	38
	21:00:00	47.6	57.6	33.1
	22:00:00	46.3	58.9	28.6
	23:00:00	43.2	57.2	24.8
Wednesday, February 09, 2022	0:00:00	44.1	56.5	23.9
	1:00:00	44.9	59.7	24.2
	2:00:00	45.1	59.6	26.4
	3:00:00	45.7	57.1	26.1
	4:00:00	48.7	58.3	28.5
	5:00:00	52.6	59.7	40.2
	6:00:00	56.7	62.7	47.5
	7:00:00	57.8	67.8	50.2
	8:00:00	57.3	70.5	45
	9:00:00	51.9	68.2	41.1
	10:00:00	47.2	63.1	39.1
	11:00:00	44.3	63.9	36.8
	12:00:00	48.1	74	37
	13:00:00	51.2	78.7	36
		51.4		



**Long-Term 24 Hour Continuous Noise Monitoring  
Model Input Sheet**



**Project:** 60656629 - SMUD281-TA15-Country Acres

**Date:** Tuesday, February 08, 2022 to Wednesday, February 09, 2022

**Site:** LT-02

Hour	Leq	Lmax	L50	L90
15:00	43.0	68.2	33.1	31.1
16:00	46.9	71.4	36.0	33.4
17:00	38.0	57.2	32.4	30.2
18:00	35.3	53.5	32.5	30.4
19:00	41.4	62.1	32.3	30.0
20:00	33.2	53.6	32.2	30.1
21:00	32.0	48.3	30.4	28.3
22:00	32.2	49.3	30.3	28.1
23:00	31.2	49.0	29.4	27.1
0:00	36.3	54.0	26.8	23.6
1:00	28.0	44.1	25.1	23.5
2:00	29.7	44.2	27.2	24.6
3:00	28.1	46.9	26.6	24.3
4:00	27.9	42.3	25.9	24.4
5:00	34.4	52.2	30.3	27.7
6:00	42.8	67.4	34.4	31.1
7:00	45.7	75.9	41.1	36.8
8:00	44.8	62.2	43.1	39.6
9:00	49.2	75.6	40.2	37.2
10:00	41.5	59.5	39.6	36.8
11:00	39.6	64.5	37.1	35.0
12:00	43.9	66.1	36.9	34.5
13:00	35.9	48.5	34.1	32.1
14:00	38.8	58.3	35.3	33.2

Daytime (7 a.m. - 10 p.m.)  
Nighttime (10 p.m. - 7 a.m.)

Averages			
Leq	Lmax	L50	L90
43.1	61.7	35.8	33.2
35.5	49.9	28.4	26.0

Daytime (7 a.m. - 10 p.m.)  
Nighttime (10 p.m. - 7 a.m.)

Uppermost-Level			
Leq	Lmax	L50	L90
49.2	75.9	43.1	39.6
42.8	67.4	34.4	31.1

Percentage of Energy	
Daytime	91%
Nighttime	9%

Calculated L <sub>dn</sub> , dBA
44.2

**Long-Term 24 Hour Continuous Noise Monitoring**  
Model Input Sheet



**Project:** 60656629 - SMUD281-TA15-Country Acres  
**Date:** Tuesday, February 08, 2022 to Wednesday, February 09, 2022  
**Site:** LT-02

Hour	Leq	Lmax	L50	L90
15:00	43.0	78.5	33.1	31.1
16:00	46.9	82.5	36.0	33.4
17:00	38.0	73.6	32.4	30.2
18:00	35.3	70.9	32.5	30.4
19:00	41.4	77.0	32.3	30.0
20:00	33.2	68.8	32.2	30.1
21:00	32.0	67.6	30.4	28.3
22:00	32.2	67.8	30.3	28.1
23:00	31.2	66.8	29.4	27.1
0:00	36.3	71.8	26.8	23.6
1:00	28.0	63.6	25.1	23.5
2:00	29.7	65.3	27.2	24.6
3:00	28.1	63.7	26.6	24.3
4:00	27.9	63.5	25.9	24.4
5:00	34.4	70.0	30.3	27.7
6:00	42.8	78.4	34.4	31.1
7:00	45.7	81.3	41.1	36.8
8:00	44.8	80.3	43.1	39.6
9:00	49.2	84.8	40.2	37.2
10:00	41.5	77.1	39.6	36.8
11:00	39.6	75.2	37.1	35.0
12:00	43.9	79.5	36.9	34.5
13:00	35.9	71.5	34.1	32.1
14:00	38.8	74.4	35.3	33.2

Daytime (7 a.m. - 7 p.m.)  
 Evening (7 p.m. - 9 p.m.)  
 Nighttime (9 p.m. - 7 a.m.)

Averages			
Leq	Lmax	L50	L90
43.8	77.5	36.8	34.2
37.7	71.1	31.6	29.5
35.5	67.9	28.4	26.0

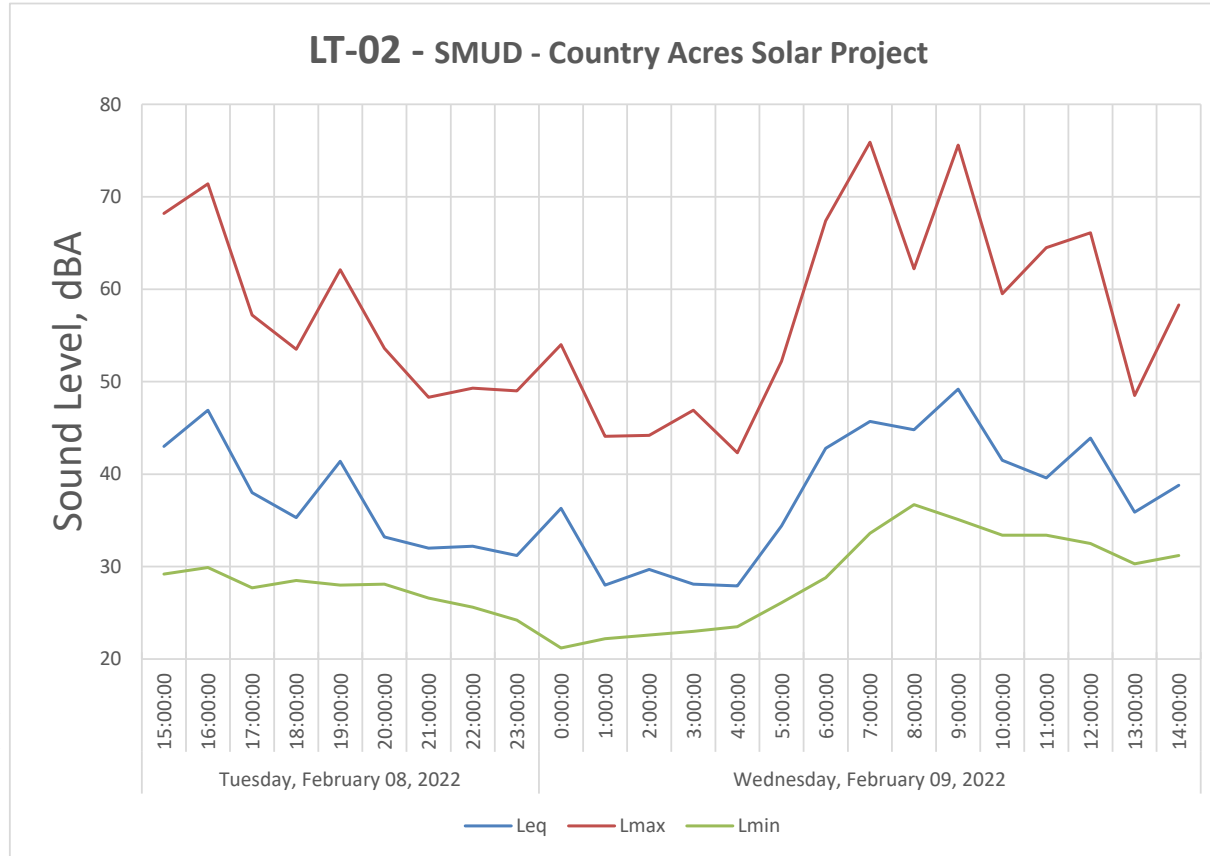
Daytime (7 a.m. - 7 p.m.)  
 Evening (7 p.m. - 9 p.m.)  
 Nighttime (9 p.m. - 7 a.m.)

Uppermost-Level			
Leq	Lmax	L50	L90
49.2	84.8	43.1	39.6
41.4	77.0	32.3	30.1
42.8	78.4	34.4	31.1

Percentage of Energy	
Daytime	85%
Evening	5%
Nighttime	9%

Calculated CNEL, dBA
44.4

Date	Time	Leq	Lmax	Lmin
Tuesday, February 08, 2022	15:00:00	43	68.2	29.2
	16:00:00	46.9	71.4	29.9
	17:00:00	38	57.2	27.7
	18:00:00	35.3	53.5	28.5
	19:00:00	41.4	62.1	28
	20:00:00	33.2	53.6	28.1
	21:00:00	32	48.3	26.6
	22:00:00	32.2	49.3	25.6
	23:00:00	31.2	49	24.2
	0:00:00	36.3	54	21.2
Wednesday, February 09, 2022	1:00:00	28	44.1	22.2
	2:00:00	29.7	44.2	22.6
	3:00:00	28.1	46.9	23
	4:00:00	27.9	42.3	23.5
	5:00:00	34.4	52.2	26.1
	6:00:00	42.8	67.4	28.8
	7:00:00	45.7	75.9	33.6
	8:00:00	44.8	62.2	36.7
	9:00:00	49.2	75.6	35.1
	10:00:00	41.5	59.5	33.4
	11:00:00	39.6	64.5	33.4
	12:00:00	43.9	66.1	32.5
	13:00:00	35.9	48.5	30.3
	14:00:00	38.8	58.3	31.2
		41.5		



**APPENDIX F**  
**NOTICE OF PREPARATION AND**  
**SCOPING SUMMARY REPORT**

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## NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT

**Date:** November 19, 2021

**To:** Agencies and Interested Parties

**Lead Agency:** Sacramento Municipal Utility District  
Environmental Services Department  
6201 S Street, MS B209  
Sacramento, CA 95817  
Contact: Amy Spitzer

**Subject:** Notice of Preparation of a Draft Environmental Impact Report for the Proposed Country Acres Solar Project

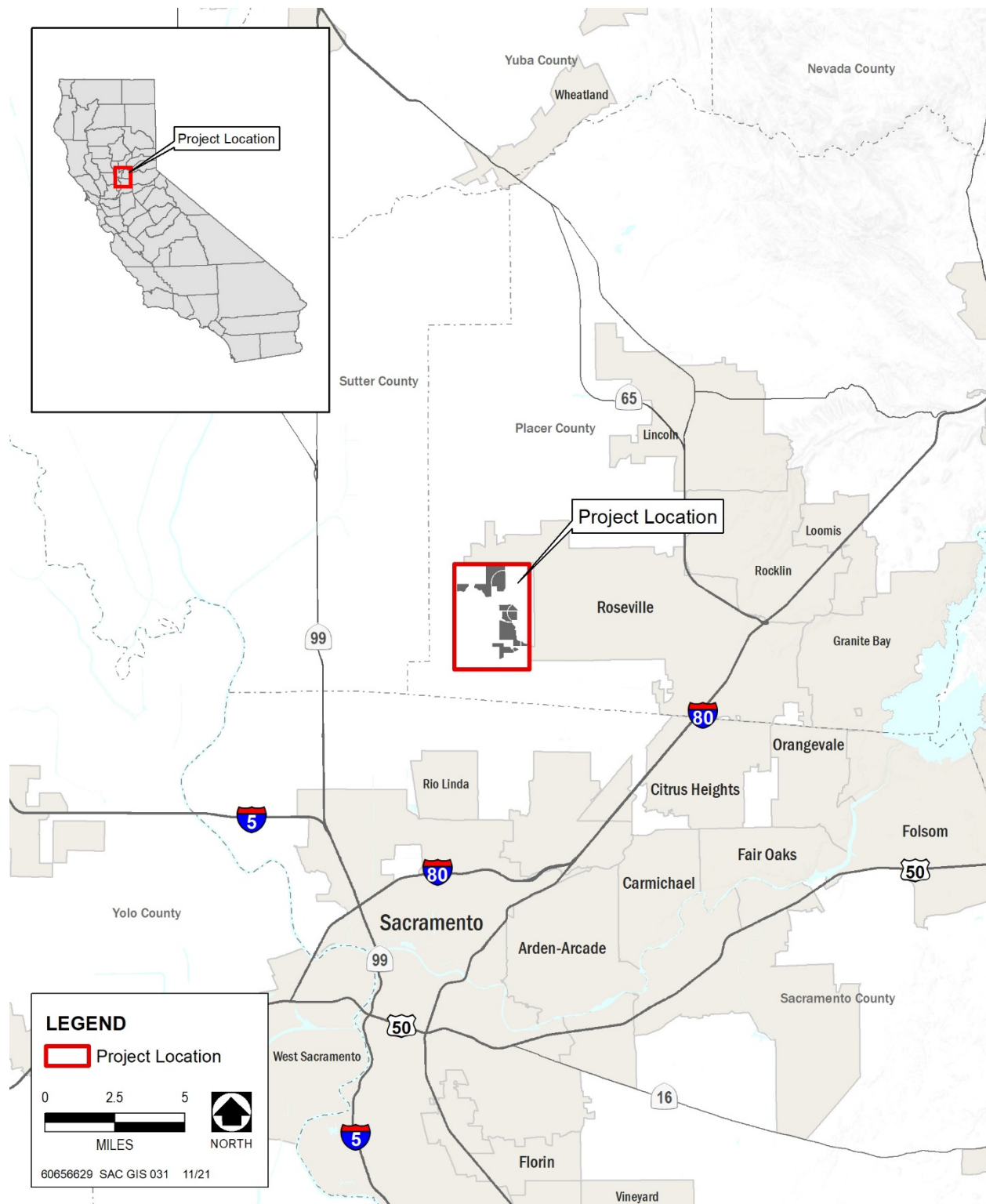
**Review Period:** November 19, 2021 to December 21, 2021

Sacramento Municipal Utility District (SMUD) is proposing the Country Acres Solar Project which would include installation, operation, and maintenance of a photovoltaic (PV) solar power and battery storage renewable energy generation facility in southwestern Placer County. SMUD plans to prepare an environmental impact report (EIR) for the project to satisfy the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000 et seq.) and will serve as the lead agency for CEQA compliance. Throughout the CEQA process, SMUD will work closely with Placer County because the County will play a substantial role in the project as the issuer of project entitlements.

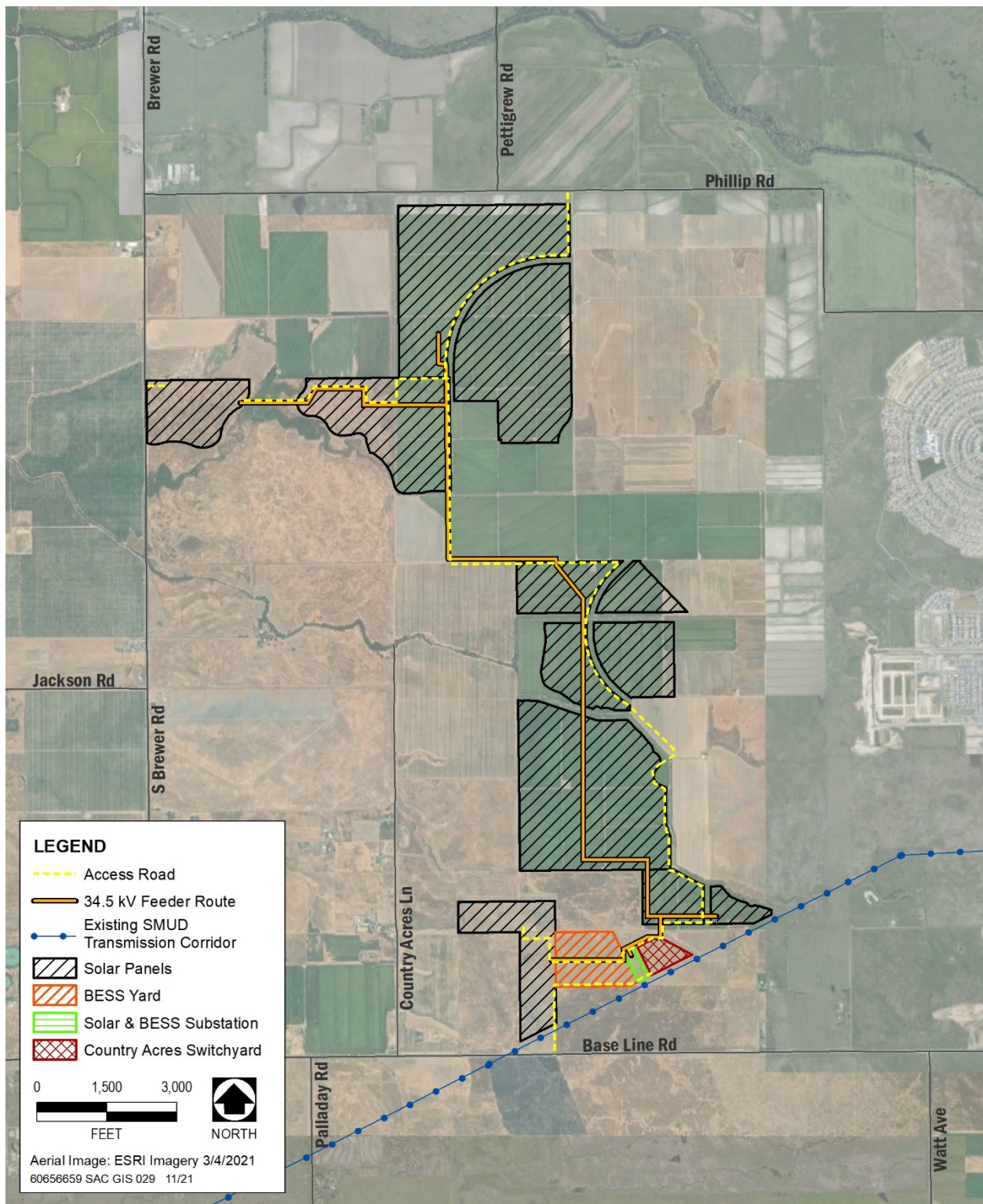
**Purpose of Notice:** In accordance with the State CEQA Guidelines (14 California Code of Regulations [CCR] Section 15082), SMUD has prepared this notice of preparation (NOP) to inform agencies and interested parties that an EIR will be prepared for the above-referenced project. The purpose of an NOP is to provide sufficient information about the project and its potential environmental impacts to allow agencies and interested parties the opportunity to provide a meaningful response related to the scope and content of the EIR, including mitigation measures that should be considered and alternatives that should be addressed (State CEQA Guidelines 14 CCR Section 15082[b]).

**Project Location:** The project would be located on up to approximately 1,300 acres of land in southwestern Placer County just west of the City of Roseville, north of Baseline Road and east of South Brewer Road (Figure 1 and Figure 2). Primary access to the project site would be provided by an entry road from Baseline Road to the south and Phillip Road to the north.

The project site is relatively flat and open and includes grassland, agricultural rice fields and almond orchards with scattered seasonal wetlands, including vernal pools. It also includes several drainages, including segments of upper Curry Creek. Agricultural uses and grassland surround the project site with some residential development to the east in the City of Roseville.



**Figure 1. Regional Location Map**



**Figure 2. Site Location Map with Proposed Project Elements**



**Project Objectives:** SMUD's objectives for the project include the following:

- Contribute to a diversified energy portfolio that will aid in the continued improvement of air quality in the Sacramento Valley Air Basin by decreasing reliance on fossil fuel combustion for the generation of electricity and reduce SMUD's exposure to price volatility associated with electricity and natural gas.
- Provide a renewable power resource to support SMUD's 2030 Zero Carbon Plan, a plan approved by the Board of Directors in 2021, which establishes a flexible Pathway for SMUD to eliminate carbon emissions from its power supply by 2030 by developing and procuring dependable renewable resources.
- Develop a project that will deliver a reliable, long-term supply of economically feasible solar and battery storage for up to 344 megawatts (MW) of electrical capacity at the point of interconnection with the grid managed by SMUD.
- Site the project to avoid wetlands and other sensitive habitat areas as feasible within the available property.
- Integrate compatible agricultural activities such as grazing and/or pollinator habitat into solar operations.
- Optimize the delivery of solar-produced and stored energy and minimize the geographic extent of impacts by locating the facility near existing electrical infrastructure with available capacity.
- Design a flexible PV solar energy and battery storage facility that is capable of utilizing the best available, efficient, cost-effective, and proven PV solar and storage technology.
- Construct the facility in a location that is readily accessible from existing roads and that would not require the construction of major new roadway improvements.

**Project Description:** The Country Acres Solar Project includes construction and operation of a PV solar power and battery storage facility and interconnection facilities, including a generation substation, switch station, and interconnection lines, that would provide new power production capacity of up to 344 MW delivered at the point of interconnection with the grid managed by SMUD. The total project site would generally comprise PV solar modules, foundation piles, racking, direct current (DC) collection, alternative current (AC) collection, fencing, roads, inverters, medium voltage transformers, an interconnection line between the generation substation and switch station, battery storage equipment, and interconnection lines to the existing SMUD transmission system. During construction, a temporary construction trailer/office complex and staging areas would be established. During operation, the proposed project would likely include an operations facility. At the end of the project's life (anticipated to be 30 to 35 years or more), the site would be decommissioned. Additional project details are provided below:

*Solar Modules, Collection Systems, and Inverters*

The project would involve the installation of solar PV module arrays that would convert solar energy directly to electrical power to supply the electrical grid. The solar PV modules would convert the sunlight striking the modules directly into DC power, which would be transformed to AC power via an inverter. The project would include PV modules mounted on a single-axis

horizontal tracking system or a fixed tilt system, or a combination of both. The infrastructure described herein would be similar for either a single-axis tracking system or a fixed-tilt system.

The project would have an underground network of AC power cables that would connect the array transformers to a medium voltage combining switchgear. This switchgear would connect, via an overhead or underground collection system, to the proposed generation substation. Where an overhead line is used it would be supported by wooden or steel poles approximately 30 to 40 feet tall. These lines would follow existing infrastructure easements or access roads when feasible. The onsite substation would then transform the final voltage to connect the project power to the existing SMUD transmission system.

### *Battery Energy Storage System*

A battery energy storage system (BESS) is proposed to be constructed within the project footprint. Two main types of BESSs are being considered for the project: a DC-coupled or an AC-coupled system. A DC-coupled system would consist of multiple small battery units located on concrete skids or metal posts adjacent to the solar arrays. An AC-coupled system would consist of one or more metal containers similar in size to a shipping container likely located on a concrete pad in the battery storage area. The BESS would be connected to the proposed generation substation via an overhead or underground collection system similar to the solar component of the project.

The BESS storage system would follow the latest national fire protection safety codes. The codes include fire prevention, mitigation, and suppression system requirements.

### *Substation and Switch Station*

The proposed onsite substation would be a minimum of 600 feet by 300 feet and include one or more generation step-up transformers, breakers, buswork, protective relaying, meters, Site Control Center building, backup power, associated substation equipment, and a dedicated perimeter fence. The substation would be constructed and operated to step up the voltage of the electricity generated from the PV arrays or stored in the BESS. The substation site would be improved with compacted materials and foundations to support electrical equipment and supporting infrastructure. The substation structures would range in height from approximately 20 to 60 feet. Station service is likely to be provided via one of the adjacent electrical distribution lines or emergency generators may be installed for operations.

The proposed 230 kilovolt (kV) switching station would be a minimum of 800 feet by 600 feet in size and may include a storm water detention basin. The switch station would be designed and built to meet SMUD's specification, guidelines, and standards. The major equipment and associated support structure would include 230kV bus, circuit breakers, disconnect and ground switches, metering, other ancillary equipment and a control building. Station service would be provided to the switch station via a local distribution circuit.

### *Interconnection Lines*

The interconnection of the project to SMUD's grid would be accomplished through removal of a section of the existing SMUD transmission lines, as shown on Figure 2, and installation of new overhead double circuit lines on galvanized steel mono structure poles or lattice structures to interconnect the new switch station. The new poles would be up to approximately 130 feet tall and extend from the switch station to the existing lines.



From the proposed onsite substation to the proposed 230-kV switch station SMUD proposes to install new overhead generation interconnection lines on galvanized steel mono structure poles. The new poles would be up to approximately 130 feet tall.

The overhead lines (including the overhead transmission lines and the line from the substation to the switch station) would be designed to reduce raptor and other bird collisions and electrocutions in compliance with SMUD's current Avian Protection Plan (APP) standards (SMUD 2016<sup>1</sup>). Avian protection design standards and mortality reduction measures in the SMUD APP include installing flight diverters to increase overhead wire visibility in high-risk collision areas and using 60-inch clearance (minimum vertical separation of 36 inches from phase to ground on single-phase structures or 43 inches between energized conductors and ground on three-phase structures) pole design in eagle/raptor use areas. In addition, the APP requires that avian injuries and mortalities be reported to the SMUD APP Coordinator and that corrective actions be implemented if high mortality rates or avian caused power outages are recorded. Observations of injured or deceased birds during routine inspections are reported to SMUD's APP Coordinator.

#### *Access and Internal Road Improvements*

Primary access to the project site during both construction and operation would be provided by existing, or newly constructed, paved, graveled, or dirt roads extending to the project site from Baseline Road, Country Acres Lane, and Phillip Road. Improved (earthen or graveled) roads, approximately 12 to 20 feet wide, would be constructed throughout the site and between arrays to provide access to the solar and BESS equipment and accommodate on-going maintenance of the solar and battery facilities and emergency vehicles. Existing earthen farm roads would be used for construction and maintenance and would be improved with a gravel overlay to minimize impacts to air quality during construction and reduce dust accumulation on nearby almond trees and future solar panels. An existing crossing over Curry Creek could require minor surface improvements, such as mats or steel plates, to accommodate construction traffic. These improvements would not require in-channel work.

#### *Utilities*

Existing overhead distribution lines adjacent to and within the project site may be used to provide energy to project infrastructure and personnel during both construction and operation of the project. Additional poles and lines may be required to extend service to proposed project components such as the project generation substation or 230 kV switch station. Some existing distribution lines may need to be removed and/or placed underground.

#### *Fencing and Lighting*

The entire project site would be fenced to restrict access to authorized personnel only, improve safety, isolate electrical equipment, protect onsite improvements from theft and vandalism, and minimize potential conflicts with surrounding land use. Six-foot high chain link security fencing topped with three-strand barbed wire supported on inclined steel post extensions would be placed around the perimeter of the new substation. A small gap at the bottom would allow small wildlife species (e.g., small mammals, reptiles, and amphibians) passage under the fence. The final location and design of the fencing would depend on the final design of the project site.

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<sup>1</sup> SMUD. 2016 (Updated November 2018) Sacramento Municipal Utility District Avian Protection Plan

The project would include external safety lighting and permanent lighting on the switch station, substation, entrances to the arrays, and certain array or BESS-related equipment such as medium voltage combining switchgear. All lighting shall be light-emitting diode (LED) and comply with dark sky standards. Temporary construction lighting also may be necessary. Construction lighting would be shielded and angled downward. Mobile lighting would be used for nighttime construction and decommissioning activities and would also be shielded and angled downward. Bright white light, such as metal halide, halogen, fluorescent, mercury vapor, and incandescent lighting would not be used during construction or for long-term operations. Lighting at the inverters medium voltage combining switchgear, substation, and switch station would generally be switched off and only switched on if maintenance is required outside of daylight hours. Lighting at entrances would be on motion sensors or on from dusk until dawn and some motion sensor lights would be installed along perimeters for security. These lights would be similar to flood lighting on the front of a home.

### *Meteorological Station and Telecommunications*

Meteorological stations, approximately 10 to 15 feet in height, would be installed within the solar field. Telecommunications would be provided from a local provider or a microwave/satellite communications tower. Underground and/or overhead fiber optic cables would be installed onsite and along the interconnection and collection between the solar plant, BESS yard, the generation substation and the switch station.

### *Setbacks*

Setbacks would be established from the project boundary (footprint) to any wetlands.

### *Construction Activities*

Construction of the project would take approximately eighteen months to two years and is proposed to begin as early as winter of 2023 and conclude in 2024 or 2025. Preconstruction activities would include permitting, any required biological and cultural clearance surveys, geotechnical and other surveying, and installation of fencing. Additionally, the contractor would begin to mobilize for construction. Construction mobilization would include preparing and constructing site access road improvements, removal of existing agricultural operations, establishing temporary construction trailers and sanitary facilities, preparing initial construction staging areas, and preparing water access areas near existing onsite wells.

A construction staging and the temporary construction office would be located within the project site. Temporary lighting may be installed to facilitate deliveries and construction management. Construction staging areas would be used to store construction materials, worker parking, and provide a designated area for receiving construction deliveries, including temporary parking for delivery trucks waiting to unload. Other temporary staging/laydown areas would also be established within the main project site during construction. After establishment of the staging area(s), project construction would begin with the initial site preparation work. Within the solar field and interconnection facility areas and following environmental clearance, limited grading may be used to prepare the site for post and PV modules installation. Grading would be minimized to the extent feasible within the solar array. Grading would likely be required for the proposed BESS yard, generation substation, and switch station.

Following site preparation, vertical support posts would be driven into the ground. These posts would hold the support structures, or tables, on which PV modules would be mounted. Trenches for the underground AC and DC cabling and collection, and the foundations for the inverter

enclosures and transformers, would be prepared. Trenching would occur within each array to place the AC and DC electrical cables underground. Upon placing the cables in the trenches, the trenches would be backfilled. Concrete foundations would be prepared for the BESS, generation substation and switch station components as well as for the interconnection poles.

Once the foundations are complete, BESS, generation substation and switch station equipment would be delivered, placed, and mounted on foundations. The BESS, generation substation and switch station components would be connected and prepared for commissioning and energization. Interconnection poles would be set at their foundation sites and conductor would be strung between the different facilities prior to commissioning and energization.

Typical construction equipment such as scrapers, dozers, dump trucks, watering trucks, motor graders, vibratory compactors, sheepsfoot, trenching and cable installation equipment, and backhoes would be used during construction. Other construction equipment that may be used would include generators, all-terrain vehicles (ATVs), pickup trucks, loaders, excavators, skid loaders, directional and other drilling equipment, road reclaimers, post drivers, forklifts, a mobile crane, and a boom lift.

Fuel may be stored onsite during peak construction activities and would be stored consistent with standard construction best management practices.

### *Construction Workforce*

The construction workforce (with an expected average of 177 and a peak of 650 construction workers) is expected to arrive at the project site between approximately 6:00 a.m. and 7:00 a.m. and leave the site between approximately 4:00 p.m. and 5:00 p.m., Monday through Friday for most of project construction. During hotter weather, construction crews may arrive earlier and leave later in the evening. Some earlier or later hours and weekend work may also be required to maintain the project construction schedule, complete critical activities, and accommodate deliveries. The number of personnel onsite during nighttime construction would depend upon the nature of the construction activity or materials being delivered to the site. As needed, mobile lighting units would be used to accommodate temporary construction activities.

### *Access and Traffic*

Most of the traffic generated during project construction would be for employees commuting and the delivery of components and equipment. Primary access to the project site during both construction and operation would be provided by an existing road from Baseline Road, as shown in Figure 2.

In addition to construction workforce trips, project construction would require the following types of vehicle trips (all heavy vehicles):

- Equipment and materials deliveries.
- Excavation, debris, and material hauling.
- Visitors, inspectors, management.

Most of the construction traffic would likely originate from Baseline Road via Highway 99. Materials would be delivered generally outside of the peak morning and afternoon traffic hours to the extent feasible and would be delivered to the designated receiving area. The materials would then be distributed within the site as needed. It is estimated that an average of 42 truck

trips per day would be needed during construction. The estimated average truck trips per day associated with excavation, debris, and material hauling is six (6).

### *Grading and Vegetation Removal*

Limited grading and vegetation removal is proposed along the access roads, at the location of the inverters and transformers, at the BESS yard, the generation substation, and switch station. Aside from these areas, vegetation removal would generally not occur where solar panels would be installed in areas currently in grassland. Vegetation removal would, however, occur in areas currently planted in almonds.

### *Other Site Improvements*

To help prepare the project site for development of the project, a few other activities would need to be completed:

- Temporary 12 kV line to provide power at staging yards.
- Removal of current agricultural operations such as irrigation for orchards.
- Existing 12 kV lines providing power to wells would be removed or relocated underground.

### *Construction Waste Management and Recycling*

Construction activities would generate waste that in some cases may require off-site disposal. The California Green Building Code requires that at least 65 percent of construction and demolition waste be diverted from landfills.

Construction and demolition waste generated from this project would consist of the following:

- Scrap metal – copper wire, transformers, iron, steel, and aluminum.
- Solid waste – trash, cardboard, wood products, inert organics, non-hazardous solar panels, and concrete.
- Universal waste – Inverters, DC disconnect, battery pack, and power meters.
- Hazardous waste – Lubricants and oils, spill clean-up debris, and solar panels that meet the characterization of a hazardous waste.
- Organic agriculture biomass, such as any removed orchard trees, would be chipped on site and used as mulch.

All waste shipped offsite would be transported in accordance with the Department of Transportation, Code of Federal Regulations (CFR) Title 49, Subtitle B, Chapter I and CCR, Title 13, Division 2.

Hazardous waste generated would be properly stored and disposed of in accordance with federal, state, and local regulations. No hazardous waste is expected to be generated during construction; however, construction equipment uses various hazardous materials (diesel fuel, oil, solvents, etc.). If disposal of these materials would be needed, it would be done off site in accordance with all applicable laws pertaining to the handling and disposal of hazardous waste.

### *Operation and Maintenance Activities*

The project would operate seven days per week. One regular onsite employee may be required, and some personnel may visit the site to monitor, maintain, and if needed, repair, the system. PV panels may be periodically washed during project operation as needed. To conservatively estimate potential panel washing operational water use, it is estimated that solar panels would be washed once per year in case of excessive soiling. The project may also require occasional repair or replacement of project components. Inverters may require replacement every 10 years, while PV panels generally last 30 to 40 years. Thus, infrastructure replacement is expected to be rare. Other operational activities would include BESS equipment maintenance interconnection equipment maintenance, production reporting, equipment inspecting and testing, and similar activities. General site maintenance would include vegetation management, road maintenance, and general upkeep of the facility.

Pickup trucks and flatbeds, forklifts, and loaders may be used for normal maintenance. Large, heavy-haul, transport equipment would be occasionally used to repair or replace equipment. Non-hazardous waste would be collected in designated locations and picked up/disposed of by a local waste disposal or recycling company. Oil, electronic equipment, and other potentially hazardous waste would be collected, stored, and disposed of in accordance with applicable laws and regulations. Sanitary facilities are likely to consist of a regularly maintained portable toilet.

Preventive maintenance kits and certain critical spare equipment would be stored onsite, while all other components would be readily available from a remote warehouse facility.

### *Safety Controls*

Health and safety plans would be developed for both the construction and operational phases of the project. While project-specific plans have not yet been prepared, the plans would call for implementation of various measures including safety signage in accordance with applicable regulatory requirements.

### *Decommissioning and Site Restoration*

At the end of the project's useful life (anticipated to be 30 to 35 years or more), it would be decommissioned. Based on current decommissioning practices, as a reasonable-worst case scenario, this document assumes that environmental impacts generated during future decommissioning would be similar to those generated during project construction.

Currently, standard decommissioning practices include dismantling and repurposing, salvaging/recycling, or disposing of the solar energy improvements, and site stabilization. Actual decommissioning and site restoration activities for the project would be conducted in accordance with all applicable requirements in effect at the time of project termination, and a final decommissioning plan, based on then-current technology, site conditions, and regulations, would be prepared prior to actual decommissioning.

Under current standard decommissioning practices, solar modules are removed, collected, and recycled or disposed of at a properly licensed landfill. Some or all components (i.e., aluminum and steel components) are salvaged and/or recycled, as feasible. Components that cannot be salvaged are removed and disposed of in accordance with applicable laws and regulations.

Generally, only those portions of the underground collection system that would conflict with future land uses would be removed. Components of an underground system that would not



conflict with other land uses typically would be kept in place to minimize disturbances to existing vegetation. Similarly, access roads that would conflict with other land uses would be removed and the aggregate recycled, and roads that are compatible with other land uses would be left in place. Overhead electrical collection lines, poles, and associated components would be disassembled and removed, and reprocessed, sold, salvaged, or otherwise disposed of in an appropriate manner.

Substation components including steel, conductors, switches, transformers, fencing, control houses, and other materials, typically would be removed from a site and would be repurposed, salvaged, or recycled, or disposed of in an appropriate manner.

Some grading may be required to re-contour access road areas or address erosion. Future site restoration activities are assumed to be similar to the procedures used during construction to restore temporarily disturbed areas.

**Potential Environmental Effects:** The EIR will describe the significant direct and indirect environmental impacts of the project. The EIR also will evaluate the cumulative impacts of the project, defined as impacts that could be exacerbated when considered in conjunction with other related past, present, and reasonably foreseeable future projects. SMUD anticipates that the project could result in potentially significant environmental impacts in the following resource areas, which will be further evaluated in the EIR:

- **Aesthetics:** Temporary and long-term changes in scenic views or visual character of the project site as viewed by motorists on Baseline Road and Philip Road and recreationalists, along with the potential for glare.
- **Agriculture:** Temporary or long-term changes to existing environment and conversion of farmland to non-agricultural use.
- **Air Quality:** Temporary increases in air pollutant emissions associated with construction and operation associated with mobile-source emissions from maintenance worker trips and operation of the emergency backup generator.
- **Biological Resources:** Temporary disturbances or permanent losses of habitats and wildlife corridors; temporary disturbances or permanent losses of state or federally protected wetlands; temporary disturbances or permanent losses of special-status plant species; and construction disturbances or take of special-status terrestrial and aquatic species.
- **Cultural Resources:** Temporary or permanent disturbances of known or unknown historical or archaeological resources.
- **Geology and Soils:** Potential soil erosion or loss of topsoil during construction; and potential impacts related to unstable soils, earthquakes, unique geological features, and expansive soils at the project site.
- **Greenhouse Gas Emissions:** Temporary increases in greenhouse gas emissions associated with mobile-source exhaust from construction worker commute trips, truck haul trips, and equipment (e.g., excavators, graders), with much greater long-term decreases in greenhouse gas emissions due to replacement of electrical generation by fossil fuel power plants.

- **Hazards and Hazardous Materials:** Potential spills of hazardous materials during construction; potential exposure of workers to hazardous materials during construction; and increased exposure to wildland fire risk during construction.
- **Hydrology and Water Quality:** Potential temporary and permanent alterations of local drainage patterns and increases in stormwater peak flow and volumes and potential downstream runoff effects; temporary effects on water quality during construction, including spills of fuel or other hazardous materials; and potential impacts to Federal Emergency Management Agency (FEMA) and local 100-year floodplains and floodways and drainage facilities throughout the site.
- **Land Use and Planning:** Compliance with local and regional adopted plans.
- **Noise:** Temporary increases in noise (including off-site, truck traffic noise) and vibration levels during construction.
- **Public Services:** Potential impacts to fire and emergency services and maintenance of public roads.
- **Transportation and Traffic:** Temporary increases in traffic and traffic hazards on local roadways (including Philip Road and Baseline Road) during construction.
- **Tribal Cultural Resources:** Potential substantial adverse changes to tribal cultural resources.
- **Wildfire:** Potential increased exposure to wildland fire risk during construction.

These potential impacts will be assessed and discussed in detail in the EIR, and feasible and practicable mitigation measures will be recommended to reduce any identified significant or potentially significant impacts. The discussion in the EIR will also include an alternatives analysis.

SMUD anticipates that the project will not result in significant environmental impacts in the following resource areas, which will not be further evaluated in the EIR: energy, mineral resources, population and housing, recreation, and utilities.

**Potential Approvals and Permits Required:** Elements of the project could be subject to permitting and/or approval authority of other agencies. As the lead agency pursuant to CEQA, SMUD is responsible for considering the adequacy of the EIR. Other potential permits required from other agencies could include:

*Federal*

- **U.S. Army Corps of Engineers:** Compliance with Section 404 of the Clean Water Act (CWA) for discharge of fill to Waters of the U.S.
- **U.S. Fish and Wildlife Service:** Section 7 of the Endangered Species Act (ESA) Consultation. Letter of Concurrence for a Not Likely to Adversely Affect (NLAA) determination.
- **State Historic Preservation Office (SHPO):** Compliance with Section 106 of the National Historic Preservation Act (required in support of CWA Section 404 permit, if needed)

- **Federal Emergency Management Agency (FEMA):** Conditional Letter/Letter of Map Revision (CLOMR/LOMR) for floodplain boundary.

*State*

- **State Water Resources Control Board:** Clean Water Act Section 402, construction general permit.
- **Central Valley Regional Water Quality Control Board:** Clean Water Act Section 401, water quality certification; and/or waste discharge permit for waters of the state, if applicable.
- **California Department of Fish and Wildlife:** Compliance with California Endangered Species Act (CESA), potential permits under Section 2081 of the Fish and Game Code if take of listed species is likely to occur; and Section 1602 streambed alteration agreement for construction activities that occur within the bed, bank or channel of waterways.
- **California Department of Transportation:** Encroachment permit and/or transportation management plan for any oversized equipment, such as transformers.

*Local*

- **Placer County:** Conditional Use Permit (CUP); Improvement Plans/Grading Permit, Encroachment Permits.
- **Placer County Air Pollution Control District (PCAPCD):** Submittal of a Dust Control Plan, pursuant to PCAPCD Rule 228, for ground disturbance of an area greater than one acre.

**Document Availability:** the NOP is available for public review on SMUD's website: [www.smud.org/ceqa](http://www.smud.org/ceqa). Printed copies of the NOP are also available for public review at the following locations:

Sacramento Municipal Utility District  
Customer Service Center  
6301 S Street  
Sacramento, CA 95817

Sacramento Municipal Utility District  
East Campus Operations Center  
4401 Bradshaw Road  
Sacramento, CA 95827

**Public Scoping Meeting:** A public scoping meeting will be conducted by SMUD to inform interested parties about the project, and to provide agencies and the public with an opportunity to provide comments on the scope and content of the EIR. The meeting time and location are as follows:

December 8, 2021  
Time: 4:00 – 5:00 p.m.  
Location: Virtual  
Link to Zoom meeting can be found at [www.smud.org/countryacres](http://www.smud.org/countryacres)

**Comment Period:** Agencies and interested parties may provide SMUD with written comments on topics to be addressed in the EIR for the project. Comments can be provided anytime during the NOP review period, but must be received by 5:00 p.m. on December 21, 2021. Please send all comments, with appropriate contact information, to the following address via hard copy or email:

Amy Spitzer  
Sacramento Municipal Utility District  
Environmental Services Department  
6201 S Street, MS B209  
Sacramento, CA 95817  
[CountryAcres@smud.org](mailto:CountryAcres@smud.org)

All comments on environmental issues received during the public comment period will be considered and addressed in the Draft EIR, which is anticipated to be available for public review in spring 2022.





# Country Acres Solar Project

## Scoping Summary

Sacramento Municipal Utility District

January 2022



**Prepared for:**

Sacramento Municipal Utility District

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## Acronyms and Abbreviations

AB	Assembly Bill
BMPs	best management practices
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CNDDDB	California Natural Diversity Database
CPUC	California Public Utility Commission
EIR	environmental impact report
HCP	habitat conservation plan
MS4	Municipal Separate Storm Sewer System
MW	megawatt
NCCP	natural community conservation plan
NOP	notice of preparation
NPDES	National Pollutant Discharge Elimination System
PG&E	Pacific Gas and Electric Company
project	Country Acres Solar Project
PV	photovoltaic
SB	Senate Bill
SMUD	Sacramento Municipal Utility District
TCR(s)	Tribal Cultural Resource(s)
UAIC	United Auburn Indian Community

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# 1. Introduction

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Sacramento Municipal Utility District (SMUD) is proposing the Country Acres Solar Project (Project) which would include installation, operation, and maintenance of a photovoltaic (PV) solar power and battery storage renewable energy generation facility in southwestern Placer County. The Project includes construction and operation of a PV solar power and battery storage facility and interconnection facilities, including a generation substation, switch station, and interconnection lines, that would provide new power production capacity of up to 344 megawatt (MW) delivered at the point of interconnection with the grid managed by SMUD. As the Lead Agency, SMUD is preparing a draft environmental impact report (EIR) for the project to satisfy the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.).

SMUD issued a notice of preparation (NOP) of a draft EIR for the project on November 19, 2021 (Appendix A) and held one virtual public scoping meeting via Zoom on December 8, 2021. The NOP was distributed to the State Clearinghouse, and to multiple stakeholders and Responsible Agencies. The NOP was also noticed in the Sacramento Bee newspaper. The State CEQA Guidelines provide a 30-day period for responsible and trustee agencies to respond to an NOP and must provide specific detail about the scope and content of the environmental information to be included in the EIR (Section 15082[b]). CEQA also requires lead agencies to hold at least one scoping meeting if a project is of statewide, regional, or areawide significance (Section 21083.9[a] [2]).

SMUD received comments from multiple sources in response to the NOP in the form of letters submitted via letter/email to SMUD or via CEQAnet through the State Clearinghouse. The purpose of this report is to document the comments received and identify topics or issues of concern raised by responsible agencies, trustee agencies, and the public during the 30-day scoping period (November 19 – December 21, 2021). SMUD will consider all comments received during the scoping process and address those pertaining to environmental issues when preparing the Draft EIR.

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## 2. Scoping Meeting

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SMUD held one scoping meeting to inform interested parties about the proposed project and receive comments on the scope and content of the draft EIR. This meeting was scheduled from 4–5 pm, on Wednesday, December 8, 2021, on Zoom. The link to the Zoom meeting was available at [www.smud.org/countryacres](http://www.smud.org/countryacres), as indicated by the NOP.

Attending this virtual meeting included three members of the public, representatives from industry including Innergex Renewable Energy, Q Cells, and D.E. Shaw & Co., a representative from labor including NorCal Carpenters Union, as well as government agencies including Placer County, City of Roseville, and California Department of Education. SMUD representatives gave a power point presentation of the proposed project that was approximately 20 minutes long (Appendix B). There were no questions or comments from the attendees; therefore, SMUD representatives ended the meeting approximately 15 minutes early.

### 2.1 Public Comments

No questions or comments were received during the public scoping meeting.



### 3. Written Comments

This section provides a synopsis of the written comments received during the 30-day NOP public comment period. A total of eleven comment letters were received. Table 1 provides a list of persons who submitted comments on the NOP.

In addition to comments received via letter/email to SMUD or via CEQAnet through the State Clearinghouse, SMUD has been coordinating with Placer County in preparation for the Conditional Use Permit Application with regards to aesthetics, agriculture, biological resources, cultural resources, tribal cultural resources, hazards and hazardous materials, hydrology and water quality, land use and planning, public services, traffic and transportation, utilities and service systems, and project phasing. These topics will be addressed in the EIR.

**Table 1. List of Written Comments**

Commenter	Affiliation	Date
Plan Review Team	Pacific Gas and Electric Company	November 20, 2021
Katy Sanchez	Native American Heritage Commission	November 22, 2021
Anna Starkey	United Auburn Indian Community	November 23, 2021
Elia Bassin	63 <sup>rd</sup> Street, Sacramento	December 6, 2021
Steve Schweigerdt	2 <sup>nd</sup> Avenue, Sacramento	December 7, 2021
Kelley Barker	California Department of Fish and Wildlife	December 17, 2021
Greg Hendricks	Central Valley Regional Water Quality Control Board	December 17, 2021
Mohan Ganapathy	Placer County	December 17, 2021
Gregg McKenzie	Placer Conservation Authority	December 21, 2021
Ann Hobbs	Placer County Air Pollution District	December 21, 2021
Sharon Webb	Sentar Road, Woodland Hills	December 21, 2021

Table 2 provides a summary of the written comments and the sections of the draft EIR in which SMUD will include relevant information. The comments have been paraphrased for brevity. Some comments provided information that is not directly related to CEQA and the scope of the draft EIR. This information was not included. Furthermore, the comments included in the table may not be directly addressed in the draft EIR. For example, a few comments provided project suggestions that may not be addressed until project design. Appendix C presents copies of the comment letters.

**Table 2. Synopsis of Written Comments**

Comment Synopsis	EIR Section(s) that will Address the Comment
<b>AGENCY COMMENTS</b>	
<b>Plan Review Team, Pacific Gas and Electric Company</b>	
The commenter includes attachments providing information and describing requirements pertaining to Gas facilities and Electric facilities. The commenter indicates that any proposed uses within the PG&E fee strip and/or easement, may include a California Public Utility Commission (CPUC) Section 851 filing, however, PG&E will advise whether this filing is required.	Utilities and Service Systems
<b>Katy Sanchez, Native American Heritage Commission</b>	
The commenter describes additional requirements added to CEQA associated with Assembly Bill (AB) 52 and provisions imposed by Senate Bill (SB) 18. The commenter further describes related tribal consultation and environmental analysis requirements. The commenter also describes the Native American Heritage Commission's recommendations for cultural resources assessments.	Cultural Resources, Tribal Cultural Resources
<b>Anna Starkey, United Auburn Indian Community</b>	
The commenter requests that the Cultural Resources and Tribal Cultural Resources (TCR) chapters (including mitigation measures) are separate and distinct, and that the TCR chapter does not repeat the same background information found in the Cultural Resources chapter, rather, it should focus on the contemporary tribal communities that stewards and cares for their ancestors sites. The commenter requests that tribal values be separate and distinct from archaeological values. Further, the commenter requests that the identification, evaluation, and treatment of TCRs be taken into consideration with the same level of analysis and professionalism that archaeologists are given. The commenter identifies some resources that United Auburn Indian Community (UAIC) identifies as TCRs and reiterates that archaeologists should only identify, evaluate, or make recommendations for cultural items that are considered TCRs if it is in direct coordination with consulting Tribes. The commenter requests that the TCR chapter does not refer to tribes and their ancestors as "prehistoric," and instead show that tribes are living communities. Finally, the commenter requests that aesthetic, natural, scenic, and historic environmental qualities are analyzed for TCRs.	Cultural Resources, Tribal Cultural Resources, Aesthetic
<b>Elia Bassin</b>	
<p>The commenter requests that SMUD build out all infill and rooftop solar opportunities before building this Project located on agricultural land. The commenter notes that the conversion of agricultural land will contribute to an increase in the region's urban heat island effect. The commenter adds that SMUD should implement a system to reimburse those residents that donate energy from these infill solar installations. Further, the commenter lists out six alternative ideas to be discussed in the EIR:</p> <ul style="list-style-type: none"> <li>• SMUD offers to lease the rooftop and installed SMUD owned solar whenever a new roof is installed in the SMUD jurisdiction</li> <li>• SMUD reimburses solar installation at the cost of the Country Acres project</li> <li>• SMUD allows Net Metering projects to over produce if they agree to a lower reimbursement rate</li> <li>• SMUD offers to lease parking lots not planned for development</li> <li>• floating system on Folsom Dam</li> <li>• double the size of Country Acres and allow it to be used as active farm land</li> </ul> <p>The commenter notes their support of SMUD controlling energy storage.</p>	Agriculture, Land Use and Planning, Utilities and Service Systems, Alternatives
<b>Steve Schweigerdt</b>	
<p>The commenter requests that the Project be constructed within SMUD's service area so that the economic benefits of the Project flow to SMUD customers. The commenter requests that SMUD analyze and address the indirect economic benefits to SMUD customers that would come from relocating this Project to a vacant industrial site within the SMUD service area. The commenter requests that contractors and employees for the Project be drawn from the SMUD service territory.</p> <p>Additionally, the commenter notes that the Project fragments existing agricultural land and is located outside of the planned development footprint established in the Placer County General Plan. The commenter also notes the importance of promoting food production near population centers and suggests that the Project be built on land that would not disturb productive agricultural land. The commenter requests that, if the Project is approved, best management practices (BMPs) be added for sheep grazing and native wildlife habitat that can at least partly offset the loss of quality land.</p>	Agriculture, Biological Resources, Land Use, Alternatives
<b>Kelley Barker, California Department of Fish and Wildlife</b>	
The commenter describes California Department of Fish and Wildlife's (CDFW's) role as a Trustee Agency and Responsible Agency under CEQA. The commenter offers comments and recommendations to assist SMUD in adequately identifying and/or mitigating the Project's significant, or potentially significant, impacts on biological resources; and enable CDFW to adequately review and comment of the proposed Project with respect to impacts on biological resources. CDFW recommends that the EIR specifically include: 1) An assessment of all habitat types located with the Project footprint, and a map that identifies the location of each habitat type; 2) A general biological inventory of the fish, amphibian, reptile, bird, and mammal species that are present or have the potential to be present within each habitat type onsite and within adjacent areas that could be affected by the Project; 3) A complete and recent inventory of rare, threatened, endangered, and other sensitive species located within the Project footprint and within offsite areas with the potential to be affected, including California Species of Special Concern and California Fully Protected Species; 4) A thorough, recent (within the last two years), floristic-based assessment of special-status plants and natural communities, following CDFW's <i>Protocols for Surveying and Evaluating Impacts to Special Status Native</i>	Biological Resources, Hydrology and Water Quality, Land Use and Planning, Alternatives

Comment Synopsis

*Plant Populations and Natural Communities*; and 5) Information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis on resources that are rare or unique to the region.

The commenter states that the EIR should provide thorough discussion of the Project's potential direct, indirect, and cumulative impacts on biological resources and provides information that should be included in the EIR.

The commenter states that the EIR should include appropriate and adequate avoidance, minimization, and/or mitigation measures for all direct, indirect, and cumulative impacts that are expected to occur as a result of the construction and long-term operation and maintenance of the Project and that the following should be considered: 1) Fully Protected Species; 2) Sensitive Plant Communities; 3) Mitigation; 4) Habitat Revegetation/Restoration Plans; 5) Nesting Birds; 6) Moving out of Harm's Way; and 7) Translocation of Species.

The commenter describes the California Endangered Species Act, the Western Placer County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP), Native Plant Protection Act, and Lake and Streambed Alteration Program in relation to CEQA and the proposed Project.

The commenter discussed general avian, bat, and other wildlife impacts that should be evaluated in the EIR. The commenter also recommends the EIR discuss and analyze impacts to wildlife associated with permanent fencing, which may be installed around the solar facility.

The commenter described CEQA requirements for environmental data and reporting to the California Natural Diversity Database (CNDDB).

The commenter provides information about filing fees.

The commenter requests written notification of proposed actions and pending decisions regarding the Project pursuant to Public Resources Code 21092 and 21092.2 and provides an address.

The commenter recommends that SMUD address CDFW's comment and concerns in the forthcoming EIR and that CDFW personnel are available for consultation regarding biological resources and strategies to minimize impacts.

**Greg Henricks, Central Valley Regional Water Quality Control Board**

The commenter states that the Central Valley Regional Water Quality Control Board (RWQCB) is delegated with the responsibility of protecting the quality of surface and groundwaters of the state and their comments address concerns surrounding those issues.

Hydrology and  
Water Quality

The commenter describes the following: I) Regulatory setting, including the Basin Plan and antidegradation considerations; II) Permitting requirements, including Construction Storm Water General Permit, Phase I and II Municipal Separate Storm Sewer System (MS4) Permits, Industrial Storm Water General Permit, Clean Water Act Section 404 Permit, Clean Water Act Section 401 Permit – Water Quality Certification, Waste Discharge Requirements – Discharges to Waters of the State, Dewatering Permit, Limited Threat General National Pollutant Discharge Elimination System (NPDES) Permit, and NPDES Permit.

**Mohan Ganapathy, Placer County**

The commenter states that portable restrooms are allowable during the construction phase; however, Placer County will require permanent restrooms (connected to an onsite septic system and be serviced by potable water) to service the Project during the operational phase. Additionally, a Phase 1 Environmental Site Assessment will be required as part of the EIR. A Phase 2 Soils Investigation will need to be performed if past activities on the parcels involved show a potential for the existence of recognized environmental conditions. Finally, the commenter requests that the Placer Mosquito and Vector Control District be included in the CEQA process to address mosquito/vector control issues.

Hazards and  
Hazardous  
Materials,  
Geology and  
Soils, Utilities  
and Service  
Systems

**Gregg McKenzie, Placer Conservation Authority**

The commenter indicates that SMUD is not a Permittee under the HCP/NCCP, and thus, SMUD's activities are not covered by the HCP/NCCP. The commenter identifies the Project as being located within the designated Planned Future Growth Area of the HCP/NCCP Plan Area. The commenter requests that the EIR addresses the Project's potential to result in the loss of habitat and waters/wetlands covered by the HCP/NCCP, including impacts and mitigation for the HCP/NCCP's fourteen Covered Species. Additionally, the EIR is required to address the Project's overall consistency with the HCP/NCCP. Finally, the commenter specifies that the EIR must address impacts and mitigation associated with Special Status Species with known occurrences or potential to occur within the Project area, in addition to the fourteen species addressed in the HCP/NCCP.

Agriculture,  
Biological  
Resources, Land  
Use and  
Planning,  
Hydrology and  
Water Quality

**Ann Hobbs, Placer County Air Pollution District**

The commenter states that permit(s) may be required for the construction and operational phases of the Project if the activities will include the use of equipment capable of releasing emissions to the atmosphere. The commenter provides information on District Rule 228: Fugitive Dust and District Rule 304: Land Development Smoke Management. The commenter states that the soil beneath the solar panels will become drier during the operational phase of the Project, potentially changing the vegetation type. The commenter requests that the EIR evaluate this with a control strategy/mitigation measure to assure that the Project areas comply with District Rule 228. Additionally, the commenter states that any air district burn permit would only be issued if in compliance with Rule 304. Finally, the commenter requests more information be provided on how vegetation will be managed after Project construction.

Air Quality,  
Biological  
Resources,  
Greenhouse  
Gas

**Sharon Webb**

The commenter indicates that they own property on Country Acres Lane and would be interested in leasing some of this land to SMUD for various Project activities.

Land Use and  
Planning

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## 4. Scope of the Environmental Impact Report

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SMUD has determined that a draft EIR should be prepared to evaluate the potential environmental impacts of the Country Acres Solar Project. As required by CEQA, the draft EIR will describe existing conditions and evaluate the potential direct, indirect, and cumulative environmental effects of the proposed project and a reasonable range of alternatives, including the no-project alternative. The draft EIR will also identify feasible mitigation measures, if available, to reduce potentially significant impacts. Topics to be evaluated in the draft EIR include:

- Aesthetics
- Agriculture
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Environmental Justice
- 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 and Traffic
- Tribal Cultural Resources
- Utilities and Services Systems
- Wildfire

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# Appendix A Notice of Preparation

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## NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT

**Date:** November 19, 2021

**To:** Agencies and Interested Parties

**Lead Agency:** Sacramento Municipal Utility District  
Environmental Services Department  
6201 S Street, MS B209  
Sacramento, CA 95817  
Contact: Amy Spitzer

**Subject:** Notice of Preparation of a Draft Environmental Impact Report for the Proposed Country Acres Solar Project

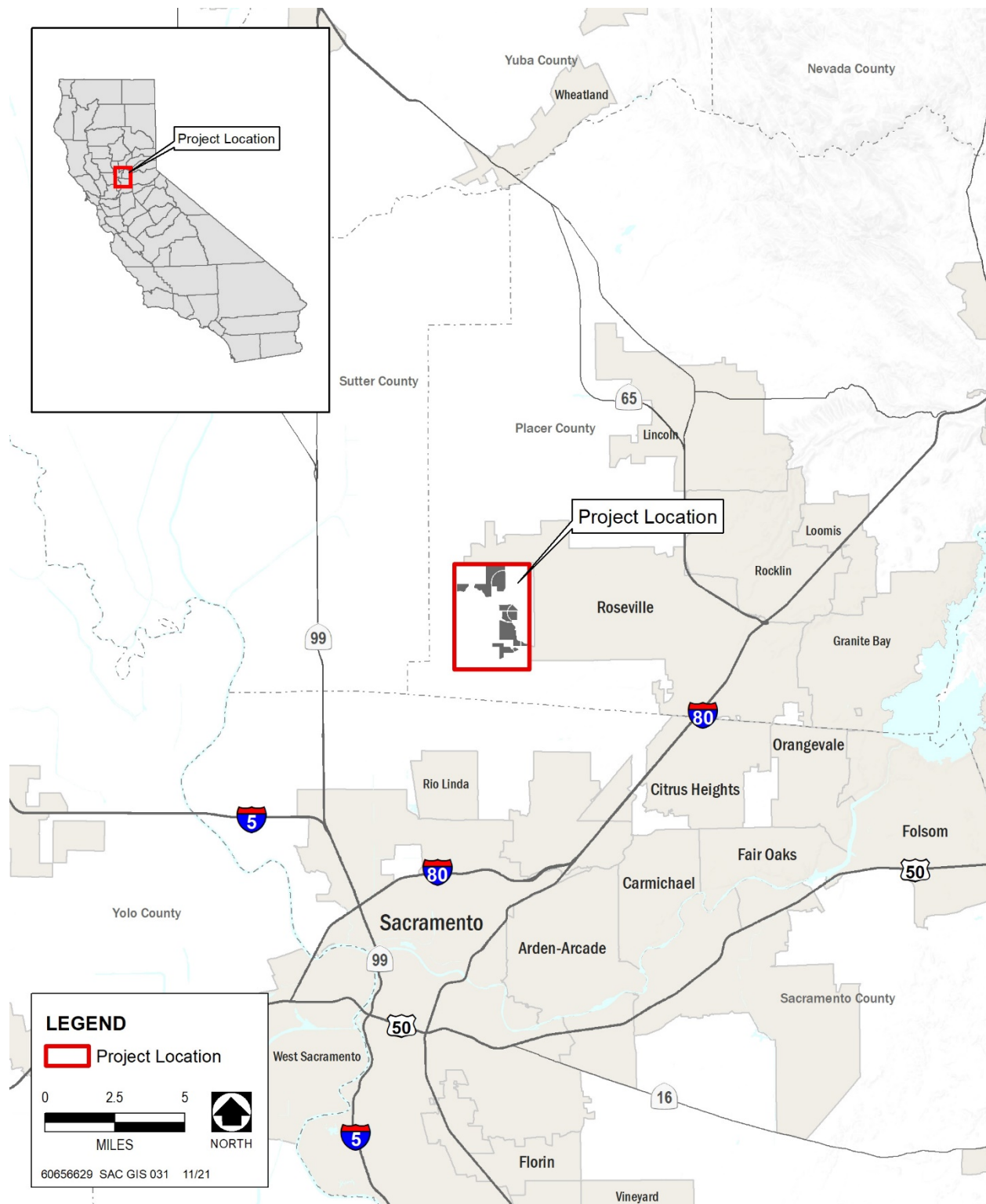
**Review Period:** November 19, 2021 to December 21, 2021

Sacramento Municipal Utility District (SMUD) is proposing the Country Acres Solar Project which would include installation, operation, and maintenance of a photovoltaic (PV) solar power and battery storage renewable energy generation facility in southwestern Placer County. SMUD plans to prepare an environmental impact report (EIR) for the project to satisfy the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000 et seq.) and will serve as the lead agency for CEQA compliance. Throughout the CEQA process, SMUD will work closely with Placer County because the County will play a substantial role in the project as the issuer of project entitlements.

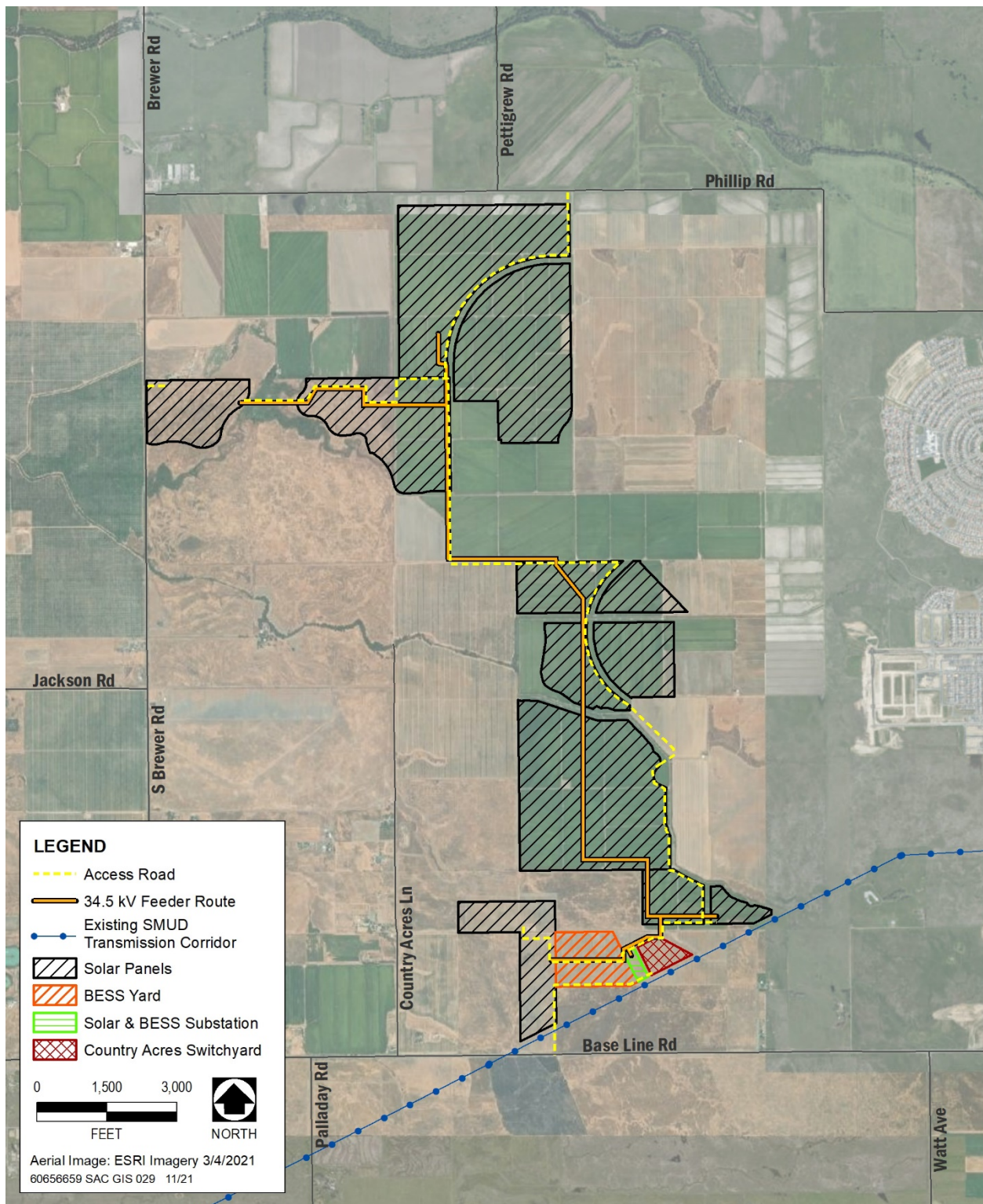
**Purpose of Notice:** In accordance with the State CEQA Guidelines (14 California Code of Regulations [CCR] Section 15082), SMUD has prepared this notice of preparation (NOP) to inform agencies and interested parties that an EIR will be prepared for the above-referenced project. The purpose of an NOP is to provide sufficient information about the project and its potential environmental impacts to allow agencies and interested parties the opportunity to provide a meaningful response related to the scope and content of the EIR, including mitigation measures that should be considered and alternatives that should be addressed (State CEQA Guidelines 14 CCR Section 15082[b]).

**Project Location:** The project would be located on up to approximately 1,300 acres of land in southwestern Placer County just west of the City of Roseville, north of Baseline Road and east of South Brewer Road (Figure 1 and Figure 2). Primary access to the project site would be provided by an entry road from Baseline Road to the south and Phillip Road to the north.

The project site is relatively flat and open and includes grassland, agricultural rice fields and almond orchards with scattered seasonal wetlands, including vernal pools. It also includes several drainages, including segments of upper Curry Creek. Agricultural uses and grassland surround the project site with some residential development to the east in the City of Roseville.



**Figure 1. Regional Location Map**



**Figure 2. Site Location Map with Proposed Project Elements**



**Project Objectives:** SMUD's objectives for the project include the following:

- Contribute to a diversified energy portfolio that will aid in the continued improvement of air quality in the Sacramento Valley Air Basin by decreasing reliance on fossil fuel combustion for the generation of electricity and reduce SMUD's exposure to price volatility associated with electricity and natural gas.
- Provide a renewable power resource to support SMUD's 2030 Zero Carbon Plan, a plan approved by the Board of Directors in 2021, which establishes a flexible Pathway for SMUD to eliminate carbon emissions from its power supply by 2030 by developing and procuring dependable renewable resources.
- Develop a project that will deliver a reliable, long-term supply of economically feasible solar and battery storage for up to 344 megawatts (MW) of electrical capacity at the point of interconnection with the grid managed by SMUD.
- Site the project to avoid wetlands and other sensitive habitat areas as feasible within the available property.
- Integrate compatible agricultural activities such as grazing and/or pollinator habitat into solar operations.
- Optimize the delivery of solar-produced and stored energy and minimize the geographic extent of impacts by locating the facility near existing electrical infrastructure with available capacity.
- Design a flexible PV solar energy and battery storage facility that is capable of utilizing the best available, efficient, cost-effective, and proven PV solar and storage technology.
- Construct the facility in a location that is readily accessible from existing roads and that would not require the construction of major new roadway improvements.

**Project Description:** The Country Acres Solar Project includes construction and operation of a PV solar power and battery storage facility and interconnection facilities, including a generation substation, switch station, and interconnection lines, that would provide new power production capacity of up to 344 MW delivered at the point of interconnection with the grid managed by SMUD. The total project site would generally comprise PV solar modules, foundation piles, racking, direct current (DC) collection, alternative current (AC) collection, fencing, roads, inverters, medium voltage transformers, an interconnection line between the generation substation and switch station, battery storage equipment, and interconnection lines to the existing SMUD transmission system. During construction, a temporary construction trailer/office complex and staging areas would be established. During operation, the proposed project would likely include an operations facility. At the end of the project's life (anticipated to be 30 to 35 years or more), the site would be decommissioned. Additional project details are provided below:

*Solar Modules, Collection Systems, and Inverters*

The project would involve the installation of solar PV module arrays that would convert solar energy directly to electrical power to supply the electrical grid. The solar PV modules would convert the sunlight striking the modules directly into DC power, which would be transformed to AC power via an inverter. The project would include PV modules mounted on a single-axis



horizontal tracking system or a fixed tilt system, or a combination of both. The infrastructure described herein would be similar for either a single-axis tracking system or a fixed-tilt system.

The project would have an underground network of AC power cables that would connect the array transformers to a medium voltage combining switchgear. This switchgear would connect, via an overhead or underground collection system, to the proposed generation substation. Where an overhead line is used it would be supported by wooden or steel poles approximately 30 to 40 feet tall. These lines would follow existing infrastructure easements or access roads when feasible. The onsite substation would then transform the final voltage to connect the project power to the existing SMUD transmission system.

### *Battery Energy Storage System*

A battery energy storage system (BESS) is proposed to be constructed within the project footprint. Two main types of BESSs are being considered for the project: a DC-coupled or an AC-coupled system. A DC-coupled system would consist of multiple small battery units located on concrete skids or metal posts adjacent to the solar arrays. An AC-coupled system would consist of one or more metal containers similar in size to a shipping container likely located on a concrete pad in the battery storage area. The BESS would be connected to the proposed generation substation via an overhead or underground collection system similar to the solar component of the project.

The BESS storage system would follow the latest national fire protection safety codes. The codes include fire prevention, mitigation, and suppression system requirements.

### *Substation and Switch Station*

The proposed onsite substation would be a minimum of 600 feet by 300 feet and include one or more generation step-up transformers, breakers, buswork, protective relaying, meters, Site Control Center building, backup power, associated substation equipment, and a dedicated perimeter fence. The substation would be constructed and operated to step up the voltage of the electricity generated from the PV arrays or stored in the BESS. The substation site would be improved with compacted materials and foundations to support electrical equipment and supporting infrastructure. The substation structures would range in height from approximately 20 to 60 feet. Station service is likely to be provided via one of the adjacent electrical distribution lines or emergency generators may be installed for operations.

The proposed 230 kilovolt (kV) switching station would be a minimum of 800 feet by 600 feet in size and may include a storm water detention basin. The switch station would be designed and built to meet SMUD's specification, guidelines, and standards. The major equipment and associated support structure would include 230kV bus, circuit breakers, disconnect and ground switches, metering, other ancillary equipment and a control building. Station service would be provided to the switch station via a local distribution circuit.

### *Interconnection Lines*

The interconnection of the project to SMUD's grid would be accomplished through removal of a section of the existing SMUD transmission lines, as shown on Figure 2, and installation of new overhead double circuit lines on galvanized steel mono structure poles or lattice structures to interconnect the new switch station. The new poles would be up to approximately 130 feet tall and extend from the switch station to the existing lines.

From the proposed onsite substation to the proposed 230-kV switch station SMUD proposes to install new overhead generation interconnection lines on galvanized steel mono structure poles. The new poles would be up to approximately 130 feet tall.

The overhead lines (including the overhead transmission lines and the line from the substation to the switch station) would be designed to reduce raptor and other bird collisions and electrocutions in compliance with SMUD's current Avian Protection Plan (APP) standards (SMUD 2016<sup>1</sup>). Avian protection design standards and mortality reduction measures in the SMUD APP include installing flight diverters to increase overhead wire visibility in high-risk collision areas and using 60-inch clearance (minimum vertical separation of 36 inches from phase to ground on single-phase structures or 43 inches between energized conductors and ground on three-phase structures) pole design in eagle/raptor use areas. In addition, the APP requires that avian injuries and mortalities be reported to the SMUD APP Coordinator and that corrective actions be implemented if high mortality rates or avian caused power outages are recorded. Observations of injured or deceased birds during routine inspections are reported to SMUD's APP Coordinator.

#### *Access and Internal Road Improvements*

Primary access to the project site during both construction and operation would be provided by existing, or newly constructed, paved, graveled, or dirt roads extending to the project site from Baseline Road, Country Acres Lane, and Phillip Road. Improved (earthen or graveled) roads, approximately 12 to 20 feet wide, would be constructed throughout the site and between arrays to provide access to the solar and BESS equipment and accommodate on-going maintenance of the solar and battery facilities and emergency vehicles. Existing earthen farm roads would be used for construction and maintenance and would be improved with a gravel overlay to minimize impacts to air quality during construction and reduce dust accumulation on nearby almond trees and future solar panels. An existing crossing over Curry Creek could require minor surface improvements, such as mats or steel plates, to accommodate construction traffic. These improvements would not require in-channel work.

#### *Utilities*

Existing overhead distribution lines adjacent to and within the project site may be used to provide energy to project infrastructure and personnel during both construction and operation of the project. Additional poles and lines may be required to extend service to proposed project components such as the project generation substation or 230 kV switch station. Some existing distribution lines may need to be removed and/or placed underground.

#### *Fencing and Lighting*

The entire project site would be fenced to restrict access to authorized personnel only, improve safety, isolate electrical equipment, protect onsite improvements from theft and vandalism, and minimize potential conflicts with surrounding land use. Six-foot high chain link security fencing topped with three-strand barbed wire supported on inclined steel post extensions would be placed around the perimeter of the new substation. A small gap at the bottom would allow small wildlife species (e.g., small mammals, reptiles, and amphibians) passage under the fence. The final location and design of the fencing would depend on the final design of the project site.

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<sup>1</sup> SMUD. 2016 (Updated November 2018) Sacramento Municipal Utility District Avian Protection Plan

The project would include external safety lighting and permanent lighting on the switch station, substation, entrances to the arrays, and certain array or BESS-related equipment such as medium voltage combining switchgear. All lighting shall be light-emitting diode (LED) and comply with dark sky standards. Temporary construction lighting also may be necessary. Construction lighting would be shielded and angled downward. Mobile lighting would be used for nighttime construction and decommissioning activities and would also be shielded and angled downward. Bright white light, such as metal halide, halogen, fluorescent, mercury vapor, and incandescent lighting would not be used during construction or for long-term operations. Lighting at the inverters medium voltage combining switchgear, substation, and switch station would generally be switched off and only switched on if maintenance is required outside of daylight hours. Lighting at entrances would be on motion sensors or on from dusk until dawn and some motion sensor lights would be installed along perimeters for security. These lights would be similar to flood lighting on the front of a home.

### *Meteorological Station and Telecommunications*

Meteorological stations, approximately 10 to 15 feet in height, would be installed within the solar field. Telecommunications would be provided from a local provider or a microwave/satellite communications tower. Underground and/or overhead fiber optic cables would be installed onsite and along the interconnection and collection between the solar plant, BESS yard, the generation substation and the switch station.

### *Setbacks*

Setbacks would be established from the project boundary (footprint) to any wetlands.

### *Construction Activities*

Construction of the project would take approximately eighteen months to two years and is proposed to begin as early as winter of 2023 and conclude in 2024 or 2025. Preconstruction activities would include permitting, any required biological and cultural clearance surveys, geotechnical and other surveying, and installation of fencing. Additionally, the contractor would begin to mobilize for construction. Construction mobilization would include preparing and constructing site access road improvements, removal of existing agricultural operations, establishing temporary construction trailers and sanitary facilities, preparing initial construction staging areas, and preparing water access areas near existing onsite wells.

A construction staging and the temporary construction office would be located within the project site. Temporary lighting may be installed to facilitate deliveries and construction management. Construction staging areas would be used to store construction materials, worker parking, and provide a designated area for receiving construction deliveries, including temporary parking for delivery trucks waiting to unload. Other temporary staging/laydown areas would also be established within the main project site during construction. After establishment of the staging area(s), project construction would begin with the initial site preparation work. Within the solar field and interconnection facility areas and following environmental clearance, limited grading may be used to prepare the site for post and PV modules installation. Grading would be minimized to the extent feasible within the solar array. Grading would likely be required for the proposed BESS yard, generation substation, and switch station.

Following site preparation, vertical support posts would be driven into the ground. These posts would hold the support structures, or tables, on which PV modules would be mounted. Trenches for the underground AC and DC cabling and collection, and the foundations for the inverter

enclosures and transformers, would be prepared. Trenching would occur within each array to place the AC and DC electrical cables underground. Upon placing the cables in the trenches, the trenches would be backfilled. Concrete foundations would be prepared for the BESS, generation substation and switch station components as well as for the interconnection poles.

Once the foundations are complete, BESS, generation substation and switch station equipment would be delivered, placed, and mounted on foundations. The BESS, generation substation and switch station components would be connected and prepared for commissioning and energization. Interconnection poles would be set at their foundation sites and conductor would be strung between the different facilities prior to commissioning and energization.

Typical construction equipment such as scrapers, dozers, dump trucks, watering trucks, motor graders, vibratory compactors, sheepsfoot, trenching and cable installation equipment, and backhoes would be used during construction. Other construction equipment that may be used would include generators, all-terrain vehicles (ATVs), pickup trucks, loaders, excavators, skid loaders, directional and other drilling equipment, road reclaimers, post drivers, forklifts, a mobile crane, and a boom lift.

Fuel may be stored onsite during peak construction activities and would be stored consistent with standard construction best management practices.

### *Construction Workforce*

The construction workforce (with an expected average of 177 and a peak of 650 construction workers) is expected to arrive at the project site between approximately 6:00 a.m. and 7:00 a.m. and leave the site between approximately 4:00 p.m. and 5:00 p.m., Monday through Friday for most of project construction. During hotter weather, construction crews may arrive earlier and leave later in the evening. Some earlier or later hours and weekend work may also be required to maintain the project construction schedule, complete critical activities, and accommodate deliveries. The number of personnel onsite during nighttime construction would depend upon the nature of the construction activity or materials being delivered to the site. As needed, mobile lighting units would be used to accommodate temporary construction activities.

### *Access and Traffic*

Most of the traffic generated during project construction would be for employees commuting and the delivery of components and equipment. Primary access to the project site during both construction and operation would be provided by an existing road from Baseline Road, as shown in Figure 2.

In addition to construction workforce trips, project construction would require the following types of vehicle trips (all heavy vehicles):

- Equipment and materials deliveries.
- Excavation, debris, and material hauling.
- Visitors, inspectors, management.

Most of the construction traffic would likely originate from Baseline Road via Highway 99. Materials would be delivered generally outside of the peak morning and afternoon traffic hours to the extent feasible and would be delivered to the designated receiving area. The materials would then be distributed within the site as needed. It is estimated that an average of 42 truck

trips per day would be needed during construction. The estimated average truck trips per day associated with excavation, debris, and material hauling is six (6).

### *Grading and Vegetation Removal*

Limited grading and vegetation removal is proposed along the access roads, at the location of the inverters and transformers, at the BESS yard, the generation substation, and switch station. Aside from these areas, vegetation removal would generally not occur where solar panels would be installed in areas currently in grassland. Vegetation removal would, however, occur in areas currently planted in almonds.

### *Other Site Improvements*

To help prepare the project site for development of the project, a few other activities would need to be completed:

- Temporary 12 kV line to provide power at staging yards.
- Removal of current agricultural operations such as irrigation for orchards.
- Existing 12 kV lines providing power to wells would be removed or relocated underground.

### *Construction Waste Management and Recycling*

Construction activities would generate waste that in some cases may require off-site disposal. The California Green Building Code requires that at least 65 percent of construction and demolition waste be diverted from landfills.

Construction and demolition waste generated from this project would consist of the following:

- Scrap metal – copper wire, transformers, iron, steel, and aluminum.
- Solid waste – trash, cardboard, wood products, inert organics, non-hazardous solar panels, and concrete.
- Universal waste – Inverters, DC disconnect, battery pack, and power meters.
- Hazardous waste – Lubricants and oils, spill clean-up debris, and solar panels that meet the characterization of a hazardous waste.
- Organic agriculture biomass, such as any removed orchard trees, would be chipped on site and used as mulch.

All waste shipped offsite would be transported in accordance with the Department of Transportation, Code of Federal Regulations (CFR) Title 49, Subtitle B, Chapter I and CCR, Title 13, Division 2.

Hazardous waste generated would be properly stored and disposed of in accordance with federal, state, and local regulations. No hazardous waste is expected to be generated during construction; however, construction equipment uses various hazardous materials (diesel fuel, oil, solvents, etc.). If disposal of these materials would be needed, it would be done off site in accordance with all applicable laws pertaining to the handling and disposal of hazardous waste.



### *Operation and Maintenance Activities*

The project would operate seven days per week. One regular onsite employee may be required, and some personnel may visit the site to monitor, maintain, and if needed, repair, the system. PV panels may be periodically washed during project operation as needed. To conservatively estimate potential panel washing operational water use, it is estimated that solar panels would be washed once per year in case of excessive soiling. The project may also require occasional repair or replacement of project components. Inverters may require replacement every 10 years, while PV panels generally last 30 to 40 years. Thus, infrastructure replacement is expected to be rare. Other operational activities would include BESS equipment maintenance interconnection equipment maintenance, production reporting, equipment inspecting and testing, and similar activities. General site maintenance would include vegetation management, road maintenance, and general upkeep of the facility.

Pickup trucks and flatbeds, forklifts, and loaders may be used for normal maintenance. Large, heavy-haul, transport equipment would be occasionally used to repair or replace equipment. Non-hazardous waste would be collected in designated locations and picked up/disposed of by a local waste disposal or recycling company. Oil, electronic equipment, and other potentially hazardous waste would be collected, stored, and disposed of in accordance with applicable laws and regulations. Sanitary facilities are likely to consist of a regularly maintained portable toilet.

Preventive maintenance kits and certain critical spare equipment would be stored onsite, while all other components would be readily available from a remote warehouse facility.

### *Safety Controls*

Health and safety plans would be developed for both the construction and operational phases of the project. While project-specific plans have not yet been prepared, the plans would call for implementation of various measures including safety signage in accordance with applicable regulatory requirements.

### *Decommissioning and Site Restoration*

At the end of the project's useful life (anticipated to be 30 to 35 years or more), it would be decommissioned. Based on current decommissioning practices, as a reasonable-worst case scenario, this document assumes that environmental impacts generated during future decommissioning would be similar to those generated during project construction.

Currently, standard decommissioning practices include dismantling and repurposing, salvaging/recycling, or disposing of the solar energy improvements, and site stabilization. Actual decommissioning and site restoration activities for the project would be conducted in accordance with all applicable requirements in effect at the time of project termination, and a final decommissioning plan, based on then-current technology, site conditions, and regulations, would be prepared prior to actual decommissioning.

Under current standard decommissioning practices, solar modules are removed, collected, and recycled or disposed of at a properly licensed landfill. Some or all components (i.e., aluminum and steel components) are salvaged and/or recycled, as feasible. Components that cannot be salvaged are removed and disposed of in accordance with applicable laws and regulations.

Generally, only those portions of the underground collection system that would conflict with future land uses would be removed. Components of an underground system that would not

conflict with other land uses typically would be kept in place to minimize disturbances to existing vegetation. Similarly, access roads that would conflict with other land uses would be removed and the aggregate recycled, and roads that are compatible with other land uses would be left in place. Overhead electrical collection lines, poles, and associated components would be disassembled and removed, and reprocessed, sold, salvaged, or otherwise disposed of in an appropriate manner.

Substation components including steel, conductors, switches, transformers, fencing, control houses, and other materials, typically would be removed from a site and would be repurposed, salvaged, or recycled, or disposed of in an appropriate manner.

Some grading may be required to re-contour access road areas or address erosion. Future site restoration activities are assumed to be similar to the procedures used during construction to restore temporarily disturbed areas.

**Potential Environmental Effects:** The EIR will describe the significant direct and indirect environmental impacts of the project. The EIR also will evaluate the cumulative impacts of the project, defined as impacts that could be exacerbated when considered in conjunction with other related past, present, and reasonably foreseeable future projects. SMUD anticipates that the project could result in potentially significant environmental impacts in the following resource areas, which will be further evaluated in the EIR:

- **Aesthetics:** Temporary and long-term changes in scenic views or visual character of the project site as viewed by motorists on Baseline Road and Philip Road and recreationalists, along with the potential for glare.
- **Agriculture:** Temporary or long-term changes to existing environment and conversion of farmland to non-agricultural use.
- **Air Quality:** Temporary increases in air pollutant emissions associated with construction and operation associated with mobile-source emissions from maintenance worker trips and operation of the emergency backup generator.
- **Biological Resources:** Temporary disturbances or permanent losses of habitats and wildlife corridors; temporary disturbances or permanent losses of state or federally protected wetlands; temporary disturbances or permanent losses of special-status plant species; and construction disturbances or take of special-status terrestrial and aquatic species.
- **Cultural Resources:** Temporary or permanent disturbances of known or unknown historical or archaeological resources.
- **Geology and Soils:** Potential soil erosion or loss of topsoil during construction; and potential impacts related to unstable soils, earthquakes, unique geological features, and expansive soils at the project site.
- **Greenhouse Gas Emissions:** Temporary increases in greenhouse gas emissions associated with mobile-source exhaust from construction worker commute trips, truck haul trips, and equipment (e.g., excavators, graders), with much greater long-term decreases in greenhouse gas emissions due to replacement of electrical generation by fossil fuel power plants.

- **Hazards and Hazardous Materials:** Potential spills of hazardous materials during construction; potential exposure of workers to hazardous materials during construction; and increased exposure to wildland fire risk during construction.
- **Hydrology and Water Quality:** Potential temporary and permanent alterations of local drainage patterns and increases in stormwater peak flow and volumes and potential downstream runoff effects; temporary effects on water quality during construction, including spills of fuel or other hazardous materials; and potential impacts to Federal Emergency Management Agency (FEMA) and local 100-year floodplains and floodways and drainage facilities throughout the site.
- **Land Use and Planning:** Compliance with local and regional adopted plans.
- **Noise:** Temporary increases in noise (including off-site, truck traffic noise) and vibration levels during construction.
- **Public Services:** Potential impacts to fire and emergency services and maintenance of public roads.
- **Transportation and Traffic:** Temporary increases in traffic and traffic hazards on local roadways (including Philip Road and Baseline Road) during construction.
- **Tribal Cultural Resources:** Potential substantial adverse changes to tribal cultural resources.
- **Wildfire:** Potential increased exposure to wildland fire risk during construction.

These potential impacts will be assessed and discussed in detail in the EIR, and feasible and practicable mitigation measures will be recommended to reduce any identified significant or potentially significant impacts. The discussion in the EIR will also include an alternatives analysis.

SMUD anticipates that the project will not result in significant environmental impacts in the following resource areas, which will not be further evaluated in the EIR: energy, mineral resources, population and housing, recreation, and utilities.

**Potential Approvals and Permits Required:** Elements of the project could be subject to permitting and/or approval authority of other agencies. As the lead agency pursuant to CEQA, SMUD is responsible for considering the adequacy of the EIR. Other potential permits required from other agencies could include:

*Federal*

- **U.S. Army Corps of Engineers:** Compliance with Section 404 of the Clean Water Act (CWA) for discharge of fill to Waters of the U.S.
- **U.S. Fish and Wildlife Service:** Section 7 of the Endangered Species Act (ESA) Consultation. Letter of Concurrence for a Not Likely to Adversely Affect (NLAA) determination.
- **State Historic Preservation Office (SHPO):** Compliance with Section 106 of the National Historic Preservation Act (required in support of CWA Section 404 permit, if needed)

- **Federal Emergency Management Agency (FEMA):** Conditional Letter/Letter of Map Revision (CLOMR/LOMR) for floodplain boundary.

*State*

- **State Water Resources Control Board:** Clean Water Act Section 402, construction general permit.
- **Central Valley Regional Water Quality Control Board:** Clean Water Act Section 401, water quality certification; and/or waste discharge permit for waters of the state, if applicable.
- **California Department of Fish and Wildlife:** Compliance with California Endangered Species Act (CESA), potential permits under Section 2081 of the Fish and Game Code if take of listed species is likely to occur; and Section 1602 streambed alteration agreement for construction activities that occur within the bed, bank or channel of waterways.
- **California Department of Transportation:** Encroachment permit and/or transportation management plan for any oversized equipment, such as transformers.

*Local*

- **Placer County:** Conditional Use Permit (CUP); Improvement Plans/Grading Permit, Encroachment Permits.
- **Placer County Air Pollution Control District (PCAPCD):** Submittal of a Dust Control Plan, pursuant to PCAPCD Rule 228, for ground disturbance of an area greater than one acre.

**Document Availability:** the NOP is available for public review on SMUD's website: [www.smud.org/ceqa](http://www.smud.org/ceqa). Printed copies of the NOP are also available for public review at the following locations:

Sacramento Municipal Utility District  
Customer Service Center  
6301 S Street  
Sacramento, CA 95817

Sacramento Municipal Utility District  
East Campus Operations Center  
4401 Bradshaw Road  
Sacramento, CA 95827

**Public Scoping Meeting:** A public scoping meeting will be conducted by SMUD to inform interested parties about the project, and to provide agencies and the public with an opportunity to provide comments on the scope and content of the EIR. The meeting time and location are as follows:

December 8, 2021  
Time: 4:00 – 5:00 p.m.  
Location: Virtual

Link to Zoom meeting can be found at [www.smud.org/countryacres](http://www.smud.org/countryacres)

**Comment Period:** Agencies and interested parties may provide SMUD with written comments on topics to be addressed in the EIR for the project. Comments can be provided anytime during the NOP review period, but must be received by 5:00 p.m. on December 21, 2021. Please send all comments, with appropriate contact information, to the following address via hard copy or email:

Amy Spitzer  
Sacramento Municipal Utility District  
Environmental Services Department  
6201 S Street, MS B209  
Sacramento, CA 95817  
[CountryAcres@smud.org](mailto:CountryAcres@smud.org)

All comments on environmental issues received during the public comment period will be considered and addressed in the Draft EIR, which is anticipated to be available for public review in spring 2022.



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# Appendix B Scoping Meeting Power Point Presentation

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# Country Acres Solar Project

## Project Team

Dec. 8, 2021

Powering forward. Together.



# Agenda

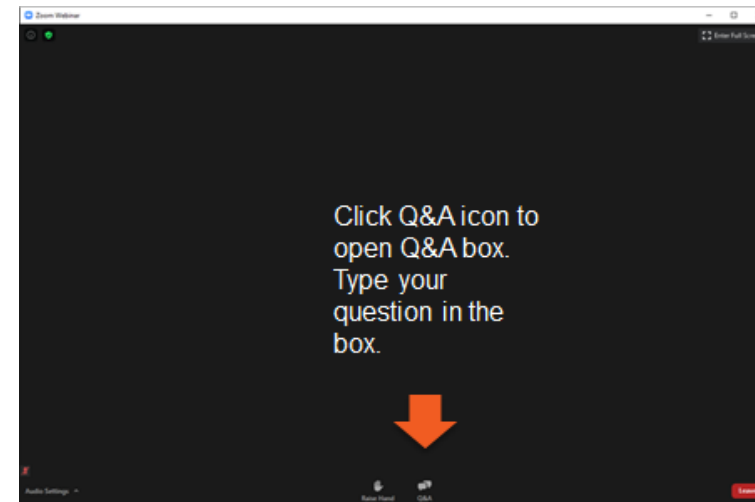
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- Meeting format & objectives
- Introduction to the project team
- Project background & overview
- Project update
- CEQA process overview
- Timeline & next steps
- Keeping you informed
- Q&A

# Format for Q&A session

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- Please type your question in the Q&A box at the bottom of the screen.
- A team member will read questions and answer them.
- Questions on other topics will be answered directly in the Q&A text window or referred to a team member to respond directly to the customer.



# Introductions and project team

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Amanda Beck  
SMUD Senior Project  
Development Manager



Amy Spitzer  
SMUD Environmental  
Specialist



# Project background and overview

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Up to 344MW of photovoltaic and battery energy storage on land to be owned and leased by SMUD

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BESS, substation, and switchyard planned on land to be purchased by SMUD

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Interconnecting to SMUD's existing 230kV grid with interconnection studies underway

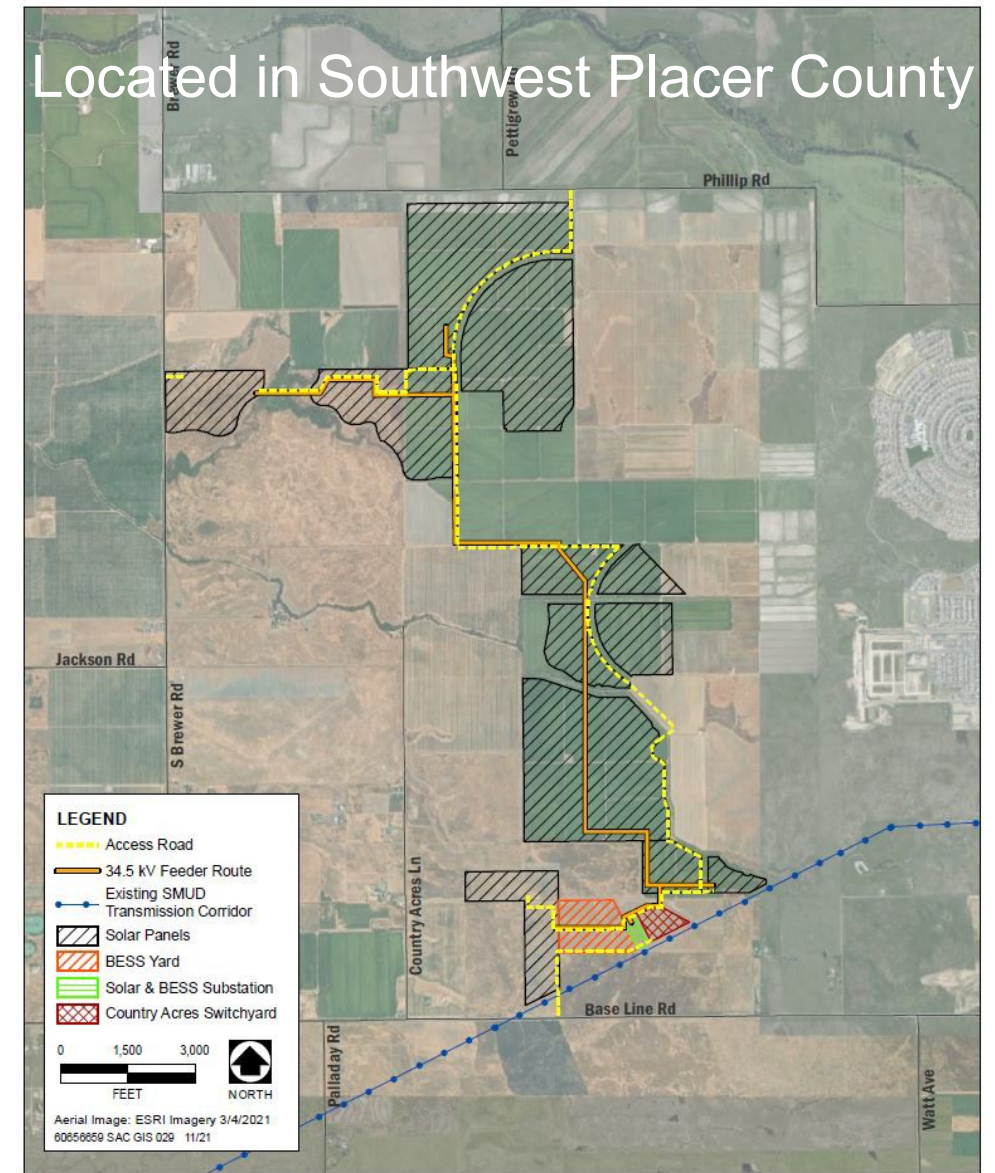
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Project construction planned to begin in 2023 and extend through 2024

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Project planned to support 2030 Zero Carbon Plan goals, targeting operation for 30 years

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# Project update

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Staff determined an Environmental Impact Report (EIR) was appropriate

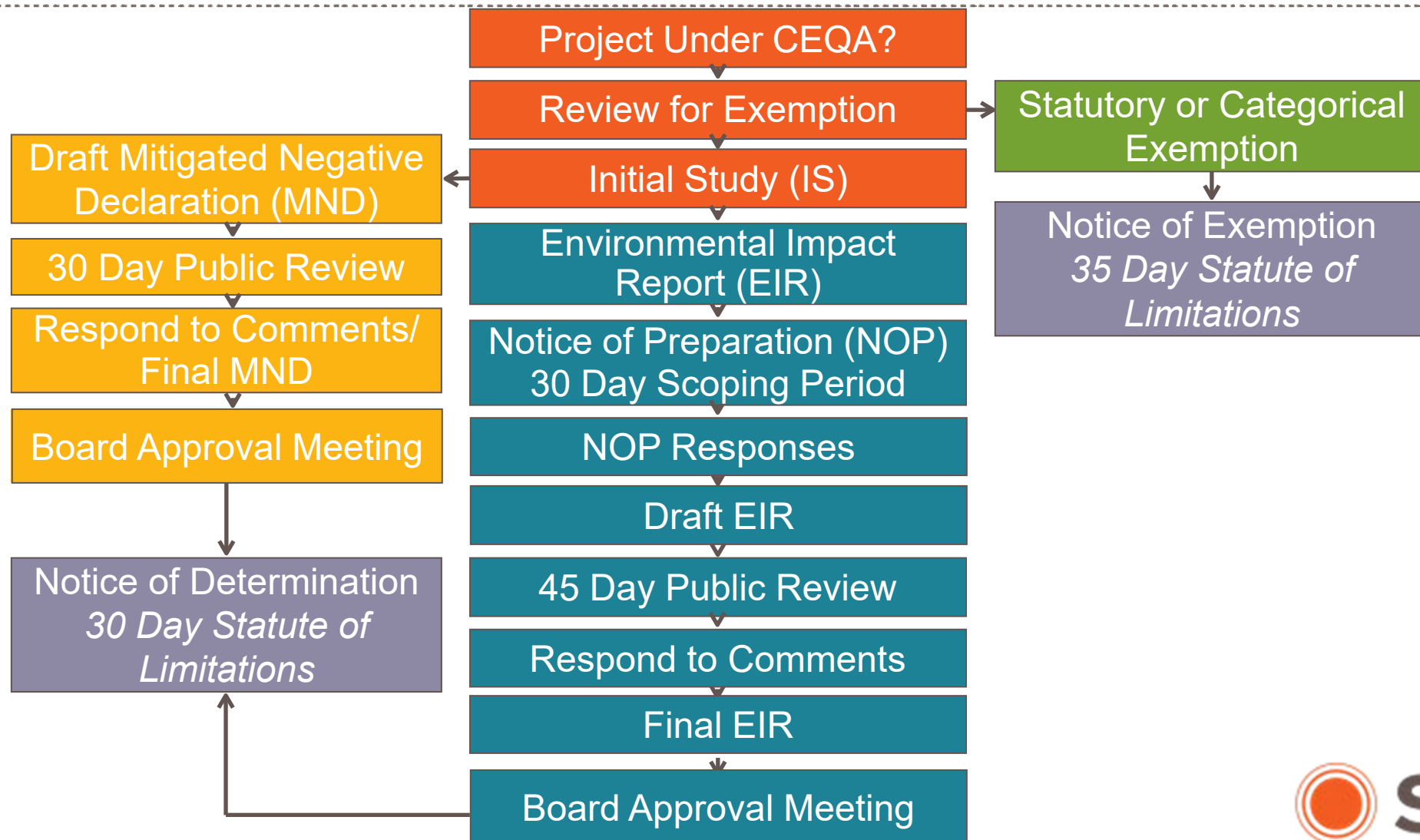
Notice of Preparation was released Nov. 19

Placer County determined that a Conditional Use Permit (CUP) will be required

SMUD will be CEQA Lead Agency

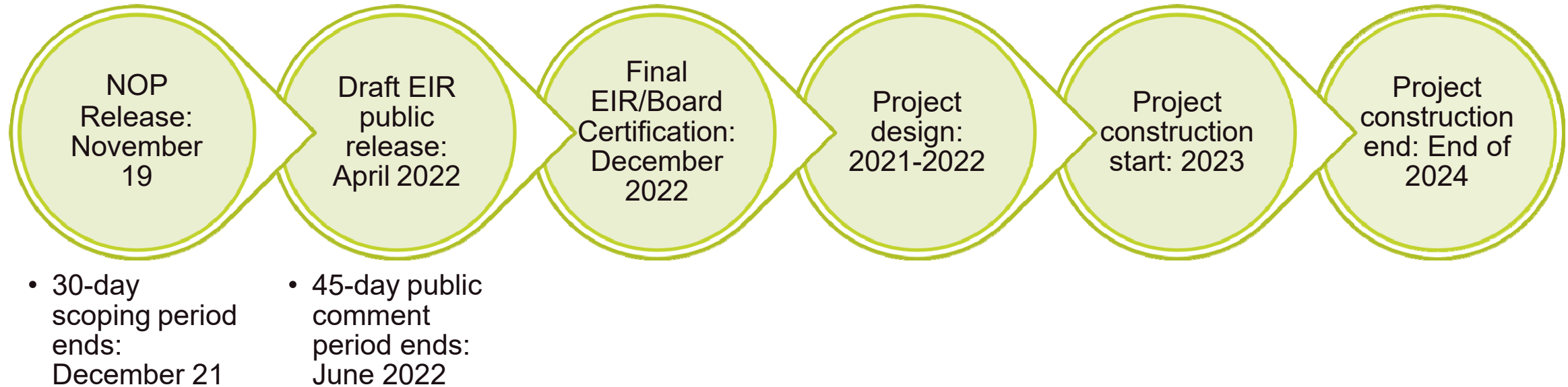
County will work closely with SMUD and certify our EIR for the CUP

# California Environmental Quality Act (CEQA) Process Flowchart



# Timeline and next steps

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# Keeping you informed

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Website: **[smud.org/CountryAcres](https://smud.org/CountryAcres)**



Email: **[CountryAcres@smud.org](mailto:CountryAcres@smud.org)**



Phone: **916-732-4934**



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# Appendix C Comment Letters

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November 20, 2021

Amy Spitzer  
SMUD  
PO Box 15830  
Sacramento, CA 95817

Ref: Gas and Electric Transmission and Distribution

Dear Amy Spitzer,

Thank you for submitting the SMUD Country Acres Solar Project plans for our review. PG&E will review the submitted plans in relationship to any existing Gas and Electric facilities within the project area. If the proposed project is adjacent/or within PG&E owned property and/or easements, we will be working with you to ensure compatible uses and activities near our facilities.

Attached you will find information and requirements as it relates to Gas facilities (Attachment 1) and Electric facilities (Attachment 2). Please review these in detail, as it is critical to ensure your safety and to protect PG&E's facilities and its existing rights.

Below is additional information for your review:

1. This plan review process does not replace the application process for PG&E gas or electric service your project may require. For these requests, please continue to work with PG&E Service Planning: [https://www.pge.com/en\\_US/business/services/building-and-renovation/overview/overview.page](https://www.pge.com/en_US/business/services/building-and-renovation/overview/overview.page).
2. If the project being submitted is part of a larger project, please include the entire scope of your project, and not just a portion of it. PG&E's facilities are to be incorporated within any CEQA document. PG&E needs to verify that the CEQA document will identify any required future PG&E services.
3. An engineering deposit may be required to review plans for a project depending on the size, scope, and location of the project and as it relates to any rearrangement or new installation of PG&E facilities.

Any proposed uses within the PG&E fee strip and/or easement, may include a California Public Utility Commission (CPUC) Section 851 filing. This requires the CPUC to render approval for a conveyance of rights for specific uses on PG&E's fee strip or easement. PG&E will advise if the necessity to incorporate a CPUC Section 851 filing is required.

This letter does not constitute PG&E's consent to use any portion of its easement for any purpose not previously conveyed. PG&E will provide a project specific response as required.

Sincerely,

Plan Review Team  
Land Management



## **Attachment 1 – Gas Facilities**

There could be gas transmission pipelines in this area which would be considered critical facilities for PG&E and a high priority subsurface installation under California law. Care must be taken to ensure safety and accessibility. So, please ensure that if PG&E approves work near gas transmission pipelines it is done in adherence with the below stipulations. Additionally, the following link provides additional information regarding legal requirements under California excavation laws: <https://www.usanorth811.org/images/pdfs/CA-LAW-2018.pdf>

1.     Standby Inspection: A PG&E Gas Transmission Standby Inspector must be present during any demolition or construction activity that comes within 10 feet of the gas pipeline. This includes all grading, trenching, substructure depth verifications (potholes), asphalt or concrete demolition/removal, removal of trees, signs, light poles, etc. This inspection can be coordinated through the Underground Service Alert (USA) service at 811. A minimum notice of 48 hours is required. Ensure the USA markings and notifications are maintained throughout the duration of your work.
2.     Access: At any time, PG&E may need to access, excavate, and perform work on the gas pipeline. Any construction equipment, materials, or spoils may need to be removed upon notice. Any temporary construction fencing installed within PG&E's easement would also need to be capable of being removed at any time upon notice. Any plans to cut temporary slopes exceeding a 1:4 grade within 10 feet of a gas transmission pipeline need to be approved by PG&E Pipeline Services in writing PRIOR to performing the work.
3.     Wheel Loads: To prevent damage to the buried gas pipeline, there are weight limits that must be enforced whenever any equipment gets within 10 feet of traversing the pipe.

Ensure a list of the axle weights of all equipment being used is available for PG&E's Standby Inspector. To confirm the depth of cover, the pipeline may need to be potholed by hand in a few areas.

Due to the complex variability of tracked equipment, vibratory compaction equipment, and cranes, PG&E must evaluate those items on a case-by-case basis prior to use over the gas pipeline (provide a list of any proposed equipment of this type noting model numbers and specific attachments).

No equipment may be set up over the gas pipeline while operating. Ensure crane outriggers are at least 10 feet from the centerline of the gas pipeline. Transport trucks must not be parked over the gas pipeline while being loaded or unloaded.

4.     Grading: PG&E requires a minimum of 36 inches of cover over gas pipelines (or existing grade if less) and a maximum of 7 feet of cover at all locations. The graded surface cannot exceed a cross slope of 1:4.
5.     Excavating: Any digging within 2 feet of a gas pipeline must be dug by hand. Note that while the minimum clearance is only 12 inches, any excavation work within 24 inches of the edge of a pipeline must be done with hand tools. So to avoid having to dig a trench entirely with hand tools, the edge of the trench must be over 24 inches away. (Doing the math for a 24 inch



wide trench being dug along a 36 inch pipeline, the centerline of the trench would need to be at least 54 inches [ $24/2 + 24 + 36/2 = 54$ ] away, or be entirely dug by hand.)

Water jetting to assist vacuum excavating must be limited to 1000 psig and directed at a 40° angle to the pipe. All pile driving must be kept a minimum of 3 feet away.

Any plans to expose and support a PG&E gas transmission pipeline across an open excavation need to be approved by PG&E Pipeline Services in writing PRIOR to performing the work.

6. Boring/Trenchless Installations: PG&E Pipeline Services must review and approve all plans to bore across or parallel to (within 10 feet) a gas transmission pipeline. There are stringent criteria to pothole the gas transmission facility at regular intervals for all parallel bore installations.

For bore paths that cross gas transmission pipelines perpendicularly, the pipeline must be potholed a minimum of 2 feet in the horizontal direction of the bore path and a minimum of 12 inches in the vertical direction from the bottom of the pipe with minimum clearances measured from the edge of the pipe in both directions. Standby personnel must watch the locator trace (and every ream pass) the path of the bore as it approaches the pipeline and visually monitor the pothole (with the exposed transmission pipe) as the bore traverses the pipeline to ensure adequate clearance with the pipeline. The pothole width must account for the inaccuracy of the locating equipment.

7. Substructures: All utility crossings of a gas pipeline should be made as close to perpendicular as feasible ( $90^\circ \pm 15^\circ$ ). All utility lines crossing the gas pipeline must have a minimum of 12 inches of separation from the gas pipeline. Parallel utilities, pole bases, water line 'kicker blocks', storm drain inlets, water meters, valves, back pressure devices or other utility substructures are not allowed in the PG&E gas pipeline easement.

If previously retired PG&E facilities are in conflict with proposed substructures, PG&E must verify they are safe prior to removal. This includes verification testing of the contents of the facilities, as well as environmental testing of the coating and internal surfaces. Timelines for PG&E completion of this verification will vary depending on the type and location of facilities in conflict.

8. Structures: No structures are to be built within the PG&E gas pipeline easement. This includes buildings, retaining walls, fences, decks, patios, carports, septic tanks, storage sheds, tanks, loading ramps, or any structure that could limit PG&E's ability to access its facilities.

9. Fencing: Permanent fencing is not allowed within PG&E easements except for perpendicular crossings which must include a 16 foot wide gate for vehicular access. Gates will be secured with PG&E corporation locks.

10. Landscaping: Landscaping must be designed to allow PG&E to access the pipeline for maintenance and not interfere with pipeline coatings or other cathodic protection systems. No trees, shrubs, brush, vines, and other vegetation may be planted within the easement area. Only those plants, ground covers, grasses, flowers, and low-growing plants that grow unsupported to a maximum of four feet (4') in height at maturity may be planted within the easement area.



11. Cathodic Protection: PG&E pipelines are protected from corrosion with an “Impressed Current” cathodic protection system. Any proposed facilities, such as metal conduit, pipes, service lines, ground rods, anodes, wires, etc. that might affect the pipeline cathodic protection system must be reviewed and approved by PG&E Corrosion Engineering.

12. Pipeline Marker Signs: PG&E needs to maintain pipeline marker signs for gas transmission pipelines in order to ensure public awareness of the presence of the pipelines. With prior written approval from PG&E Pipeline Services, an existing PG&E pipeline marker sign that is in direct conflict with proposed developments may be temporarily relocated to accommodate construction work. The pipeline marker must be moved back once construction is complete.

13. PG&E is also the provider of distribution facilities throughout many of the areas within the state of California. Therefore, any plans that impact PG&E’s facilities must be reviewed and approved by PG&E to ensure that no impact occurs which may endanger the safe operation of its facilities.





## **Attachment 2 – Electric Facilities**

It is PG&E's policy to permit certain uses on a case by case basis within its electric transmission fee strip(s) and/or easement(s) provided such uses and manner in which they are exercised, will not interfere with PG&E's rights or endanger its facilities. Some examples/restrictions are as follows:

1. **Buildings and Other Structures:** No buildings or other structures including the foot print and eave of any buildings, swimming pools, wells or similar structures will be permitted within fee strip(s) and/or easement(s) areas. PG&E's transmission easement shall be designated on subdivision/parcel maps as **"RESTRICTED USE AREA – NO BUILDING."**
2. **Grading:** Cuts, trenches or excavations may not be made within 25 feet of our towers. Developers must submit grading plans and site development plans (including geotechnical reports if applicable), signed and dated, for PG&E's review. PG&E engineers must review grade changes in the vicinity of our towers. No fills will be allowed which would impair ground-to-conductor clearances. Towers shall not be left on mounds without adequate road access to base of tower or structure.
3. **Fences:** Walls, fences, and other structures must be installed at locations that do not affect the safe operation of PG&E's facilities. Heavy equipment access to our facilities must be maintained at all times. Metal fences are to be grounded to PG&E specifications. No wall, fence or other like structure is to be installed within 10 feet of tower footings and unrestricted access must be maintained from a tower structure to the nearest street. Walls, fences and other structures proposed along or within the fee strip(s) and/or easement(s) will require PG&E review; submit plans to PG&E Centralized Review Team for review and comment.
4. **Landscaping:** Vegetation may be allowed; subject to review of plans. On overhead electric transmission fee strip(s) and/or easement(s), trees and shrubs are limited to those varieties that do not exceed 15 feet in height at maturity. PG&E must have access to its facilities at all times, including access by heavy equipment. No planting is to occur within the footprint of the tower legs. Greenbelts are encouraged.
5. **Reservoirs, Sumps, Drainage Basins, and Ponds:** Prohibited within PG&E's fee strip(s) and/or easement(s) for electric transmission lines.
6. **Automobile Parking:** Short term parking of movable passenger vehicles and light trucks (pickups, vans, etc.) is allowed. The lighting within these parking areas will need to be reviewed by PG&E; approval will be on a case by case basis. Heavy equipment access to PG&E facilities is to be maintained at all times. Parking is to clear PG&E structures by at least 10 feet. Protection of PG&E facilities from vehicular traffic is to be provided at developer's expense AND to PG&E specifications. Blocked-up vehicles are not allowed. Carports, canopies, or awnings are not allowed.
7. **Storage of Flammable, Explosive or Corrosive Materials:** There shall be no storage of fuel or combustibles and no fueling of vehicles within PG&E's easement. No trash bins or incinerators are allowed.



8. Streets and Roads: Access to facilities must be maintained at all times. Street lights may be allowed in the fee strip(s) and/or easement(s) but in all cases must be reviewed by PG&E for proper clearance. Roads and utilities should cross the transmission easement as nearly at right angles as possible. Road intersections will not be allowed within the transmission easement.

9. Pipelines: Pipelines may be allowed provided crossings are held to a minimum and to be as nearly perpendicular as possible. Pipelines within 25 feet of PG&E structures require review by PG&E. Sprinklers systems may be allowed; subject to review. Leach fields and septic tanks are not allowed. Construction plans must be submitted to PG&E for review and approval prior to the commencement of any construction.

10. Signs: Signs are not allowed except in rare cases subject to individual review by PG&E.

11. Recreation Areas: Playgrounds, parks, tennis courts, basketball courts, barbecue and light trucks (pickups, vans, etc.) may be allowed; subject to review of plans. Heavy equipment access to PG&E facilities is to be maintained at all times. Parking is to clear PG&E structures by at least 10 feet. Protection of PG&E facilities from vehicular traffic is to be provided at developer's expense AND to PG&E specifications.

12. Construction Activity: Since construction activity will take place near PG&E's overhead electric lines, please be advised it is the contractor's responsibility to be aware of, and observe the minimum clearances for both workers and equipment operating near high voltage electric lines set out in the High-Voltage Electrical Safety Orders of the California Division of Industrial Safety (<https://www.dir.ca.gov/Title8/sb5g2.html>), as well as any other safety regulations. Contractors shall comply with California Public Utilities Commission General Order 95 ([http://www.cpuc.ca.gov/gos/GO95/go\\_95\\_startup\\_page.html](http://www.cpuc.ca.gov/gos/GO95/go_95_startup_page.html)) and all other safety rules. No construction may occur within 25 feet of PG&E's towers. All excavation activities may only commence after 811 protocols has been followed.

Contractor shall ensure the protection of PG&E's towers and poles from vehicular damage by (installing protective barriers) Plans for protection barriers must be approved by PG&E prior to construction.

13. PG&E is also the owner of distribution facilities throughout many of the areas within the state of California. Therefore, any plans that impact PG&E's facilities must be reviewed and approved by PG&E to ensure that no impact occurs that may endanger the safe and reliable operation of its facilities.

**From:** [Country Acres Project](#)  
**To:** [Amy E. Spitzer](#)  
**Subject:** FW: [EXTERNAL] RE: Notice of Preparation of an Environmental Impact Report for SMUD's Country Acres Solar Project in Southwest Placer County  
**Date:** Monday, November 22, 2021 11:54:41 AM  
**Attachments:** [image001.png](#)  
[Initial Response Letter 11-20-2021.pdf](#)

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**From:** PGE Plan Review <PGEPlanReview@pge.com>  
**Sent:** Saturday, November 20, 2021 12:36 PM  
**To:** Country Acres Project <CountryAcres@smud.org>  
**Subject:** [EXTERNAL] RE: Notice of Preparation of an Environmental Impact Report for SMUD's Country Acres Solar Project in Southwest Placer County

**CAUTION:** This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Amy Spitzer,

Thank you for submitting the SMUD Country Acres Solar Project plans. The PG&E Plan Review Team is currently reviewing the information provided. Should this project have the potential to interfere with PG&E's facilities, we intend to respond to you with project specific comments on or prior to the provided deadline. Attached is some general information when working near PG&E facilities that must be adhered to when working near PG&E's facilities and land rights.

This email and attachment does not constitute PG&E's consent to use any portion of PG&E's land rights for any purpose not previously conveyed. If there are subsequent modifications made to your design, we ask that you resubmit the plans to the email address listed below.

If you have any questions regarding our response, please contact the PG&E Plan Review Team at (877) 259-8314 or [pgeplanreview@pge.com](mailto:pgeplanreview@pge.com).

Thank you,



**Pacific Gas and Electric Company**  
**Plan Review Team**  
(877) 259-8314  
Email: [pgeplanreview@pge.com](mailto:pgeplanreview@pge.com)

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**From:** Amy E. Spitzer <[Amy.Spitzer@smud.org](mailto:Amy.Spitzer@smud.org)>  
**Sent:** Friday, November 19, 2021 10:14 AM  
**Subject:** Notice of Preparation of an Environmental Impact Report for SMUD's Country Acres Solar Project in Southwest Placer County

**\*\*\*\*\*CAUTION: This email was sent from an EXTERNAL source. Think before clicking links or opening attachments.\*\*\*\*\***

Hello,

Because you are interested in being notified of proposed projects in Placer County, please see the attached Notice of Preparation of an Environmental Impact Report for SMUD's Country Acres Solar Project.

Please direct any questions or comments about the project to the contact information in the NOP.

Thanks,

Amy Spitzer

*Environmental Specialist, Environmental Services Department*

**SMUD** | Powering forward. Together.

6201 S Street, Mail Stop B209, Sacramento, CA 95817

P.O. Box 15830, Sacramento, CA 95852-0830



## NATIVE AMERICAN HERITAGE COMMISSION

November 22, 2021

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Luiseño

VICE CHAIRPERSON  
**Reginald Pagaling**  
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California 95691  
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[nahc@nahc.ca.gov](mailto:nahc@nahc.ca.gov)  
[NAHC.ca.gov](http://NAHC.ca.gov)

Amy Spitzer  
Sacramento Municipal Utility District  
6201 S Street, MS B209  
Sacramento, CA 95817

**Re: 2021110307, Country Acres Solar Project, Placer County**

Dear Ms. Spitzer:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

**Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.**



AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
  - a. A brief description of the project.
  - b. The lead agency contact information.
  - c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
  - d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).
2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).
  - a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).
3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
  - a. Alternatives to the project.
  - b. Recommended mitigation measures.
  - c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).
4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
  - a. Type of environmental review necessary.
  - b. Significance of the tribal cultural resources.
  - c. Significance of the project's impacts on tribal cultural resources.
  - d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).
5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).
6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
  - a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
  - b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

- 7. Conclusion of Consultation:** Consultation with a tribe shall be considered concluded when either of the following occurs:
- a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
  - b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).
- 8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document:** Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).
- 9. Required Consideration of Feasible Mitigation:** If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).
- 10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:**
- a. Avoidance and preservation of the resources in place, including, but not limited to:
    - i. Planning and construction to avoid the resources and protect the cultural and natural context.
    - ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
  - b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
    - i. Protecting the cultural character and integrity of the resource.
    - ii. Protecting the traditional use of the resource.
    - iii. Protecting the confidentiality of the resource.
  - c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
  - d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).
  - e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
  - f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).
- 11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource:** An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
- a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
  - b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
  - c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: [http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation\\_CalEPAPDF.pdf](http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf)



## SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: [https://www.opr.ca.gov/docs/09\\_14\\_05\\_Updated\\_Guidelines\\_922.pdf](https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf).

Some of SB 18's provisions include:

1. **Tribal Consultation:** If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. **No Statutory Time Limit on SB 18 Tribal Consultation.** There is no statutory time limit on SB 18 tribal consultation.
3. **Confidentiality:** Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. **Conclusion of SB 18 Tribal Consultation:** Consultation should be concluded at the point in which:
  - a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
  - b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: <http://nahc.ca.gov/resources/forms/>.

## NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center ([http://ohp.parks.ca.gov/?page\\_id=1068](http://ohp.parks.ca.gov/?page_id=1068)) for an archaeological records search. The records search will determine:
  - a. If part or all of the APE has been previously surveyed for cultural resources.
  - b. If any known cultural resources have already been recorded on or adjacent to the APE.
  - c. If the probability is low, moderate, or high that cultural resources are located in the APE.
  - d. If a survey is required to determine whether previously unrecorded cultural resources are present.
2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
  - b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
  - a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
  - b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.
4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
  - a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, § 15064.5(f) (CEQA Guidelines § 15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
  - b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
  - c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code § 7050.5, Public Resources Code § 5097.98, and Cal. Code Regs., tit. 14, § 15064.5, subdivisions (d) and (e) (CEQA Guidelines § 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address:  
[Katy.Sanchez@nahc.ca.gov](mailto:Katy.Sanchez@nahc.ca.gov).

Sincerely,



Katy Sanchez  
Associate Environmental Planner

cc: State Clearinghouse

**From:** Anna Starkey <astarkey@auburnrancheria.com>

**Sent:** Tuesday, November 23, 2021 12:32 PM

**To:** Country Acres Project <CountryAcres@smud.org>

**Subject:** [EXTERNAL] RE: UAIC Comments -NOP for EIR, SMUD's Country Acres Solar Project

**CAUTION:** This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good afternoon,

The following comments are on behalf of the UAIC regarding the NOP for the SMUD Country Acres Solar Project. We appreciate the opportunity to provide comments.

1. We ask that the Cultural Resources and TCR chapter are separate and distinct, and not combined into a single chapter. We ask that the TCR chapter does not repeat the same background information as the Cultural Resources chapter. Rather that it focuses on the contemporary tribal communities that stewards and cares for their ancestors sites. Please let me know if you require additional details on what is expected in the TCR chapter (Please see SMUD's tribal consultation and associated testing report for the Station H project or ask Rob Ferrara for more info).
2. Mitigation measures for TCRs should be separate and distinct from cultural resources and not combined into the same mitigation measures. Tribal values must be separate and distinct from archaeological values.
3. Because potential TCRs have been identified early, we ask the TCR chapter adequately discusses these resources. We ask that the identification, evaluation, and treatment of TCRs be taken into consideration with the same level of analysis and professionalism that archaeologists are given. The identification and evaluation of TCRs should be no less rigorous than archaeological resources and can only be accomplished through tribal consultation.
4. UAIC reiterates that California Native American tribes traditionally and culturally affiliated with a geographic area may have expertise concerning their tribal cultural resources (PRC Section 21080.3.1). This means that archaeologists shall not identify, evaluate, or make recommendations for cultural items or sites that are considered TCRs unless it is in direct coordination with consulting Tribes.



5. The following resources UAIC identifies as TCRs:

- Indigenous archaeological sites
- Sacred Lands
- Traditional Cultural Properties
- Midden soils/disturbed midden soils
- Burials, cremations, and all related burial or ceremonial items
- Burial soils
- Isolated indigenous artifacts
- Cultural landscapes
- Significant native plants/gathering areas
- \*lot limited to

6. UAIC requests that the TCR chapter and report does not refer to tribes and their ancestors as “prehistoric”. Please show in the TCR chapter that tribes are living communities committed to protecting and stewarding their land and cultural sites.

7. UAIC requests that aesthetic, natural, scenic, and historic environmental qualities are analyzed for TCRs in the TCR chapter if any are identified in the project area.

Thank you for involving UAIC in the planning process at an early stage. We ask that you make this letter a part of the project record and we look forward to working with you to ensure that TCRs and cultural resources are protected.

Sincerely,  
Anna Starkey

**From:** [Country Acres Project](#)  
**To:** [Amy E. Spitzer](#)  
**Subject:** FW: [EXTERNAL] Public Comment  
**Date:** Wednesday, December 8, 2021 11:25:55 AM

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**From:** Elia B <elia7272@gmail.com>  
**Sent:** Monday, December 6, 2021 4:09 PM  
**To:** Country Acres Project <CountryAcres@smud.org>  
**Subject:** [EXTERNAL] Public Comment

**CAUTION:** This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Country Acres Public Comment,

I love SMUD and their efforts towards sustainability.

As a mitigation measure, to make up for this loss of (what appears to be) prime agricultural land and creating an increase to the region's urban heat island, SMUD must first build out all infill and rooftop solar opportunities before breaking ground on this valuable agricultural land. To do this SMUD would allow unlimited roof top solar and pay a reimbursement at the same cost of the Country Acres project (not counting the battery portion cost).

SMUD has told me I cannot install solar on my roof that is more than my past years usage. Unless I refuse all reimbursement of any kind (I have to opt out of Net Metering). SMUD refuses to pay anything for donated solar. SMUD has thousands of acres of vacant rooftops that it refuses to make a program to use, but then wants to increase our urban heat island and destroy prime agricultural land instead. Just this week SMUD refused to allow over 5 kilowatt hour worth of panels on one of my roofs and a similar amount on another property a year ago. We can't say no infill solar on this rooftop but yes destroy this agricultural land, that is backwards mitigation.

Alternative ideas to be discussed in EIR:

1. Whenever a new roof is installed in the SMUD jurisdiction, SMUD offers to lease the rooftop and install SMUD owned solar.
2. SMUD allows what could be called mini power purchase agreements where anyone can install solar and SMUD reimburses at the cost of this Country Acres project. This would be allowed in parallel to a net metering project in a number of ways.
3. SMUD allows Net Metering projects to over produce if they agree to a lower reimbursement rate that matches the cost of the Country Acres project.
4. SMUD offers property owners to lease all the parking lots not planned for development, much has been done but more remain.
5. Floating system on Folsom Dam
6. Doubling the size of Country Acres to allow it to be active farm land. There are some crops and grazing opportunities that are sharing land with properly planned solar projects. This increases the land cost but is more sustainable and increases the production of each solar panel by keeping them cooler.

I fully support SMUD controlling energy storage. Energy storage does not take up land and create a heat island effect to the scale of solar panels. It is far more efficient for energy storage to be controlled by a municipality at scale. I'd be interested to hear pressurized air or a gravitation weight system cost compared to batteries. I think battery manufacturing might be best used for transportation first until the entire transportation system is electric. The alternative cost/benefit of this many batteries used for transportation might far better reduce our climate impacts most quickly.

Elia Bassin  
2821 63rd St  
Sacramento, CA 95817

**From:** [Country Acres Project](#)  
**To:** [Amy E. Spitzer](#)  
**Subject:** FW: [EXTERNAL] Comment on Country Acres  
**Date:** Wednesday, December 8, 2021 11:26:04 AM

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**From:** Steve Schweigerdt <sschweigerdt@gmail.com>  
**Sent:** Tuesday, December 7, 2021 8:36 PM  
**To:** Country Acres Project <CountryAcres@smud.org>  
**Subject:** [EXTERNAL] Comment on Country Acres

**CAUTION:** This email originated from outside of SMUD. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi SMUD Staff,

I am very disappointed to see the proposal for a solar farm at the Country Acres site. While I am a strong supporter of solar power and the need to take aggressive action to curb climate change, this project disturbs me for these reasons:

1. The project is located in Placer County, outside of the SMUD service area, and the economic benefits touted for the project will not flow to most SMUD customers but will go to Placer County through increased tax assessment and development in their area. Placer County is a posterchild for sprawl and developing this project in their territory rewards the excessive growth they have approved there. I urge you to instead to site the project within Sacramento County so the benefits flow to SMUD customers. Sacramento is filled with vacant and industrial sites that could accommodate a project of this size. Please analyze the economic benefits of this project taking into account these indirect benefits to SMUD customers. At the very least a condition for approval should be that contractors and employees for the project be drawn from SMUD service territory.
2. The project fragments existing productive agricultural land that is outside the planned development footprint in the Placer County General Plan. We should be encouraging local food production and protect agricultural uses near the population centers. It would be far preferable to utilize disturbed and non-productive lands (again, preferably in Sacramento County). There are so many opportunities to cover large parking lots with solar, use old gravel mining sites, and add rooftop solar to large industrial parks that should be the focus of solar development instead of greenfield development that will impact agricultural uses. The lands proposed for this site appear to support row crops and rice, which if developed would be a greater loss to the region than grazing or industrial land. If the project is approved at this site there should be BMPs added for sheep grazing and native wildlife habitat that can at least partly offset the loss of quality land.

Please consider these points as to what will be best for SMUD customers and preservation of our agricultural heritage.

Thank you,

Steve Schweigerdt

2709 2nd Ave, Sacramento, CA 95818

415-846-9665

[sschweigerdt@gmail.com](mailto:sschweigerdt@gmail.com)





State of California – Natural Resources Agency  
DEPARTMENT OF FISH AND WILDLIFE  
North Central Region  
1701 Nimbus Road, Suite A  
Rancho Cordova, CA 95670-4599  
916-358-2900  
[www.wildlife.ca.gov](http://www.wildlife.ca.gov)

**GAVIN NEWSOM, Governor**  
**CHARLTON H. BONHAM, Director**



December 17, 2021

Governor's Office of Planning & Research

**Dec 17 2021**

Amy Spitzer  
Sacramento Municipal Utility District  
Environmental Services Department  
6201 S Street, MS B209  
Sacramento, CA 95817  
[CountryAcres@smud.org](mailto:CountryAcres@smud.org)

## STATE CLEARINGHOUSE

Subject: NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT  
FOR THE PROPOSED COUNTRY ACRES SOLAR PROJECT  
SCH# 2021110307

Dear Ms. Spitzer:

The California Department of Fish and Wildlife (CDFW) received and reviewed the Notice of Preparation of an Environmental Impact Report (EIR) from Sacramento Municipal Utility District (SMUD) for the Country Acres Solar Project (Project) in Placer County pursuant the California Environmental Quality Act (CEQA) statute and guidelines.

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish, wildlife, plants and their habitats. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may need to exercise its own regulatory authority under the Fish and Game Code (Fish & G. Code).

### CDFW ROLE

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, § 1802.). Similarly, for purposes of CEQA, CDFW provides, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW may also act as a Responsible Agency under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law

## Country Acres Solar Project

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of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.

### **PROJECT DESCRIPTION SUMMARY**

The Project site is located on approximately 1,300 acres of land in unincorporated southwestern Placer County just west of the City of Roseville, north of Baseline Road and east of South Brewer Road. Primary access to the Project site would be provided by an entry road from Baseline Road to the south and Phillip Road to the north. The Project site includes grassland, agricultural rice fields, and almond orchards with scattered seasonal wetlands, including vernal pools. The site also includes several drainages, including segments of upper Curry Creek.

The Project consists of the construction and operation of a photovoltaic (PV) solar power and battery storage facility and interconnection facilities, including a generation substation, switch station, and interconnection lines, that would provide new power production capacity of up to 344 megawatts (MW) delivered at the point of interconnection with the grid managed by SMUD. The total Project site would generally comprise PV solar modules, foundation piles, racking, direct current (DC) collection, alternative current (AC) collection, fencing, roads, inverters, medium voltage transformers, an interconnection line between the generation substation and switch station, battery storage equipment, and interconnection lines to the existing SMUD transmission system. In addition, the Project also includes limited grading and vegetation removal and other minor site improvements to facilitate construction.

The Project description should include the whole action as defined in the CEQA Guidelines § 15378 and should include appropriate detailed exhibits disclosing the Project area including temporary impacted areas such as equipment stage area, spoils areas, adjacent infrastructure development, staging areas and access and haul roads if applicable.

As required by § 15126.6 of the CEQA Guidelines, the EIR should include an appropriate range of reasonable and feasible alternatives that would attain most of the basic Project objectives and avoid or minimize significant impacts to resources under CDFW's jurisdiction.

### **COMMENTS AND RECOMMENDATIONS**

CDFW offers the comments and recommendations presented below to assist SMUD in adequately identifying and/or mitigating the Project's significant, or potentially significant, impacts on biological resources. The comments and recommendations are also offered to enable CDFW to adequately review and comment on the proposed Project with respect to impacts on biological resources. CDFW recommends that the forthcoming EIR address the following:

## Country Acres Solar Project

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**Assessment of Biological Resources**

Section 15125(c) of the CEQA Guidelines states that knowledge of the regional setting of a project is critical to the assessment of environmental impacts and that special emphasis should be placed on environmental resources that are rare or unique to the region. To enable CDFW staff to adequately review and comment on the Project, the EIR should include a complete assessment of the flora and fauna within and adjacent to the Project footprint, with emphasis on identifying rare, threatened, endangered, and other sensitive species and their associated habitats. CDFW recommends that the EIR specifically include:

1. An assessment of all habitat types located within the Project footprint, and a map that identifies the location of each habitat type. CDFW recommends that floristic, alliance- and/or association-based mapping and assessment be completed following *The Manual of California Vegetation*, second edition (Sawyer 2009). Adjoining habitat areas should also be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at the alliance level will help establish baseline vegetation conditions.
2. A general biological inventory of the fish, amphibian, reptile, bird, and mammal species that are present or have the potential to be present within each habitat type onsite and within adjacent areas that could be affected by the Project. CDFW recommends that the California Natural Diversity Database (CNDDDB), as well as previous studies performed in the area, be consulted to assess the potential presence of sensitive species and habitats. A nine United States Geologic Survey (USGS) 7.5-minute quadrangle search is recommended to determine what may occur in the region, larger if the Project area extends past one quad (see *Data Use Guidelines* on the Department webpage [www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data](http://www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data)). Please review the webpage for information on how to access the database to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code, in the vicinity of the Project. CDFW recommends that CNDDDB Field Survey Forms be completed and submitted to CNDDDB to document survey results. Online forms can be obtained and submitted at: <https://www.wildlife.ca.gov/Data/CNDDDB/Submitting-Data>.

Please note that CDFW's CNDDDB is not exhaustive in terms of the data it houses, nor is it an absence database. CDFW recommends that it be used as a starting point in gathering information about the *potential presence* of species within the general area of the Project site. Other sources for identification of species and habitats near or adjacent to the Project area should include, but may not be limited to, State and federal resource agency lists, California Wildlife Habitat Relationship (CWHR) System, California Native Plant Society (CNPS) Inventory, agency contacts, environmental documents for other projects in the vicinity, academics, and professional or scientific organizations.

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3. A complete and recent inventory of rare, threatened, endangered, and other sensitive species located within the Project footprint and within offsite areas with the potential to be affected, including California Species of Special Concern and California Fully Protected Species (Fish & G. Code § 3511). Species to be addressed should include all those which meet the CEQA definition (CEQA Guidelines § 15380). The inventory should address seasonal variations in use of the Project area and should not be limited to resident species. The EIR should include the results of focused species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable. Species-specific surveys should be conducted in order to ascertain the presence of species with the potential to be directly, indirectly, on or within a reasonable distance of the Project activities. CDFW recommends SMUD rely on survey and monitoring protocols and guidelines available at: [www.wildlife.ca.gov/Conservation/Survey-Protocols](http://www.wildlife.ca.gov/Conservation/Survey-Protocols). Alternative survey protocols may be warranted; justification should be provided to substantiate why an alternative protocol is necessary. Acceptable species-specific survey procedures should be developed in consultation with CDFW and the U.S. Fish and Wildlife Service, where necessary. Some aspects of the Project may warrant periodic updated surveys for certain sensitive taxa, particularly if the Project is proposed to occur over a protracted time frame, or in phases, or if surveys are completed during periods of drought or deluge.
4. A thorough, recent (within the last two years), floristic-based assessment of special-status plants and natural communities, following CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (see [www.wildlife.ca.gov/Conservation/Plants](http://www.wildlife.ca.gov/Conservation/Plants)).
5. Information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis on resources that are rare or unique to the region (CEQA Guidelines § 15125[c]).

**Analysis of Direct, Indirect, and Cumulative Impacts to Biological Resources**

The EIR should provide a thorough discussion of the Project's potential direct, indirect, and cumulative impacts on biological resources. To ensure that Project impacts on biological resources are fully analyzed, the following information should be included in the EIR:

1. The EIR should define the threshold of significance for each impact and describe the criteria used to determine whether the impacts are significant (CEQA Guidelines, § 15064, subd. (f)). The EIR must demonstrate that the significant environmental impacts of the Project were adequately investigated and discussed, and it must permit the significant effects of the Project to be considered in the full environmental context.

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2. A discussion of potential impacts from lighting, noise, human activity, and wildlife-human interactions created by Project activities especially those adjacent to natural areas, exotic and/or invasive species occurrences, and drainages. The EIR should address Project-related changes to drainage patterns and water quality within, upstream, and downstream of the Project site, including: volume, velocity, and frequency of existing and post-Project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-Project fate of runoff from the Project site.
3. A discussion of potential indirect Project impacts on biological resources, including resources in areas adjacent to the Project footprint, such as nearby public lands (e.g. National Forests, State Parks, etc.), open space, adjacent natural habitats, riparian ecosystems, wildlife corridors, and any designated and/or proposed reserve or mitigation lands (e.g., preserved lands associated with a Conservation or Recovery Plan, or other conserved lands).
4. A cumulative effects analysis developed as described under CEQA Guidelines section 15130. The EIR should discuss the Project's cumulative impacts to natural resources and determine if that contribution would result in a significant impact. The EIR should include a list of present, past, and probable future projects producing related impacts to biological resources or shall include a summary of the projections contained in an adopted local, regional, or statewide plan, that consider conditions contributing to a cumulative effect. The cumulative analysis shall include impact analysis of vegetation and habitat reductions within the area and their potential cumulative effects. Please include all potential direct and indirect Project-related impacts to riparian areas, wetlands, wildlife corridors or wildlife movement areas, aquatic habitats, sensitive species and/or special-status species, open space, and adjacent natural habitats in the cumulative effects analysis.

### **Mitigation Measures for Project Impacts to Biological Resources**

The EIR should include appropriate and adequate avoidance, minimization, and/or mitigation measures for all direct, indirect, and cumulative impacts that are expected to occur as a result of the construction and long-term operation and maintenance of the Project. CDFW also recommends that the environmental documentation provide scientifically supported discussion regarding adequate avoidance, minimization, and/or mitigation measures to address the Project's significant impacts upon fish and wildlife and their habitat. For individual projects, mitigation must be roughly proportional to the level of impacts, including cumulative impacts, in accordance with the provisions of CEQA (Guidelines § § 15126.4(a)(4)(B), 15064, 15065, and 16355). In order for mitigation measures to be effective, they must be specific, enforceable, and feasible actions that will improve environmental conditions. When proposing measures to avoid, minimize, or mitigate impacts, CDFW recommends consideration of the following:



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1. *Fully Protected Species*: Multiple Fully Protected Species (Fish & G. Code § 3511) have the potential to occur within or adjacent to the Project area, including, but not limited to: white-tailed kite (*Elanus leucurus*), golden eagle (*Aquila chrysaetos*), American peregrine falcon (*Falco peregrinus anatum*), bald eagle (*Haliaeetus leucocephalus*), and California black rail (*Laterallus jamaicensis coturniculus*). Fully protected species may not be taken or possessed at any time. Project activities described in the EIR should be designed to completely avoid any fully protected species that have the potential to be present within or adjacent to the Project area. CDFW also recommends that the EIR fully analyze potential adverse impacts to fully protected species due to habitat modification, loss of foraging habitat, and/or interruption of migratory and breeding behaviors. CDFW recommends that SMUD include in the analysis how appropriate avoidance, minimization and mitigation measures will reduce indirect impacts to fully protected species.
2. *Sensitive Plant Communities*: CDFW considers sensitive plant communities to be imperiled habitats having both local and regional significance. Plant communities, alliances, and associations with a statewide ranking of S-1, S-2, S-3, and S-4 should be considered sensitive and declining at the local and regional level. These ranks can be obtained by querying the CNDDDB and are included in *The Manual of California Vegetation* (Sawyer 2009). The EIR should include measures to fully avoid and otherwise protect sensitive plant communities from Project-related direct and indirect impacts.
3. *Mitigation*: CDFW considers adverse Project-related impacts to sensitive species and habitats to be significant to both local and regional ecosystems, and the EIR should include mitigation measures for adverse Project-related impacts to these resources. Mitigation measures should emphasize avoidance and reduction of Project impacts. For unavoidable impacts, onsite habitat restoration, enhancement, or permanent protection should be evaluated and discussed in detail. If onsite mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, offsite mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.

The EIR should include measures to perpetually protect the targeted habitat values within mitigation areas from direct and indirect adverse impacts in order to meet mitigation objectives to offset Project-induced qualitative and quantitative losses of biological values. Specific issues that should be addressed include restrictions on access, proposed land dedications, long-term monitoring and management programs, control of illegal dumping, water pollution, increased human intrusion, etc.

4. *Habitat Revegetation/Restoration Plans*: Plans for restoration and revegetation should be prepared by persons with expertise in the regional ecosystems and native plant restoration techniques. Plans should identify the assumptions used

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to develop the proposed restoration strategy. Each plan should include, at a minimum: (a) the location of restoration sites and assessment of appropriate reference sites; (b) the plant species to be used, sources of local propagules, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) a local seed and cuttings and planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity. Monitoring of restoration areas should extend across a sufficient time frame to ensure that the new habitat is established, self-sustaining, and capable of surviving drought.

CDFW recommends that local onsite propagules from the Project area and nearby vicinity be collected and used for restoration purposes. Onsite seed collection should be appropriately timed to ensure the viability of the seeds when planted. Onsite vegetation mapping at the alliance and/or association level should be used to develop appropriate restoration goals and local plant palettes. Reference areas should be identified to help guide restoration efforts. Specific restoration plans should be developed for various Project components as appropriate. Restoration objectives should include protecting special habitat elements or re-creating them in areas affected by the Project. Examples may include retention of woody material, logs, snags, rocks, and brush piles. Fish and Game Code sections 1002, 1002.5 and 1003 authorize CDFW to issue permits for the take or possession of plants and wildlife for scientific, educational, and propagation purposes. Please see our website for more information on Scientific Collecting Permits at [www.wildlife.ca.gov/Licensing/Scientific-Collecting#53949678-regulations-](http://www.wildlife.ca.gov/Licensing/Scientific-Collecting#53949678-regulations-).

5. *Nesting Birds*: Please note that it is the Project proponent's responsibility to comply with all applicable laws related to nesting birds and birds of prey. Migratory non-game native bird species are protected by international treaty under the federal Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 *et seq.*). CDFW implemented the MBTA by adopting the Fish and Game Code section 3513. Fish and Game Code sections 3503, 3503.5 and 3800 provide additional protection to nongame birds, birds of prey, their nests and eggs. Sections 3503, 3503.5, and 3513 of the Fish and Game Code afford protective measures as follows: section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the Fish and Game Code or any regulation made pursuant thereto; section 3503.5 states that it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by the Fish and Game Code or any regulation adopted pursuant thereto; and section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as

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provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

Potential habitat for nesting birds and birds of prey is present within the Project area. The Project should disclose all potential activities that may incur a direct or indirect take to nongame nesting birds within the Project footprint and its vicinity. Appropriate avoidance, minimization, and/or mitigation measures to avoid take must be included in the EIR.

CDFW recommends that the EIR include specific avoidance and minimization measures to ensure that impacts to nesting birds or their nests do not occur. Project-specific avoidance and minimization measures may include, but not be limited to: Project phasing and timing, monitoring of Project-related noise (where applicable), sound walls, and buffers, where appropriate. The EIR should also include specific avoidance and minimization measures that will be implemented should a nest be located within the Project site. In addition to larger, protocol level survey efforts (e.g. Swainson's hawk surveys) and scientific assessments, CDFW recommends a final preconstruction survey be required no more than three (3) days prior to vegetation clearing or ground disturbance activities, as instances of nesting could be missed if surveys are conducted earlier.

6. *Moving out of Harm's Way*: The Project is anticipated to result in the clearing of natural habitats that support native species. To avoid direct mortality, SMUD may condition the EIR to require that a qualified biologist with the proper permits be retained to be onsite prior to and during all ground- and habitat-disturbing activities. The qualified biologist with the proper permits may move out of harm's way special-status species or other wildlife of low or limited mobility that would otherwise be injured or killed from Project-related activities. Movement of wildlife out of harm's way should be limited to only those individuals that would otherwise be injured or killed, and individuals should be moved only as far as necessary to ensure their safety (i.e., CDFW does not recommend relocation to other areas). It should be noted that the temporary relocation of onsite wildlife does not constitute effective mitigation for habitat loss.
7. *Translocation of Species*: CDFW generally does not support the use of relocation, salvage, and/or transplantation as the sole mitigation for impacts to rare, threatened, or endangered species as these efforts are generally experimental in nature and largely unsuccessful.

The EIR should incorporate mitigation performance standards that would ensure that impacts are reduced to a less-than-significant level. Mitigation measures proposed in the EIR should be made a condition of approval of the Project. Please note that obtaining a permit from CDFW by itself with no other mitigation proposal may constitute mitigation deferral. CEQA Guidelines section 15126.4, subdivision (a)(1)(B) states that formulation of mitigation measures should not be deferred until some future time. To

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avoid deferring mitigation in this way, the EIR should describe avoidance, minimization and mitigation measures that would be implemented should the impact occur.

### **California Endangered Species Act**

CDFW is responsible for ensuring appropriate conservation of fish and wildlife resources including threatened, endangered, and/or candidate plant and animal species, pursuant to the CESA. CDFW recommends that a CESA Incidental Take Permit (ITP) be obtained if the Project has the potential to result in “take” (Fish & G. Code § 86 defines “take” as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”) of State-listed CESA species, either through construction or over the life of the Project.

CESA-listed species with the potential to occur in the area include but are not limited to: Boggs Lake hedge-hyssop (*Gratiola heterosepala*), tricolored blackbird (*Agelaius tricolor*), Swainson’s hawk (*Buteo swainsoni*), and giant garter snake (*Thamnophis gigas*).

The EIR should disclose the potential of the Project to take CESA-listed species and how the impacts will be avoided, minimized, and mitigated. Please note that mitigation measures that are adequate to reduce impacts to a less-than significant level to meet CEQA requirements may not be enough for the issuance of an ITP. To issue an ITP, CDFW must demonstrate that the impacts of the authorized take will be minimized and fully mitigated (Fish & G. Code §2081 (b)). To facilitate the issuance of an ITP, if applicable, CDFW recommends the EIR include measures to minimize and fully mitigate the impacts to any State-listed species the Project has potential to take. CDFW encourages early consultation with staff to determine appropriate measures to facilitate future permitting processes and to engage with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service to coordinate specific measures if both state and federally listed species may be present within the Project vicinity.

### **Western Placer County Habitat Conservation Plan/Natural Community Conservation Plan (PCCP)**

The Project is located within the boundaries of the PCCP. CEQA Guidelines section 15125(d) states that EIRs must discuss any inconsistencies between projects and applicable plans (including habitat conservation plans/natural community conservation plans). Because the PCCP is currently in implementation, CDFW recommends that the EIR include a discussion of each Project alternative’s consistency with the PCCP and how SMUD will ensure that implementation of the Project alternatives do not impede the PCCP’s ability to meet its permit conditions and biological goals and objectives. Particular focus in the EIR’s analysis should be directed to:

- Analysis of potential impacts to all PCCP Covered Species.
- Assessment of project impacts to natural communities and constituent habitat types identified in the PCCP.

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- Identification of applicable PCCP avoidance, minimization, or mitigation measures.
- Analysis of any impacts to reserve land commitments of the PCCP.
- Discussion of any inconsistencies between the Project and the PCCP.

To identify any potential inconsistencies with the PCCP and provide special emphasis on rare or unique resources in compliance with CEQA, CDFW recommends that the EIR also address the following:

- Impacts to established or future reserve land managed under the Placer Conservation Authority (PCA).
- Reduction of available reserve land in the PCCP (with appropriate buffers and setbacks as detailed in the PCCP).
- Impacts to PCCP conservation zones and key habitat linkages.
- Financial impacts to the PCA and fee payers under the PCCP.

### **Native Plant Protection Act**

The Native Plant Protection Act (NPPA) (Fish & G. Code §1900 *et seq.*) prohibits the take or possession of State-listed rare and endangered plants, including any part or product thereof, unless authorized by CDFW or in certain limited circumstances. Take of State-listed rare and/or endangered plants due to Project activities may only be permitted through an ITP or other authorization issued by CDFW pursuant to California Code of Regulations, Title 14, section 786.9 subdivision (b).

### **Lake and Streambed Alteration Program**

The EIR should identify all perennial, intermittent, and ephemeral rivers, streams, lakes, other hydrologically connected aquatic features, and any associated biological resources/habitats present within the entire Project footprint (including utilities, access, and staging areas). The environmental document should analyze all potential temporary, permanent, direct, indirect and/or cumulative impacts to the above-mentioned features and associated biological resources/habitats that may occur because of the Project. If it is determined the Project will result in significant impacts to these resources the EIR shall propose appropriate avoidance, minimization and/or mitigation measures to reduce impacts to a less-than-significant level.

Section 1602 of the Fish and Game Code requires an entity to notify CDFW prior to commencing any activity that may do one or more of the following: substantially divert or obstruct the natural flow of any river, stream or lake; substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or deposit debris, waste or other materials that could pass into any river, stream or lake. Please note that "any river, stream or lake" includes those that are episodic (i.e., those that are dry for periods of time) as well as those that are perennial (i.e., those that flow year-round). This includes ephemeral streams and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water.



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If CDFW determines that the Project activities may substantially adversely affect an existing fish or wildlife resource, a Lake and Streambed Alteration (LSA) Agreement will be issued which will include reasonable measures necessary to protect the resource. CDFW's issuance of an LSA Agreement is a "project" subject to CEQA (see Pub. Resources Code 21065). To facilitate issuance of an LSA Agreement, if one is necessary, the EIR should fully identify the potential impacts to the lake, stream, or riparian resources, and provide adequate avoidance, mitigation, and monitoring and reporting commitments. Early consultation with CDFW is recommended, since modification of the Project may avoid or reduce impacts to fish and wildlife resources. To submit an LSA Notification package, please go to <https://www.wildlife.ca.gov/Conservation/Environmental-Review/LSA>.

Please note that other agencies may use specific methods and definitions to determine impacts to areas subject to their authorities. These methods and definitions often do not include all needed information for CDFW to determine the extent of fish and wildlife resources affected by activities subject to Notification under Fish and Game Code section 1602. Therefore, CDFW does not recommend relying solely on methods developed specifically for delineating areas subject to other agencies' jurisdiction (such as United States Army Corps of Engineers) when mapping lakes, streams, wetlands, floodplains, riparian areas, etc. in preparation for submitting a Notification of an LSA.

CDFW relies on the lead agency environmental document analysis when acting as a responsible agency issuing an LSA Agreement. CDFW recommends lead agencies coordinate with us as early as possible, since potential modification of the proposed Project may avoid or reduce impacts to fish and wildlife resources and expedite the Project approval process.

The following information will be required for the processing of an LSA Notification and CDFW recommends incorporating this information into any forthcoming CEQA document(s) to avoid subsequent documentation and Project delays:

1. Mapping and quantification of lakes, streams, and associated fish and wildlife habitat (e.g., riparian habitat, freshwater wetlands, etc.) that will be temporarily and/or permanently impacted by the Project, including impacts from access and staging areas. Please include an estimate of impact to each habitat type.
2. Discussion of specific avoidance, minimization, and mitigation measures to reduce Project impacts to fish and wildlife resources to a less-than-significant level. Please refer to section 15370 of the CEQA Guidelines.

Based on review of Project materials, aerial photography, and observation of the site from public roadways, the Project site supports Curry Creek, multiple unnamed tributaries, and associated riparian habitat. CDFW recommends that the EIR fully identify the Project's potential impacts to the stream and/or its associated vegetation and wetlands.

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**General Avian, Bat, and other Wildlife Impacts**

The EIR should evaluate the cumulative effects of loss of habitat as an indirect cause of avian mortality for grassland birds. Breeding Bird Surveys (BBS) conducted by the U.S. Geological Survey Biological Resources Division and volunteers throughout the country show that grassland birds, as a group, have declined more than other groups, such as forest and wetland birds (Brennan and Kuvlesky 2005; NRCS 1999). The BBS shows that in California, grassland birds such as the western meadowlark (*Sturnella neglecta*), and State Species of Special Concern the burrowing owl (*Athene cunicularia*), have shown population declines since 1966 (Sauer et al., 2019). CDFW recommends at a minimum an equal amount of land with primary purpose of habitat conservation should be enhanced and conserved elsewhere to offset the loss of habitat for grassland birds.

In addition, the EIR should evaluate threats to birds from collisions and electrocutions with solar infrastructure. Collisions with PV equipment can include direct collisions into panels, guy wires, or transmission lines. Injuries from collisions with collectors/reflectors may result in acute and direct take (Kagan et al. 2014), or stranding. Stranding can occur when an individual is injured by collision impact and is unable to take off. The EIR should include measures to reduce the risks of avian collisions such as adding special patterns to the PV panels. Linear features such as generator-tie lines, collector lines, and interior and perimeter fences all present collision hazards for birds, and electric lines present a potential electrocution hazard (Huso, et al. 2016). All aboveground lines should be fitted with bird flight diverters or visibility enhancement devices. When lines, or other related infrastructure with the potential to cause take, cannot be placed underground, appropriate avian protection designs should be employed. At a minimum, the collection system should conform with the most current edition of the Avian Power Line Interaction Committee guidelines to prevent electrocutions, found at: <https://www.aplic.org/mission>.

The EIR should include a requirement for weekly or twice-weekly avian mortality surveys to meet the following objectives:

- Estimate the total number of birds and bats killed at the Project site within a specified time period.
- Determine whether there are spatial or temporal/seasonal patterns of total bird fatality.
- Evaluate species composition and which taxonomic groups may be at risk.
- Provide results that allow comparisons with other solar sites and to evaluate changes in fatality due to adaptive management.

The EIR should include a requirement to develop an Avian and Bat Protection Plan or Bird and Bat Conservation Strategy (BBCS) in coordination with the U.S. Fish and Wildlife Service and CDFW. The purpose of the BBCS is to:

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- Describe baseline conditions for bird and bat species present within the Project site, and adjacent where influenced by the Project, including results of site-specific surveys.
- Assess potential risk to birds and bats based on the proposed activities.
- Specify conservation measures that will be employed to avoid, minimize, and/or mitigate any potential adverse effects to these species.
- Describe the incidental monitoring and reporting that will take place during construction.
- Provide details for post-construction monitoring.
- Specify the adaptive management process that will be used to address potential adverse effects on avian and bat species.

### Permanent Fencing

CDFW recommends the EIR discuss and analyze impacts to wildlife associated with permanent fencing which may be installed around the solar facility. For example, a fence can obstruct the natural migration and daily movements of wildlife such as deer and the consequences of disrupting these movements should be considered in fencing design (VerCauteren *et al.* 2006). In addition, deer occasionally become entangled in fences or collide with them when attempting to pass over, through, or under (Goddard *et al.* 2001). Some fences, especially wire mesh, can be a complete barrier to fawns, even if adults can still jump over. This can lead to fawns becoming separated from their mothers and the herd resulting in the fawns killed by predators, vehicle collisions, or starvation (Hanophy 2009).

Birds can also collide with fences, breaking wings and tangling in wires. Large, low-flying birds such as ducks, geese, hawks, and owls are especially vulnerable to collisions with fencing. For example, the American kestrel (*Falco sparverius*) and low-flying hawks and owls may collide with fences when swooping in on prey (Bryant *et al.* 1993). Fencing can be made more visible to birds by attaching reflective or colorful weather-resistant flagging materials (e.g., aluminum or plastic strips) to the wire.

Fences made of chain-link material may exclude small mammals, amphibians, and reptiles. Providing a small gap between the fencing and the ground can allow animals to pass through without being blocked from entry into the solar arrays.

The EIR should analyze the potential impacts to birds and mammals caused by the proposed fencing and describe alternative wildlife-friendly designs that will be implemented. The EIR should also include effective minimization and mitigation measures to offset any impacts of fencing to wildlife species that cannot feasibly be completely avoided.

### ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database, which may be used to make

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subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to the CNDDDB. The CNDDDB field survey form can be found at the following link:

<https://www.wildlife.ca.gov/Data/CNDDDB/Submitting-Data>. The completed form can be submitted online or mailed electronically to CNDDDB at the following email address: [CNDDDB@wildlife.ca.gov](mailto:CNDDDB@wildlife.ca.gov).

## FILING FEES

The Project, as proposed, would have an effect on fish and wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the lead agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code § 711.4; Pub. Resources Code, § 21089.)

## CONCLUSION

Pursuant to Public Resources Code sections 21092 and 21092.2, CDFW requests written notification of proposed actions and pending decisions regarding the Project. Written notifications shall be directed to: California Department of Fish and Wildlife North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670.

CDFW appreciates the opportunity to comment on the NOP of the EIR for the Country Acres Solar Project and recommends that SMUD address CDFW's comments and concerns in the forthcoming EIR. CDFW personnel are available for consultation regarding biological resources and strategies to minimize impacts.

If you have any questions regarding the comments provided in this letter or wish to schedule a meeting and/or site visit, please contact Patrick Moeszinger, Senior Environmental Scientist (Specialist) at (916) 767-3935 or [patrick.moeszinger@wildlife.ca.gov](mailto:patrick.moeszinger@wildlife.ca.gov).

Sincerely,

DocuSigned by:  
*Kelley Barker*

778EDA8AE45F4C9...  
Kelley Barker

Environmental Program Manager

ec: Juan Torres, Senior Environmental Scientist (Supervisory)  
Patrick Moeszinger, Senior Environmental Scientist (Specialist)  
CEQACommentLetters  
Department of Fish and Wildlife

Office of Planning and Research, State Clearinghouse, Sacramento

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## Central Valley Regional Water Quality Control Board

17 December 2021

Governor's Office of Planning & Research

**Dec 27 2021**

Amy Spitzer  
Sacramento Municipal Utility District  
6201 S Street  
Sacramento, CA 95817  
[countryacres@smud.org](mailto:countryacres@smud.org)

### STATE CLEARINGHOUSE

#### **COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT, COUNTRY ACRES SOLAR PROJECT, SCH#2021110307, PLACER AND SACRAMENTO COUNTIES**

Pursuant to the State Clearinghouse's 19 November 2021 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation of a Draft Environmental Impact Report* for the Country Acres Solar Project, located in Placer and Sacramento Counties.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

#### **I. Regulatory Setting**

##### **Basin Plan**

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by

the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:

[http://www.waterboards.ca.gov/centralvalley/water\\_issues/basin\\_plans/](http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/)

### **Antidegradation Considerations**

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:

[https://www.waterboards.ca.gov/centralvalley/water\\_issues/basin\\_plans/sacsjr\\_201805.pdf](https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf)

In part it states:

*Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.*

*This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.*

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

## **II. Permitting Requirements**

### **Construction Storm Water General Permit**

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at:

[http://www.waterboards.ca.gov/water\\_issues/programs/stormwater/constpermits.shtml](http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml)

**Phase I and II Municipal Separate Storm Sewer System (MS4) Permits<sup>1</sup>**

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:

[http://www.waterboards.ca.gov/centralvalley/water\\_issues/storm\\_water/municipal\\_permits/](http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/)

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:

[http://www.waterboards.ca.gov/water\\_issues/programs/stormwater/phase\\_ii\\_municipal.shtml](http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml)

**Industrial Storm Water General Permit**

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ. For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:

[http://www.waterboards.ca.gov/centralvalley/water\\_issues/storm\\_water/industrial\\_general\\_permits/index.shtml](http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml)

**Clean Water Act Section 404 Permit**

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

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<sup>1</sup> Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

**Clean Water Act Section 401 Permit – Water Quality Certification**

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at: [https://www.waterboards.ca.gov/centralvalley/water\\_issues/water\\_quality/certification/](https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality/certification/)

**Waste Discharge Requirements – Discharges to Waters of the State**

If USACE determines that only non-jurisdictional waters of the State (i.e., “non-federal” waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at: [https://www.waterboards.ca.gov/centralvalley/water\\_issues/waste\\_to\\_surface\\_water/](https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/)

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at: [https://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2004/wqo/wqo2004-0004.pdf](https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf)

**Dewatering Permit**

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board’s Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:

[http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2003/wqo/wqo2003-0003.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf)

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at:

[https://www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/waivers/r5-2018-0085.pdf](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf)

**Limited Threat General NPDES Permit**

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:

[https://www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/general\\_orders/r5-2016-0076-01.pdf](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf)

**NPDES Permit**

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: <https://www.waterboards.ca.gov/centralvalley/help/permit/>

If you have questions regarding these comments, please contact me at (916) 464-4709 or [Greg.Hendricks@waterboards.ca.gov](mailto:Greg.Hendricks@waterboards.ca.gov).



Greg Hendricks  
Environmental Scientist

cc: State Clearinghouse unit, Governor's Office of Planning and Research,  
Sacramento



**From:** [Country Acres Project](#)  
**To:** [Amy E. Spitzer](#)  
**Subject:** FW: [EXTERNAL] RE: Notice of Preparation of an Environmental Impact Report for SMUD's Country Acres Solar Project in Southwest Placer County  
**Date:** Monday, December 20, 2021 11:37:49 AM

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**From:** Mohan Ganapathy <MGanapat@placer.ca.gov>  
**Sent:** Friday, December 17, 2021 9:36 AM  
**To:** Country Acres Project <CountryAcres@smud.org>  
**Cc:** Shirlee Herrington <SHerring@placer.ca.gov>  
**Subject:** [EXTERNAL] RE: Notice of Preparation of an Environmental Impact Report for SMUD's Country Acres Solar Project in Southwest Placer County

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Ms. Spitzer

Thank you for the opportunity to comment on the NOP. The project proposes an "operational facility" to be located on the project site and portable restrooms. While portable restrooms are allowed during the construction phase, Placer County will require permanent restrooms to service the project during the regular operational phase. This permanent restroom will be required to connect to an onsite septic system and be serviced by potable water (by way of a permitted drilled well if public water is not available). As part of the EIR, a Phase 1 Environmental Site Assessment will be required to be performed. If past activities on the parcels involved show a potential for the existence of recognized environmental conditions, then a Limited Phase 2 Soils Investigation will need to be performed. The project EIR shall also take into account the mosquito/vector control issues by including Placer Mosquito and Vector Control District into the process. Thank you for the opportunity to comment.

Mohan Ganapathy R.E.H.S.

Land Use and Water Resources Supervisor

Placer County | Health & Human Services | Environmental Health

Direct line 530-745-2364 | Main line 530-745-2300 | [mganapat@placer.ca.gov](mailto:mganapat@placer.ca.gov)

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**From:** Shirlee Herrington <SHerring@placer.ca.gov>  
**Sent:** Friday, November 19, 2021 10:39 AM  
**To:** Angel Green <AGreen@placer.ca.gov>; Mohan Ganapathy <MGanapat@placer.ca.gov>; Katherine Conkle <kconkle@placer.ca.gov>; Sarah Gillmore <SGillmore@placer.ca.gov>; Ted Rel <TRel@placer.ca.gov>; Lisa Carnahan <LCarnaha@placer.ca.gov>; Young Rodriguez <YRodrigu@placer.ca.gov>; Jerry Rogers <jerryrogers@placer.ca.gov>; Joshua Huntsinger <JHuntsin@placer.ca.gov>; Ralph Gibson <RGibson@placer.ca.gov>; Jeff Hoag <PCFD\_JHoag@placer.ca.gov>  
**Cc:** Leigh Chavez <LChavez@placer.ca.gov>; Clayton Cook <CCook@placer.ca.gov>; EJ Ivaldi <EJIvaldi@placer.ca.gov>; Shanti Landon <SLandon@placer.ca.gov>; Michele Kingsbury

<[MKingsbu@placer.ca.gov](mailto:MKingsbu@placer.ca.gov)>; Vanessa Lieberman <[VLieberman@placer.ca.gov](mailto:VLieberman@placer.ca.gov)>; Jane Christenson <[JChristenson@placer.ca.gov](mailto:JChristenson@placer.ca.gov)>; Dave Defanti <[DDefanti@placer.ca.gov](mailto:DDefanti@placer.ca.gov)>

**Subject:** Notice of Preparation of an Environmental Impact Report for SMUD's Country Acres Solar Project in Southwest Placer County

Hello,

Because you are interested in being notified of proposed projects in Placer County, please see the attached Notice of Preparation of an Environmental Impact Report for SMUD's Country Acres Solar Project.

Please direct any questions or comments about the project to the contact information in the NOP.

Thanks,

Amy Spitzer

*Environmental Specialist, Environmental Services Department*

**SMUD** | Powering forward. Together.

6201 S Street, Mail Stop B209, Sacramento, CA 95817

P.O. Box 15830, Sacramento, CA 95852-0830

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**From:** [Country Acres Project](#)  
**To:** [Amy E. Spitzer](#)  
**Subject:** FW: [EXTERNAL] Country Acres Solar Project  
**Date:** Tuesday, December 21, 2021 9:53:43 AM  
**Attachments:** [image002.png](#)  
[image003.png](#)  
[SMUD NOP Response 12.17.21 tj.pdf](#)

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**From:** Gregg McKenzie (CDR) <GAMckenz@placer.ca.gov>  
**Sent:** Tuesday, December 21, 2021 7:40 AM  
**To:** Country Acres Project <CountryAcres@smud.org>  
**Cc:** Robert Weygandt <RWeygandt@placer.ca.gov>; Shanti Landon <SLandon@placer.ca.gov>; Chris Beale <cbeale@resourceslawgroup.com>; Clayton Cook <CCook@placer.ca.gov>; Shirlee Herrington <SHerrington@placer.ca.gov>; Leigh Chavez <LChavez@placer.ca.gov>; Rebecca Lillis <RLillis@placer.ca.gov>; Theresa Johnson <tjohnson@placer.ca.gov>  
**Subject:** [EXTERNAL] Country Acres Solar Project

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Amy –

Attached is the NOP comment letter regarding the SMUD Country Acres Solar Project on behalf of the Placer Conservation Authority.

Gregg

Gregg McKenzie  
PCCP Administrator / PCA Executive Director  
Community Development Resource Agency  
(530) 745-3074 / Cell (530) 320-1695 / [gamckenz@placer.ca.gov](mailto:gamckenz@placer.ca.gov)  
[www.placerconservation.com](http://www.placerconservation.com)



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December 21, 2021

Amy Spitzer  
Sacramento Municipal Utility District  
Environmental Services Department  
6201 S Street, MS B209  
Sacramento, CA 95817

Electronic Transmittal Only

Subject: Response to NOP of a DEIR for the Proposed Country Acres Solar Project

On behalf of the Placer Conservation Authority, I am providing this initial response to the above referenced project's CEQA Notice of Preparation.

The Placer Conservation Authority (PCA) is a Joint Exercise of Powers Agency established under Section 6500 of the Government Code of the State of California to jointly exercise the powers common to Placer County and the City of Lincoln. The PCA was formed to administer and implement the Western Placer County Habitat Conservation Plan and Natural Community Conservation Plan (HCP/NCCP) and the Western Placer County In-Lieu Fee Program (ILF Program). The HCP/NCCP and ILF Program provide an effective framework to protect natural resources in western Placer County, while improving and streamlining the environmental permitting process for impacts on aquatic resources and on rare and sensitive species and their habitat. The PCA expects that the HCP/NCCP and ILF Program will also enable them to achieve certain land use planning goals and, at the same time, to provide comprehensive species, wetlands, and ecosystem conservation and to contribute to the recovery of endangered species in Northern California.

As such, the interests of the PCA are to ensure that activities covered by the HCP/NCCP and ILF Program within the Plan Area, as well as those projects that are not covered but that are developed in the Plan Area, are consistent with and do not jeopardize the ability of the PCA to successfully implement goals and objectives of the program, including the cost and funding of the Conservation Strategy.



This communication is intended to provide a meaningful response related to the scope and content of a future DEIR, including mitigation and project alternatives that should be addressed.

### Project Description

It is important to note that SMUD is not a Permittee under the HCP/NCCP. As such, SMUD's activities are not covered by the HCP/NCCP and the Project cannot receive coverage under the incidental take permits or programmatic wetland permits normally afforded to Covered Activities carried out by or under the authority of the Permittees (Placer County, Placer County Water Agency, South Placer Regional Transportation Authority, City of Lincoln). Any part of the Project subject to the permitting authority of the County (e.g., grading, building, or other permits) is also precluded from receiving coverage pursuant to HCP/NCCP Section 2.7 (Activities not Covered by this Plan).

Section 2.7 provides that utility scale solar was determined by the state and federal regulatory and wildlife agencies to not be appropriate for coverage because of the scope and scale of impacts to species and their habitat, including wetlands and waters. As such, the Project cannot rely on the joint EIR/EIS prepared for the HCP/NCCP and programmatic 401/404 permits and is required to separately notify and obtain any applicable permits, mitigation, and authorization pursuant to the requirements of the state and federal wildlife and regulatory agencies. Therefore, impacts, mitigation, and the associated state and federal permitting and mitigation requirements for the Project should be thoroughly analyzed in the DEIR.

### Project Location

As described by the notice, the Project is located on approximately 1,300 acres in unincorporated southwestern Placer County. NOP Figures 1 and 2 indicate that the Project is located within the HCP/NCCP Plan Area predominately covered by existing grassland, agricultural rice fields, orchards, vernal pools, drainages, and segments of the upper Curry Creek watershed. The Project is located within the designated Planned Future Growth Area of the HCP/NCCP. While lands designated as Planned Future Growth Area are anticipated to be converted from natural and semi-natural land cover to urban/suburban land uses in the future, the Project's potential to result in the loss of habitat and waters/wetlands covered by the HCP/NCCP should be analyzed by the DEIR, including impacts and mitigation for the HCP/NCCP's fourteen (14) Covered Species.

### HCP/NCCP

Notwithstanding the information above, since the Project is located within the HCP/NCCP's Plan Area, the DEIR must address the Project's consistency with the

HCP/NCCP, including impacts to Covered Species and their habitat including wetlands, hydrology, habitat connectivity, stream system protection, water quality, species movement and hazards, and mitigation consistent with the HCP/NCCP's landscape scale Conservation Strategy. The CEQA Statute and Appendix G of the CEQA Guidelines require the DEIR to include an analysis of the Project's consistency with an adopted HCP/NCCP, or other approved local, regional, or state habitat conservation plan, and in this case, how the Project relates to the implementation of the HCP/NCCP, including the cost and funding of its Conservation Strategy.

#### Potential Environmental Effects

As noted by the NOP, the DEIR will describe the significant environmental impacts of the Project, including Agriculture, Biological Resources, and Hydrology/Water Quality. The DEIR should also include a detailed analysis of not only the HCP/NCCP's fourteen Covered Species, but also species and plants not covered by the HCP/NCCP. Of note, the Project Location is known to provide habitat to species, including but not limited to the following:

#### HCP/NCCP Covered Species:

- Swainson's hawk
- Western burrowing owl
- Tricolored black bird
- California black rail
- Vernal Pool branchiopods
- Valley elderberry longhorn beetle
- Western pond turtle
- Giant garter snake

#### Other Special Status Species with known occurrences or the potential to occur within the Project Location:

- Western spadefoot
- Loggerhead shrike
- Bat species
- Dwarf downingia
- Boggs lake hedge-hyssop
- Sanford's arrowhead
- Other listed and non-listed species of special concern and migratory bird species

The Project area is comprised of a significant amount of active and inactive rice fields, vernal pool grasslands, and other natural and semi-natural lands. The rice fields include irrigated wetlands, the vernal pool grasslands include vernal pools, seasonal wetlands, and other waters. All of which provide habitat to listed and non-listed species, Covered Species, and have water quality and hydrologic benefits to Curry Creek and surrounding watersheds.

Thank you for the opportunity to provide comments on the scope and content of the DEIR through the NOP process. The PCA requests that notices and draft and final documents be provided to it electronically at [gamckenz@placer.ca.gov](mailto:gamckenz@placer.ca.gov).

Sincerely,  
Gregg McKenzie  
Executive Director

cc: Supervisor Robert Weygandt, Chairman  
Chris Beale, Resources Law Group  
Clayton Cook, PCA Counsel

December 21, 2021

Amy Spitzer  
Sacramento Municipal Utility District  
Environmental Services Department  
6201 S Street, MS B209  
Sacramento, CA 95817

SENT VIA : CountryAcres@smud.org

**SUBJECT:** Notice of Preparation of a Draft Environmental Impact Report for the Proposed Country Acres Solar Project

Dear Ms. Spitzer;

The Placer County Air Pollution Control District (District) thanks you for the opportunity to review and comment on the Notice of Preparation of a Draft Environmental Impact Report for the Proposed Country Acres Solar Project. The District has the following comments on the Notice of Preparation for your consideration.

1. If the project includes the use of equipment capable of releasing emissions to the atmosphere, permits(s) may be required from the District for both the construction and operational phases. The applicant, developer, or operator of a project that includes a generator or compressors or other such equipment should contact the District early to determine if a permit is required, and to begin the permit application process.

Portable construction equipment (e.g. generators, compressors, pile drivers, lighting equipment, etc.) with an internal combustion engine over 50 horsepower are required to have a PCAPCD permit or a California Air Resources Board portable equipment registration.

2. For the construction phase of the project, [District Rule 228, Fugitive Dust \(PDF\)](#), establishes standards to be met by activities generating fugitive dust. When an area to be disturbed is greater than one acre, and if required by the Conditions of Approval of a discretionary permit, a dust control plan must be submitted to and approved by the District. The District has developed an application for this purpose, which can be found on the District website: <https://placerair.org/FormCenter/Air-Pollution-Control-6/Dust-Control-Form-52>.

For the operational phase of this project, with the installation of solar panels, the soil beneath them will be drier, which could change the vegetation type along with the soil being more prone to disturbance and movement. Therefore, the District recommends the DEIR evaluate this with a control strategy/mitigation measure that should be identified to assure that the project areas comply with District Rule 228 Fugitive Dust.

The Project Description states that there will be vegetation removed as a result of this project. Any proposed burning of vegetation for commercial development (as apposed to residential development) is required to comply with District [Rule 304 Land Development Smoke Management \(PDF\)](#). This means that any air district burn permit would only be issued if in compliance with Rule 304 and the burn can be done without creating a nuisance.

For the operational phase of the project there was no discussion regarding ongoing vegetation management once the project is built. Please provide information on how vegetation will be managed.

Thank you for allowing the District this opportunity to review this project. Please do not hesitate to contact me at 530.745.2327 or [ahobbs@placer.ca.gov](mailto:ahobbs@placer.ca.gov) if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Ann Hobbs", written in a cursive style.

Ann Hobbs  
Associate Planner  
Planning & Monitoring Section



**From:** [Country Acres Project](#)  
**To:** [Amy E. Spitzer](#)  
**Subject:** FW: [EXTERNAL] Country Acres Solar Project  
**Date:** Tuesday, December 21, 2021 2:01:37 PM

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-----Original Message-----

From: SHARON WEBB <sharon@noelwebb.com>  
Sent: Tuesday, December 21, 2021 10:55 AM  
To: Country Acres Project <CountryAcres@smud.org>  
Subject: [EXTERNAL] Country Acres Solar Project

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Greetings Ms. Spitzer-

I'm a Country Acres Lane property owner. I received the 'Notice of Preparation of EIR' from SMUD, but called in 'late' (about 4:14 pm) for the 12/8 Zoom 'Public Scoping' meeting. The meeting concluded around that time. I was disappointed, but it was all my fault!

If there is a recording of that meeting and you can share it, I'd appreciate having a link to it.

I'm very supportive of exploring alternative energy sources and pleased to hear about SMUD's proposal to install solar panels in the area to support the growing energy demand. I'm a huge advocate of solar energy in particular. I have solar panels on my own residence in Southern California.

My Country Acres Lane property (7510 Country Acres Lane) consists of just under 40 acres of agricultural land—though with the persistent drought and prohibitive cost of water, the pasture land is limited to approximately 10 acres.

Presuming the project is approved to move forward, please know that I have space available for lease, if needed for construction activities or other. I'm very interested in discussing options with you, so please contact me if the opportunity should arise.

Thank you.

Have a wonderful holiday season!

Sharon Webb  
22400 Sentar Road  
Woodland Hills, CA 91364-4022  
Mobile: 310-775-5884

