DRAFT

Initial Study and Mitigated Negative Declaration for the Gray Lodge Wildlife Area Solar Project

Lead Agency:

DGS CALIFORNIA DEPARTMENT OF GENERAL SERVICES

Real Estate Services Division

707 Third Street, 4th Floor

West Sacramento, California 95605

Prepared for:

FOREFRONT POWER

100 Montgomery Street #1400

San Francisco, California 94104

January 2024

ECORP Consulting, Inc.

ENVIRONMENTAL CONSULTANTS

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Initial Study and Mitigated Negative Declaration

Gray Lodge Wildlife Area Solar Project

Butte County, California

Lead Agency:

State of California Department of General Services
Real Estate Services Division
707 Third Street, 4th Floor
West Sacramento, California 95605

Prepared for:

100 Montgomery Street
San Francisco, CA 94104

Prepared by:

2525 Warren Drive
Rocklin, California 95677

January 2024

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DRAFT MITIGATED NEGATIVE DECLARATION
GRAY LODGE WILDLIFE AREA SOLAR PROJECT

Lead Agency:	State Department of General Services
Project Proponent:	ForeFront Power LLC
Project Location:	The project site is within the Gray Lodge Wildlife Area. The project is located southwest of the intersection of Farris Road and West Liberty Road, in the northeast corner of the Gray Lodge Wildlife Area in Butte County, California. The Project area corresponds to portions of Sections 6 and 7, Township 17 North, Range 02 East (Mount Diablo Base and Meridian) within the "Pennington, California" 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1954 [Photo Revised 1973]). The approximate center of the Study Area is located at latitude 38.346938° and longitude -121.783179° (NAD83). The Study Area is within the Butte Creek watershed (Hydrologic Unit Code #18020158) (Natural Resources Conservation Service [NRCS] et al. 2016).

Project Description:

The project is located southwest of the intersection of Farris Road and West Liberty Road, in the northeast corner of the Gray Lodge Wildlife Area in Butte County, California. The 468 ground-mounted solar arrays would occupy approximately 35,000 square feet and will convert sunlight to Direct Current (DC) electrical power which would then be converted to Alternating Current (AC) by string inverters before being delivered to the Pacific Gas and Electric Company (PG&E) distribution system. The total system size is expected to be approximately 204 Kilowatts (kW), subject to final design and site optimization.

The solar system would be configured into three generally contiguous arrays that are laid-out to avoid impacts to natural resources. A security fence (totaling 900 feet) would be installed around the solar arrays. The solar system would utilize either fixed-tilt or single-axis tracking mounting technology to optimize efficiency and performance. Single-axis trackers are designed to rotate the arrays in the east-to-west plane to track the sun's movement across the horizon. Once installed, the ground-mounted solar arrays would be approximately 8 feet in height depending on the time of day to the extent a tracking system is utilized.

The electrical collection system is not expansive due to the close proximity of the solar arrays to each other. Conduits and wires would be buried in trenches that run between rows and/or installed above-grade running along the backside of strings to connect the output of each string to the inverters. String inverters would be attached to racking adjacent to each array to convert electricity from direct current to alternating current. The inverters then send alternating current electricity to an on-site transformer to step the electricity up to the interconnection voltage. Trenching will be approximately 250 linear feet and will

either be excavated and backfilled pending the final conduit size and equipment utilized, or may be directionally drilled to avoid any existing natural resources or infrastructure features.

Public Review Period: January 12, 2024 to February 12, 2024

Mitigation Measures Incorporated into the Project to Avoid Significant Effects:

Biological Resources

BIO-1: **Project Impact Area.** The Project impact limits shall be clearly demarcated prior to construction and all workers shall be made aware of the impact limits and avoided areas. If orange construction fencing is to be used, it shall be placed such that there is a one-foot gap between the ground and the bottom of the fencing to prevent snakes and other ground-dwelling animals from being caught in the fencing. No work shall occur outside of the Project impact limits. All vehicles and equipment shall be restricted to the Project impact limits and/or existing designated access roads and staging areas. Project-related vehicles shall observe a speed limit of 15 miles per hour in construction areas and on access roads where it is safe and feasible to do so, except on county roads and State and federal highways. Extra caution shall be used on cool days when giant garter snakes may be basking on roads.

Timing/Implementation: *Prior to construction*

Monitoring/Enforcement: *Developer/Project Biologist*

BIO-2: **Erosion Control.** Erosion control measures shall be placed between avoided aquatic resources and the outer edge of the impact limits prior to commencement of construction activities and shall be maintained until construction is completed and soils have been stabilized. Plastic monofilament netting or similar material shall not be used for erosion control, because smaller wildlife may become entangled or trapped in it. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine, or other similar fibers or tackified hydroseeding compounds.

Timing/Implementation: *Prior to construction*

Monitoring/Enforcement: *Developer*

BIO-3: **Fueling Areas.** Any fueling in the Study Area shall use appropriate secondary containment techniques to prevent spills and shall occur at least 150 feet from potential aquatic resources.

Timing/Implementation: *During construction*

Monitoring/Enforcement: *Developer*

BIO-4: **Mandatory Worker Environmental Awareness Training.** A qualified biologist shall conduct mandatory worker environmental awareness training for all contractors, work crews, and any onsite personnel to aid workers in recognizing special-status species and sensitive

biological resources that may occur onsite. The program shall include identification of the special-status species and their habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction, environmentally sensitive areas (including seasonal wetlands, seasonal wetland swales, and California alkali grass), and measures required to reduce impacts to biological resources. The Project shall retain a qualified biologist on an as-needed basis to assist with potential biological issues that may arise during construction (i.e., wildlife relocation).

Timing/Implementation: *Prior to construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-5: **California Alkali Grass Avoidance.** Establish and clearly demarcate avoidance zones for California alkali grass prior to construction and designate as an environmentally sensitive area. Avoidance zones shall include the extent of California alkali grass plus a 25-foot buffer, and shall be maintained until the completion of construction. A qualified biologist or biological monitor shall be present if work must occur within the avoidance buffer to ensure California alkali grass is not impacted by the work.

Timing/Implementation: *Prior to and during construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-6: **Preconstruction Survey for Northwestern Pond Turtle.** A qualified biologist shall conduct a pre-construction northwestern pond turtle survey in the Project Area (including impacts areas, access roads, and staging areas) within 48 hours prior to construction activities. Any northwestern pond turtles discovered in the Project Area immediately prior to or during Project activities shall be kept out of harm's way and allowed to move out of the work area of their own volition. If this is not feasible, they shall be captured by a qualified biologist and relocated out of harm's way to the nearest suitable habitat at least 100 feet from the Project work area where they were found.

Timing/Implementation: *Prior to construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-7: **Giant Garter Snake Habitat.** Avoid construction activities within 200 feet from the banks of giant garter snake aquatic habitat, where feasible. Avoided giant garter snake habitat within or adjacent to the Project shall be designated as environmentally sensitive areas and avoided by all construction personnel. Confine clearing to the minimum area necessary to facilitate construction activities. Confine staging and movement of heavy equipment outside of work areas to existing roadways or staging areas to minimize habitat disturbance.

Timing/Implementation: *Prior to and during construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-8: **Giant Garter Snake.** All construction activity within 200 feet of giant garter snake aquatic habitat shall be conducted during the giant garter snake's active period (between May 1 and

October 1). During this timeframe, potential for injury and mortality are lessened because snakes are expected to actively move and avoid danger. Giant garter snakes are more vulnerable to danger during their inactive period because they are occupying underground burrows or crevices and are more susceptible to direct impacts, especially during excavation.

Timing/Implementation: *During construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-9: **Preconstruction Giant Garter Snake Survey.** Within 24-hours prior to construction activities, a qualified biologist shall survey the Project Area (including impact areas, access roads, and staging areas) for giant garter snakes. Surveys shall be repeated if a lapse in construction activity of two weeks or greater has occurred.

Timing/Implementation: *Prior to construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-10: **Giant Garter Snake Exclusion Fencing.** Exclusion fencing shall be installed along the edge of construction areas that are within 200 feet of aquatic habitat and maintain fencing for the duration of construction. The exclusion fencing shall be installed during the active period for giant garter snakes (May 1 to October 1). The exclusion fencing shall consist of three-foot-tall silt fencing buried four to six inches below ground level. Fencing requirements shall be included in the construction specifications. A qualified biological monitor shall be onsite during exclusion fence installation and initial clearing and grubbing activities. Prior to construction activities each morning, exclusion fencing shall be inspected to ensure it is functional by a biological monitor or by construction personnel that have been trained by a qualified biologist. If any giant garter snakes are observed in the construction area during this inspection or at any other time during construction, construction personnel shall contact a qualified biologist and all Project activities shall cease until the snake has moved out of the Project Area of its own volition or has been relocated by a permitted biologist. Giant garter snake sightings and incidental take shall be reported to the USFWS immediately by telephone at (916) 414-6600. If the installation of exclusion fencing is not feasible, a qualified biological monitor shall be present during all construction activities within 200 feet of aquatic habitat.

Timing/Implementation: *Prior to construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-11: **After Construction Restoration.** After completion of construction activities, remove any construction debris and, where feasible, restore disturbed areas to pre-Project conditions. Restoration methods shall be approved by Gray Lodge Wildlife Area staff and may include reseeding of upland vegetation in disturbed areas.

Timing/Implementation: *After construction*

Monitoring/Enforcement: *Developer*

BIO-12: **Preconstruction Nesting Bird Survey.** If construction is to occur during the nesting season (generally February 1 - August 31), conduct a pre-construction nesting bird survey of all suitable nesting habitat within 14 days prior to construction. The survey shall be conducted within a 500-foot radius of Project work areas for raptors and within a 100-foot radius for other nesting birds. If any active nests are observed, these nests shall be designated an environmentally sensitive area and protected by an avoidance buffer established in coordination with CDFW until the breeding season has ended or until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival.

Timing/Implementation: *Prior to construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-13: **Preconstruction American Badger Survey.** A qualified biologist shall conduct a pre-construction American badger survey in the Project Area (including impacts areas, access roads, and staging areas) within 48 hours prior to construction activities. If any American badgers are discovered in or near the Project Area immediately prior to or during Project activities, the qualified biologist shall have authority to halt Project activity that may harm badgers, and badgers shall be allowed to move out of the work area of their own volition. If an active badger den is detected within or near the work area, it shall be designated an environmentally sensitive area and protected by an avoidance buffer established in coordination with CDFW. The buffer shall be maintained until a qualified biologist determines the den is no longer active. Dens that are determined to be inactive by the qualified biologist shall be collapsed by hand to prevent occupation of the burrow between the time of the survey and construction activities.

Timing/Implementation: *Prior to construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-14: **Aquatic Resource Buffer.** Ground disturbance shall not occur within an avoidance buffer maintained from the top of the bank or furthest outside edge of aquatic resources, whichever is more protective. The avoidance buffer shall include at least a distance of 50 feet from the top of the bank or furthest outside edge of aquatic resources, except in the proposed trenching locations where the avoidance buffer shall include a 10-foot area from the top of the bank or furthest outside edge of aquatic resources.

Timing/Implementation: *Prior to and during construction*

Monitoring/Enforcement: *Developer*

Cultural Resources

CUL-1: **Implement Measures to Protect Unanticipated Cultural, Archaeological, and/or Tribal Cultural Resources Discoveries.** The following mitigation measure is intended to address the evaluation and treatment of inadvertent/unanticipated discoveries of potential tribal

cultural resources (TCRs), archaeological, or cultural resources during a project's ground disturbing activities.

- If any suspected archaeological or cultural resources are discovered during ground disturbing construction activities, all work shall cease within 100 feet of the find, or an agreed upon distance based on the project area and nature of the find. A professional archaeologist who meets the Secretary of Interior's Standards for Archaeology will make recommendations for further evaluation and treatment, as necessary.
- If any suspected TCRs are discovered during ground disturbing construction activities, all work shall cease within 100 feet of the find, or an agreed upon distance based on the project area and nature of the find. A Tribal Representative from a California Native American tribe that is traditionally and culturally affiliated with a geographic area shall be immediately notified and shall determine if the find is a TCR (PRC §21074). The Tribal Representative will make recommendations for further evaluation and treatment, as necessary.
- When avoidance is infeasible, preservation in place is the preferred option for mitigation of TCRs, or archaeological or cultural resources under CEQA 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 the California Native American Tribe(s) that is traditionally and culturally affiliated with the project area.
- 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, have been satisfied.

Human Remains

- If the find includes human remains, or remains that are potentially human, he or she shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Butte County Coroner (per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 will be implemented. If the Coroner determines the remains are Native American and not the

result of a crime scene, the Coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the project (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.

Timing/Implementation: *During construction*

Implementation/Responsibility/Verification: *Developer and Department of General Services*

Geology and Soils

GEO-1: If paleontological or other geologically sensitive resources are identified during any phase of project development, the construction manager shall cease operation at the site of the discovery and immediately notify the DGS. DGS shall retain a qualified paleontologist to provide an evaluation of the find and to prescribe mitigation measures to reduce impacts to a less-than-significant level. In considering any suggested mitigation proposed by the consulting paleontologist, DGS shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, land use assumptions, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the project site while mitigation for paleontological resources is carried out.

Timing/Implementation: *During construction*

Monitoring/Enforcement: *Department of General Services*

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ACRONYMS AND ABBREVIATIONS

Term	Description
A-1	General Agriculture
AB	Assembly Bill
AC	Alternating Current
AMSL	Above Mean Sea Level
ANSI	American National Standards Institute
APE	Area of Potential Effects
BCAQMD	Butte County Air Quality Management District
BCFD	Butte County Fire Department
BLM	Bureau of Land Management
BMPs	Best Management Practices
BRA	Biological Resources Assessment
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CARI	California Aquatic Resources Inventory
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CGS	California Geological Survey
CH_4	Methane
CHL	California Historic Landmarks
CHRIS	California Historical Resources Information System
City	City of Gray Lodge
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalents

Term	Description
County	County of Butte
CRHR	California Register of Historical Resources
CVPIA	Central Valley Project Improvement Act
dBA	A-weighted decibels
DC	Direct Current
DGS	California Department of General Services
DOC	California Department of Conservation
DOF	California Department of Finance
DPM	Diesel Particulate Matter
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
ECHO	Enforcement and Compliance History Online
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EMFAC2021	Emissions Factor Model, 2021 Version
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	Greenhouse Gas
GLO	General Land Office
HTMC	Historical Topographic Map Collection
IS	Initial Study
IS/MND	Initial Study Mitigated Negative Declaration
kW	Kilowatt
kWh	Kilowatt-hours
LEED	Leadership in Energy and Environmental Design
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendant
MRZ	Mineral Resource Zone
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEIC	Northeast Information Center
NHPA	National Historic Preservation Act
NIOSH	National Institute for Occupational Safety and Health
NO_x	Nitric Oxide
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSVAB	Northern Sacramento Valley Air Basin
OHP	Office of Historic Preservation
OUSD	City of Gray Lodge Unified School District
PG&E	Pacific Gas & Electric Company

Term	Description
$PM_{2.5}$	Fine Particulate Matter
PM_{10}	Coarse Particulate Matter
POD	Points of Delivery
PPV	Peak Particle Velocity
PRC	Public Resources Code
PV	Photovoltaic
RC	Resource Conservation
ROG	Reactive Organic Gases
RWQCB	Regional Water Control Board
SGMA	Sustainable Groundwater Management Act
SIP	State Implementation Plan
SRA	State Responsibility Area
SSC	Species of Special Concern
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCR	Tribal Cultural Resources
UCMP	University of California Museum of Paleontology
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VHFHSZ	Very High Fire Hazard Severity Zone
WA	Wildlife Area
WBD	Watershed Boundary Dataset
WEAP	Worker Environmental Awareness Program

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1.0 BACKGROUND

1.1 Summary

Project Title:	Gray Lodge Solar Project
Lead Agency Name and Address:	State of California, Department of General Services Real Estate Services Division 707 Third Street, 4th Floor West Sacramento, CA 95605
Contact Person and Phone Number:	Terry Ash, Senior Environmental Planner Phone Number 916 201-0085
Project Location:	Gray Lodge Wildlife Area facility West Liberty Road, Gridley, California
General Plan Designation:	Resource Conservation (RC)
Zoning:	Zoning: RC, General Plan: Ag

1.2 Introduction

The Californian Department of General Services is the Lead Agency for this California Environmental Quality Act (CEQA) Initial Study. This Initial Study has been prepared to identify and assess the anticipated environmental impacts of the Gray Lodge Wildlife Area Solar Project (Project) to satisfy CEQA (Public Resources Code [PRC], Section 21000 et seq.) and state CEQA Guidelines (Title 14, California Code of Regulations [CCR] 15000 et seq.). CEQA requires that all state and local government agencies consider the environmental consequences before approving those projects. State Department of General Services (DGS) will use this CEQA Initial Study to determine which CEQA document is appropriate for the Project: Negative Declaration, Mitigated Negative Declaration (MND), or Environmental Impact Report (EIR).

In accordance with CEQA, this Initial Study/Mitigated Negative Declaration (IS/MND) will be circulated for a 30-day public review and comment period. Written comments on the Draft IS/MND should be submitted to:

Ms. Terry Ash, DGS Senior Environmental Planner
cc: Amberly Morgan
2525 Warren Drive
Rocklin, CA 95677

amorgan@ecorpconsulting.com

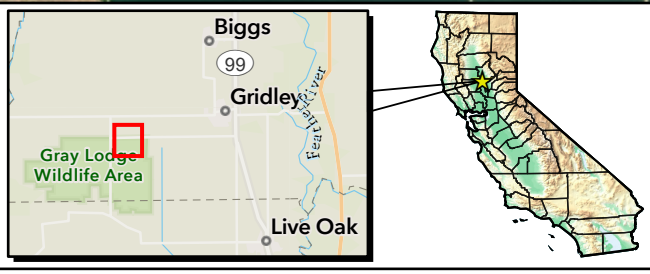
1.3 Surrounding Land Uses/Environmental Setting

The proposed project is located southwest of the intersection of Farris Road and West Liberty Road, in the northeast corner of the Gray Lodge Wildlife Area in Butte County, California (Figure 1-1). The project is located in the northeast quarter of Section 7, Township 17 North, Range 02 East (Mount Diablo Base and Meridian) within the "Pennington, California" 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1954 [Photo Revised 1973]). The approximate center of the Study Area is located at latitude 38.347680° and longitude -121.782852° (NAD83). The Study Area is within the Butte Creek watershed (Hydrologic Unit Code #18020158) (NRCS et al. 2016).

As shown in Figure 1-1, Project Vicinity and Location below, the Project Area is within the Gray Lodge Wildlife Area and is situated in the northern Sacramento Valley, within the greater Central Valley. The land surrounding the Project Area consists of flat agricultural fields. The Sutter Buttes are located approximately 5 miles to the south of the Project Area, Morrison Creek is located approximately 4 miles to the east, and Butte Creek and Sanborn Slough are located approximately 6 miles to the west. Elevations within the Project Area range from 75 to 76 feet Above Mean Sea Level (AMSL). Figure 1-2, Representative Site Photos, includes photos showing conditions at the proposed project site.

Project Area - 16.02 ac.

Butte County, California
§6-7, T.17N, R.02E, MDBM
Latitude (NAD83): 39.346938°
Longitude (NAD83): -121.783179°



Location: N:\2018\2018-116.028 RESD Solar Screening Analysis\MAPS\CEQA\ForeFront Solar CEQA.aprx - Gray Lodge CEQA Location and Vicinity 20230525 (JSwager - 5/31/2023)

Map Date: 5/31/2023
Sources: ESRI, Maxar (2022), ForeFront Power

Figure 1-1. Project Location and Vicinity

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ENVIRONMENTAL CONSULTANTS

2021-112.01 ForeFront Power - Gray Lodge Wildlife Area

Figure 1-2. Representative Site Photos

Overview of Property.

Overview of Property.

2.0 PROJECT DESCRIPTION

2.1 Project Background

The DGS is proposing to add solar arrays to four California Department of Fish and Wildlife (CDFW) facilities around the state: Payne Creek (near Redding), Los Banos, Mendota, and Gray Lodge. The solar fields would be located adjacent to existing CDFW facilities (i.e., fish hatcheries or administrative complexes) and would be .75 to 1.75 acres in size.

Several policies, regulations, and standards have been adopted by the State of California to address global climate change issues. Examples of such actions include the Governor's Green Building Order S-20-04, which mandates that State agencies evaluate the merits of using clean and renewable on-site energy generation technologies in all new building or large renovation projects. Incorporating solar Photovoltaic (PV) technology supports energy reduction goals and achievement of Leadership in Energy and Environmental Design (LEED) building certifications from the United States Green Building Council. Using solar PV also supports the Global Warming Solutions Act.

To comply with policies, regulations, and standards that have been adopted by the State to address global climate change issues, DGS, in conjunction with participating State agencies, have created the Power Purchase Program. This program includes the installation of PV systems at State facilities. The PV systems are installed, operated, and owned by third parties who enter long-term power purchase agreements (PPAs) with the participating State agency.

2.2 Project Characteristics

The Proposed Project is a solar PV power generation system to be located within the Gray Lodge Wildlife Area, at 3207 Rutherford Rd, Gridley, CA. The 468 ground-mounted solar arrays would occupy approximately 35,000 square feet and will convert sunlight to DC electrical power which would then be converted to AC by string inverters before being delivered to the PG&E distribution system. The total system size is expected to be approximately 204 kW, subject to final design and site optimization.

The solar system would be configured into three generally contiguous arrays that are laid-out to avoid impacts to natural resources. A security fence (totaling 900 feet) would be installed around the solar arrays. The solar system would utilize either fixed-tilt or single-axis tracking mounting technology to optimize efficiency and performance. Single-axis trackers are designed to rotate the arrays in the east-to-west plane to track the sun's movement across the horizon. Once installed, the ground-mounted solar arrays would be approximately 8 feet in height depending on the time of day to the extent a tracking system is utilized (Figure 2-1).

The electrical collection system is not expansive due to the close proximity of the solar arrays to each other. Conduits and wires would be buried in trenches that run between rows and/or installed above-grade running along the backside of strings to connect the output of each string to the inverters. String inverters would be attached to racking adjacent to each array to convert electricity from direct current to alternating current. The inverters then send alternating current electricity to an on-site transformer to step

the electricity up to the interconnection voltage. Trenching will be approximately 250 linear feet and will either be excavated and backfilled pending the final conduit size and equipment utilized, or may be directionally drilled to avoid any existing natural resources or infrastructure features.

2.3 Operations and Maintenance

Once construction of the Proposed Project is completed, primary production-related monitoring would be done remotely. No employees would be based at the project site. The public would not have access to the facility. Access to the area would be infrequent and limited to authorized personnel only.

2.3.1 Project Timing

Construction would begin in late 2024 and would consist of approximately 120 days of activity to occur within a 180-day construction period. Prior to construction of the solar arrays, the project site will be cleared of debris and vegetation. Minimal site grading will be required for the installation of the system and access road. Construction equipment would include the following:

For the Site Preparation/Grading:

- Bobcat with mower attachment or tractor with mower attachment
- One dump truck
- One grader for short term use
- One Water truck

For the Construction of Structures:

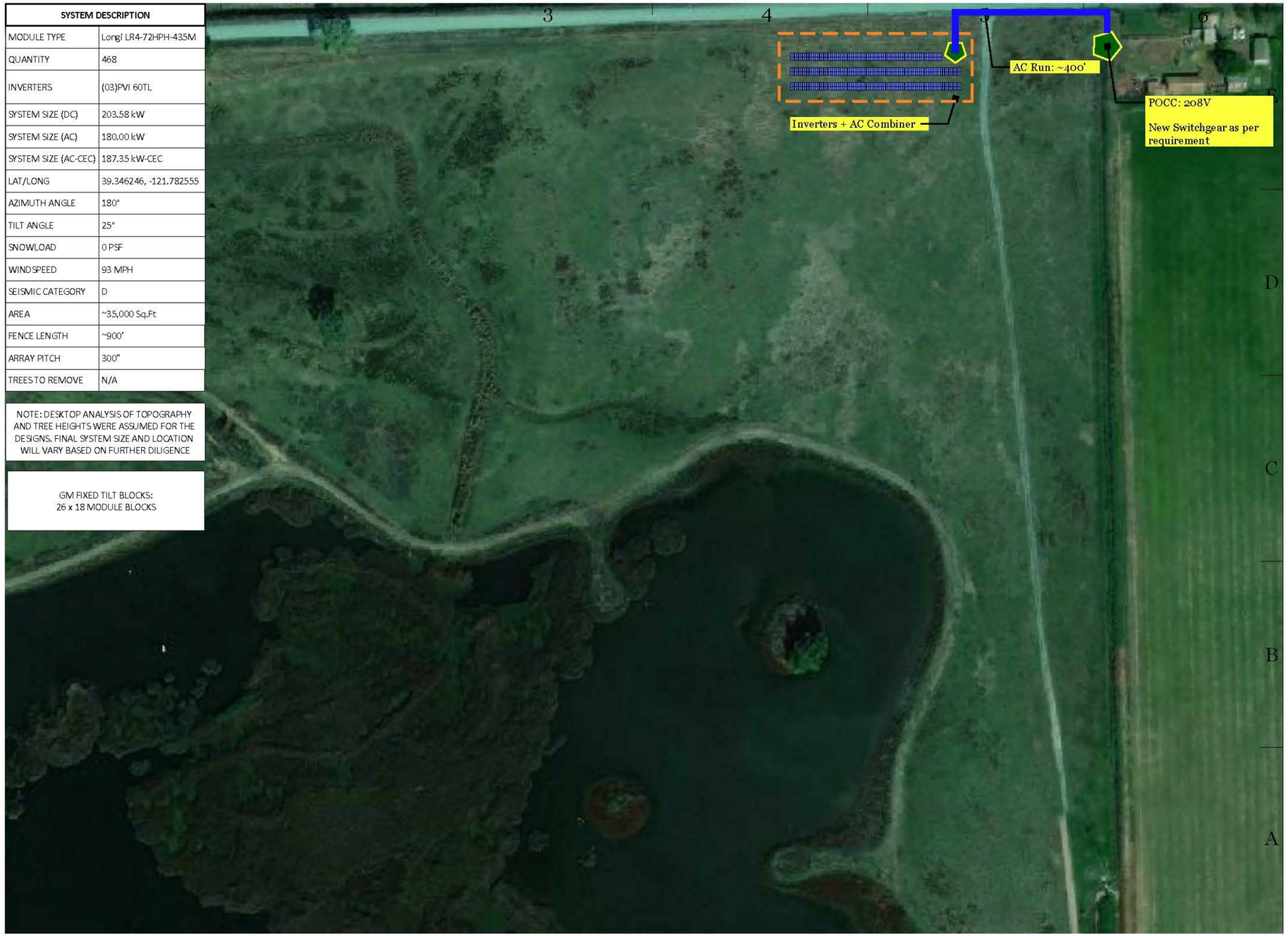
- One backhoe for trenching
- One backhoe for wheel compaction
- One forklift for material deliveries
- One to three pile driving rigs
- One generator for Conex storage interior lighting and office

There would be 20 construction days requiring the use of a 3,000-gallon water truck. Approximately one truckload every other day is anticipated for dust control. Total water demand during construction is estimated to be 3,000 gallons every other day for 20 days, totaling 30,000 gallons. The water would come from an onsite source. Construction crew size is estimated to be 30 to 45 crew members at peak, with 15 workers on average. Material deliveries would consist of approximately three or four trucks for steel in one or two days, panel deliveries of approximately six trucks over two or three days, and misc. electrical component deliveries on an intermittent basis once or twice a week. Temporary sanitary facility servicing will occur once a week. Other truck traffic would consist of construction equipment deliveries upon mobilization and equipment haul off near project completion.

SYSTEM DESCRIPTION	
MODULE TYPE	Longi LR4-72HPH-435M
QUANTITY	468
INVERTERS	(03)PVI 60TL
SYSTEM SIZE (DC)	203.58 kW
SYSTEM SIZE (AC)	180.00 kW
SYSTEM SIZE (AC-CEC)	187.35 kW-CEC
LAT/LONG	39.346246, -121.782555
AZIMUTH ANGLE	180°
TILT ANGLE	25°
SNOWLOAD	0 PSF
WIND SPEED	93 MPH
SEISMIC CATEGORY	D
AREA	~35,000 Sq.Ft
FENCE LENGTH	~900'
ARRAY PITCH	300"
TREES TO REMOVE	N/A

NOTE: DESKTOP ANALYSIS OF TOPOGRAPHY AND TREE HEIGHTS WERE ASSUMED FOR THE DESIGNS. FINAL SYSTEM SIZE AND LOCATION WILL VARY BASED ON FURTHER DILIGENCE

GM FIXED TILT BLOCKS:
26 x 18 MODULE BLOCKS



FOREFRONT POWER

100 MONTGOMERY STREET #1400
SAN FRANCISCO, CA 94104
(855) 204-5083
www.ForeFrontPower.com

STAMP:

NOT FOR CONSTRUCTION

Department of Fish and Wildlife
Gray Lodge Wildlife Area

3207 Rutherford Rd,
Gridley, CA 95948

PROJECT NUMBER: CA-19-0269

SHEET TITLE: CONCEPTUAL LAYOUT

SHEET SIZE: TABLOID 11" X 17"

NO.	REVISION	DATE	INIT.

DATE: 11-Jan-2021
DRAWN BY: RP
ENGINEER: RP
APPROVED BY:

PROJECT PHASE: PRELIMINARY DESIGN
SCALE: 1" : 150'

SHEET NO: **CL-1**

Source: ForeFront Power

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 2-1. Site Plan

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2.4 Regulatory Requirements, Permits, and Approvals

The following approvals and regulatory permits would be required for implementation of the Proposed Project:

Regional Water Quality Control Board, Central Valley Region

- National Pollutant Discharge Elimination System Permit
- Storm Water Pollution Prevention Plan

2.5 Consultation With California Native American Tribe(s)

On June 27, 2023, general request for information letters were sent to each representative listed for the tribes on the Native American Heritage Commission (NAHC) response letter. A summary of the consultation process is provided in Section 4.18, Tribal Cultural Resources, of this Initial Study. As of the time of this document, no responses have been received.

In the absence of tribes wishing to consult, information about potential impacts to TCRs was drawn from: 1) the results of a search of the Sacred Lands File of the NAHC; 2) existing ethnographic information about pre-contact lifeways and settlement patterns; and 3) information on archaeological site records obtained from the California Historical Resources Information System (CHRIS).

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3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED AND DETERMINATION

3.1 Environmental Factors Potentially Affected

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

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

Determination

On the basis of this initial evaluation:

I find that the Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	☐
I find that although the Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.	☒
I find that the Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.	☐
I find that the Project JUNE have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.	☐
I find that although the Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Project, nothing further is required.	☐

Terry Ash — Date
Senior Environmental Planner

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4.0 ENVIRONMENTAL CHECKLIST AND DISCUSSION

4.1 Aesthetics

4.1.1 Environmental Setting

Visual Character of the Project Site

The Proposed Project is in unincorporated Butte County just outside of the limits of the City of Gridley. The Site is situated east of Interstate 5, south of Colusa Highway, east of Pennington Road, near the City of Gridley and within the larger Gray Lodge Wildlife Area. The Gray Lodge Wildlife Area is a State-protected wildlife area and was established to manage habitat for wintering waterfowl. The Proposed Project is only accessible by rural paved roads, surrounded by oak savannas, wetlands, and agricultural land, and has views of the Sutter Buttes to the south.

4.1.1.1 Regional Setting

The rural and agricultural landscapes provide the primary scenic resources in Butte County. The County also has many scenic vistas, such as the Coastal and Sierra Nevada Mountain ranges, the Sutter Buttes and the Sacramento and Feather River corridors. Although there are no officially-designated State Scenic Highways in Butte County, State Route 70 north of the intersection with State Route 149 is included in the California Scenic Highway Program and is considered an eligible State Scenic Highway. State Route 70 through the Feather River Canyon and a portion of State Route 32 north of Forest Ranch are recognized as County Scenic Highways (Caltrans, 2023).

This portion of Butte County has a unique geography of oak habitats, including shady riparian woodland along the water features. Surrounded by miles of rich agricultural lands, the approximately 9,100-acre area is managed for the wildlife that call Gray Lodge home for all or part of the year. Reflective ponds, grassy fields and wooded riparian areas provide food, water and shelter for more than 300 species of resident and migrant birds and mammals (Gray Lodge Wildlife Area 2023).

State Scenic Highways

The California Scenic Highway Program protects and enhances the scenic beauty of California's highways and adjacent corridors. The California Department of Transportation (Caltrans) can designate a highway as scenic based on how much natural beauty can be seen by users of the highway, the quality of the scenic landscape, and if development impacts the enjoyment of the view.

According to the Butte County General Plan, there are no officially-designated State Scenic Highways in Butte County. However, State Route 70 north of the intersection with State Route 149 is included in the California Scenic Highway Program and is considered an eligible State Scenic Highway. The Proposed Project Site is not visible from State Route 70 (north of the intersection with State Route 149) as it is approximately 28 miles northeast (Caltrans 2023).

General Plan

The following objectives regarding scenic Resources in the Butte County General Plan, Conservation and Open Space Element:

COS-17: *Maintain and enhance the quality of Butte County's scenic and visual resources.*

COS-18: *Protect and enhance scenic areas adjacent to and visible from highways for enjoyment by residents and visitors.*

4.1.2 Aesthetics (I) Environmental Checklist and Discussion

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒

No Impact.

The Proposed Project is located within a CDFW wildlife area surrounded by rural roadways. Based on review of the Caltrans State Scenic Highway List and the Butte County General Plan, no officially designated scenic vistas or scenic land units were identified within the Project Site or vicinity (Butte County General Plan, 2023; Caltrans 2023,). Therefore, the Project would have no impact on scenic vistas and no mitigation is required.

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒

No Impact.

As stated above, according to Caltrans' list of designated Scenic Highways and the Butte County General Plan, the Proposed Project is not located near or within a state scenic highway and therefore would not damage designated scenic resources, including but not limited to trees, outcroppings, and historic buildings within a state scenic highway. Therefore, no impacts are anticipated, and no mitigation measures are required.

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) In non-urbanized 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 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?	☐	☐	☒	☐

Less Than Significant Impact.

The Proposed Project is within a rural open space riparian/grassland/wetland and agriculture-rich area. Project construction activities would introduce heavy equipment, including backhoes, forklifts, and/or similar machinery into the viewshed of all viewer groups, creating temporary effects on views of and from the Project Site during construction. Once the Project is completed, the solar arrays will be surrounded by a security fence. There would be a minor change in the visual character or quality of public views of the wildlife refuge facility and its surroundings and the Project would not conflict with zoning and other regulations governing scenic quality. There would be a less than significant impact and no mitigation is required.

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Would the Project create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Less Than Significant Impact.

The reflection of sunlight is the primary potential producer of glare from glass and metallic surfaces of the proposed solar panels. The reflection of light is an optical phenomenon governed by the law of reflection. This law states that the direction of incoming light (incident ray) and the direction of the outgoing light reflected (reflected ray) make the same angle with respect to the surface normal, thus the angle of incidence equals the angle of reflection. The law of reflection shows how light responds when it contacts a truly spectral surface, like a mirror.

A solar panel differs from a truly spectral surface in that it has a microscopically irregular surface designed to trap the incident rays of sunlight with the intention of generating additional photon collision and energy production. Any incident radiation, if not absorbed or transmitted, will be reflected. With the current advancements in PV technology, a typical untreated silicon solar cell absorbs two-thirds of the sunlight reaching the panel's surface, meaning only one-third of the sunlight reaching the surface of the solar panel will be reflected. Recent improvements in PV technology have led to even greater light

absorption efficiency through the use of nano-engineered anti-reflective materials applied directly to the solar cells that allow the cells to absorb light from virtually the entire solar spectrum. The intent of solar technology is to increase efficiency by absorbing as much light as possible (which further reduces reflection and glare). Most solar glass sheets (the glass layer that covers the PV panels) are typically tempered glass that is treated with an anti-reflective or diffusion coating that further diffuses (scatters) the intensity of glare produced. This type of diffused glare loses intensity as the distance from the reflection source increases.

The Proposed Project includes the use of trackers. Trackers are devices that orient the solar array perpendicular (surface normal) to the incident solar radiation, thereby maximizing solar cell efficiency and potential energy output. Tracking devices are capable of positioning the array so that the incident rays would be at, or very near the surface normal (perpendicular angle). In these optimal conditions, when the sun is high in the sky, the law of reflection indicates that the reflected ray would be at an equally low angle and reflected in a direction toward the light source or back into the atmosphere away from terrestrial-based receptors. This also means that the potential for glare is further reduced. However, when the sun is low on the horizon (near dawn or dusk), the sun's angle in the sky is low; because the trackers are tilted toward the light source, the potential for fugitive glare on terrestrial-based receptors increases.

The project site is located approximately 4.5 miles west of the limits of the City of Gidley. The closest sensitive receptors would be the residents located west of the project site approximately 1.2 miles east along West Liberty Road. Although there is a potential for fugitive glare to be directed to the west, the Gray Lodge Wildlife Facility's buildings and its surrounding trees would obstruct direct views of the Project Site from the residences. Glare impacts would be less than significant. No mitigation required.

4.1.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.2 Agriculture and Forestry Resources

4.2.1 Environmental Setting

According to the California Department of Conservation online Important Farmland Finder Map, the Project Site does not contain Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, nor is the Site zoned for agriculture or forestry use or is under Williamson Act contract. The California Important Farmland Finder Map identifies the Site as "Other Land." The adjacent parcels directly North and East are zoned as either Farmland of Statewide Importance, or Unique Farmland.

4.2.2 Agriculture and Forestry Resources (II) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒

No Impact.

As discussed above, the California Important Farmland Finder Map identifies the Project Site as "Other Land" and areas surrounding as Unique Farmland and Farmland of Statewide Importance. Thus, the Project would not 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, to non-agricultural use. There would be no impact and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

No Impact.

The proposed Project is not located in an agricultural use zone. The CDFW Gray Lodge Wildlife Area is zoned as RC and is not under a Williamson Act contract (California Department of Conservation 2023). Therefore, the project would not result in a conflict with an agricultural zoning designation or a Williamson Act contract. No impact would occur. No mitigation necessary.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒

No Impact.

The County Zoning Ordinance does not identify the Project Site as forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)). Thus, Project implementation would not conflict with or cause the rezoning of any of the above zoning designations and there would be no impact and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

No Impact.

See discussion under item c). No impact would occur, and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

No Impact.

See discussion under item a) and c), the Proposed Project would not result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest. No impact would occur, and no mitigation measures are required.

4.2.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.3 Air Quality

This assessment was prepared using methods and assumptions recommended in the rules and regulations of the Butte County Air Quality Management District (BCAQMD). Regional and local existing conditions are presented, along with pertinent pollutant emissions standards and regulations. The purpose of this assessment is to estimate criteria air pollutants attributable to the Project and determine the level of impact the Project would have on the environment.

4.3.1 Environmental Setting

The Project Site is located in unincorporated Butte County. The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The Proposed Project is located in the Northern Sacramento Valley Air Basin (NSVAB), which includes the counties of Butte, Colusa, Glenn, Shasta, Sutter, Tehama, and Yuba. The NSVAB is bounded on the north and west by the Coastal Mountain Range and on the east by the southern end of the Cascade Mountain Range and the northern end of the Sierra Nevada. These mountain ranges reach heights in excess of 6,000 feet AMSL, with individual peaks rising much higher. The mountains form a substantial physical barrier to locally created pollution as well as to pollution transported northward on prevailing winds from the Sacramento metropolitan area (Sacramento Valley Air Quality Engineering and Enforcement Professionals 2021).

The environmental conditions of Butte County are conducive to potentially adverse air quality conditions. The basin area traps pollutants between two mountain ranges to the east and the west. This problem is exacerbated by a temperature inversion layer that traps air at lower levels below an overlying layer of warmer air. Prevailing winds in the area are generally from the south and southwest. Sea breezes flow over the San Francisco Bay Area and into the Sacramento Valley, transporting pollutants from the large urban areas. Growth and urbanization in Butte County have also contributed to an increase in emissions.

Both the U.S. Environmental Protection Agency (USEPA) and CARB have established ambient air quality standards for common pollutants. These ambient air quality standards establish safe levels of contaminants that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called criteria pollutants because the health and other effects of each pollutant are described in criteria documents. The six criteria pollutants are ozone (O_3), carbon monoxide (CO), particulate matter (PM), oxides of nitrogen (NO_x), sulfur dioxide (SO_2), and lead. Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas.

The air quality regulating authority in Butte County is the BCAQMD. The agency's primary responsibility is ensuring that the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) are attained and maintained in Butte County. The unique mountain-encompassed geography with its potential for trapped pollutants underscores the importance of the BCAQMD regulating air pollution. Butte County is classified as an attainment area for all federal standards except for O_3. However, Butte County is designated as a nonattainment area for the state standards of O_3, PM_{10} (particulate matter less than 10 microns in diameter) and $PM_{2.5}$ (particulate matter less than 2.5 microns in diameter) (CARB 2022b). The BCAQMD is responsible for adopting or creating a comprehensive plan to reduce the emissions of these criteria pollutants. They also enforce rules and regulations, inspect and issue permits for stationary sources of air pollutants, respond to citizen complaints, monitor ambient air quality and meteorological conditions, award grants to reduce motor vehicle emissions, and conduct public education campaigns. The BCAQMD coordinates work from government agencies, businesses, and private citizens to achieve and maintain healthy air quality.

4.3.2 Air Quality (III) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒

No impact.

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. Similarly, under state law, the California Clean Air Act requires an air quality attainment plan to be prepared for areas designated as nonattainment with regard to the NAAQS and CAAQS. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date.

As previously mentioned, the Project Site is located within the Butte County portion of the NSVAB, which is under the jurisdiction of the BCAQMD. The BCAQMD is required, pursuant to the Clean Air Act (CAA), to reduce emissions of criteria pollutants for which the NSVAB in nonattainment. The BCAQMD attains and maintains air quality conditions in Butte County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. Their current strategies are included in the *Northern Sacramento Valley Planning Area Triennial Air Quality Attainment Plan* (Sacramento Valley Basin-wide Air Pollution Control Council 2021), which contains mechanisms to achieve O_3 standards. These pollutant control strategies are based on the latest scientific and technical information and planning assumptions, updated emission inventory methodologies for various source categories, and the latest population growth projections and associated vehicle miles traveled projections for the region. BCAQMD's latest population growth forecasts were defined in consultation with local governments and with reference to local general plans. A project conforms with the BCAQMD attainment plans if it complies with all applicable district rules and regulations, complies with all control measures from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan).

BCAQMD growth projections for the County are based on the Butte County General Plan. As such, projects that propose development consistent with the growth anticipated by the respective general plan of the jurisdiction in which the project is located would be consistent with BCAQMD air quality planning. If a project, however, proposes a project that increases the population density than that assumed in the general plan, the project may conflict with BCAQMD air quality planning efforts and could result in a significant impact on air quality. The Project is proposing a solar PV power generation system located within the Grey Lodge Wildlife Area. It would not increase the number of homes or jobs and would not contribute to emissions once the construction of the upgrades is complete. Additionally, to comply with all applicable BCAQMD rules and regulations, the Proposed Project would also have to adhere to the daily

and annual thresholds for individual pollutants. As demonstrated below, the Proposed Project construction phase would not surpass any of the BCAQMD's significance thresholds. Furthermore, the operation of the Project would create renewable energy over its planned lifetime and decrease the need for energy from fossil fuel–based power plants in the state, which is considered a beneficial impact to statewide air quality. The energy produced by the Project would displace the criteria pollutant emissions which would otherwise be produced by existing business-as-usual power generation resources (including natural gas and coal).

For these reasons the Project would not conflict with the *Northern Sacramento Valley Planning Area Triennial Air Quality Attainment Plan*. There is no impact.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐

Less Than Significant Impact.

Emissions associated with Project construction would be temporary and short-term but have the potential to represent a significant air quality impact. Two basic sources of short-term emissions will be generated through Project construction: operation of the heavy-duty equipment (i.e., excavators, loaders, haul trucks) and the creation of fugitive dust during excavation. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive PM emissions that affect local air quality at various times during construction. Effects would be variable depending on the weather, soil conditions, the amount of activity taking place, and the nature of dust control efforts. The dry climate of the area during the summer months creates a high potential for dust generation.

Construction-generated emissions associated with the Proposed Project were calculated using the California Emissions Estimator Model (CalEEMod), version 2022.1. CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. Project construction-generated air pollutant emissions were calculated using CalEEMod model defaults for Butte County. Appendix A provides more information regarding the construction assumptions, including construction equipment and duration, used in this analysis.

Predicted daily and maximum emissions attributable to Project construction are summarized in Table 4.3-1. Such emissions are short-term and of temporary duration, lasting only as long as Project construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the BCAQMD's thresholds of significance.

Table 3.3-1. Construction-Related Emissions						
Activity	**ROG[1]**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Daily (pounds per day)						
Site Preparation	1.58	15.14	14.11	0.07	3.21	1.84
Grading/Excavation	1.84	17.56	16.85	0.02	3.66	2.13
Building Construction	1.48	11.26	12.25	0.02	0.56	0.47
Maximum Emissions	**1.84**	**17.56**	**16.85**	**0.07**	**3.66**	**2.13**
BCAQMD Daily Significance Threshold	*137*	*137*	-	-	*80*	-
Exceed FRAQMD Daily Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Annual (tons per year)						
Total Construction Period	0.10	0.78	0.87	0.01	0.04	0.03
BCAQMD Annual Significance Threshold	*4.5*	*4.5*	-	-	-	-
Exceed FRAQMD Annual Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod Version 2022.1. Refer to Appendix A for Model Data Outputs.

Notes: ROG = Reactive organic gases. $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter. NO_x and ROG construction emissions may be averaged over the life of a project but may not exceed 4.5 tons per year.

As shown in Table 4.3-1, construction related emissions would not exceed thresholds established by the BCAQMD or result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard for. The impact is less than significant.

Operational emissions impacts are long-term air emissions impacts that are associated with any changes in the permanent use of the Project Site by onsite stationary and offsite mobile sources that substantially increase emissions. The Project proposes a solar energy generation system. Once the system is installed, the Project would not be a greater source of operational emissions beyond current conditions. Therefore, Proposed Project operations would not contribute to on- or offsite emissions. Furthermore, the operation of the Project would create renewable energy over its planned lifetime and decrease the need for energy from fossil fuel–based power plants in the state, which is considered a beneficial impact to statewide air quality. The energy produced by the Project would displace the criteria pollutant emissions which would otherwise be produced by existing business-as-usual power generation resources (including natural gas and coal).

As demonstrated above, the Proposed Project would not exceed the BCAQMD significance thresholds during construction and would not be a source of emissions once construction is completed. Therefore, this impact is less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

Less Than Significant Impact.

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive receptor to the Project Site is a single-family residence located 251 feet from the northeastern boundary of the Project Site.

4.3.2.1 Construction-Generated Air Contaminants

Construction-related activities would result in temporary, short-term Project-generated emissions of diesel particulate matter (DPM), Reactive Organic Gases (ROG), NO_x, CO, and PM_{10} from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing, grading); paving; and other miscellaneous activities. The Butte County portion of the NSVAB is listed as nonattainment for the federal O_3 standards as well as the state O_3, PM_{10}, and $PM_{2.5}$ standards (CARB 2022a).

The health effects associated with O_3 are generally associated with reduced lung function. The Project would not involve construction activities that would result in high levels of O_3 precursor emissions (ROG or NOx) in excess of the BCAQMD thresholds, the Project is not anticipated to substantially contribute to regional O_3 concentrations and the associated health impacts.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. The Project would not involve construction activities that would result in CO emissions in that would pose a health risk to the nearby residences. The exposure from construction would be temporary and due air flow within the area, would not result in a concentrated exposure to CO. Thus, the Project's CO emissions would not contribute to the health effects associated with this pollutant.

PM_{10} and $PM_{2.5}$ contain microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. PM exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the

airways, coughing, or difficulty breathing. For construction activity, DPM is the primary toxic air contaminant of concern. The potential cancer risk from the inhalation of DPM outweighs the potential for all other health impacts (i.e., non-cancer chronic risk, short-term acute risk) and health impacts from other TACs. PM_{10} exhaust is considered a surrogate for DPM as all diesel exhaust is considered to be DPM and PM_{10} contains $PM_{2.5}$ as a subset. As with O_3 and NO_x, the Project would not generate emissions of any PM that would exceed the BCAQMD's thresholds. Accordingly, the Project's PM_{10} and $PM_{2.5}$ emissions are not expected to cause any increase in related regional health effects for these pollutants.

In summary, Project construction would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants.

Operation of the Proposed Project would not result in the development of any substantial sources of air toxics. There would be no stationary sources associated Project operations; nor would the Project attract additional mobile sources that spend long periods queuing and idling at the site. Onsite Project emissions would not result in significant concentrations of pollutants at any sensitive receptors. Therefore, the Project would not be a substantial source of TACs. The Project will not result in a high carcinogenic or non-carcinogenic risk during operation.

This impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Less Than Significant Impact.

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

During construction, the Proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short-term in nature and will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources. Additionally, odors would be localized and generally confined to the construction area. Therefore, construction odors would not adversely affect a substantial number of people to odor emissions.

Land uses commonly considered to be potential sources of obnoxious odorous emissions include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The Proposed Project does not include any uses identified as being associated with odors. The solar field would not emit odors.

4.3.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.4 Biological Resources

At the request of DGS, ECORP Consulting, Inc. conducted a Biological Resources Assessment (BRA) for the Proposed Project. The purpose of the BRA was to collect information on the biological resources present or with the potential to occur in the Project Study Area (hereinafter referred to as BRA Study Area), assess potential biological impacts related to Project activities, and identify potential mitigation measures to inform and support the Project's CEQA documentation for biological resources. The BRA is included as Appendix B of this Initial Study (ECORP 2023a, Appendix B).

The BRA Study Area included a larger area to inform planning and allow for flexibility in Project location. The Project location has since been refined to minimize impacts to biological resources. Figure 2 of Appendix B depicts the BRA Study Area in relation to the Project Area, which is the limits of the proposed Project. A portion of the Project Area is outside of the BRA Study Area; however, the area is a developed road and a small patch of annual grassland and was included in the aquatic resources delineation and plant survey. Therefore, the portion of the Project Area outside of the BRA Study Area is not significantly different than the BRA Study Area.

The following sections are for the Project Area only as depicted on Figure 2 of Appendix B.

4.4.1 Environmental Setting

4.4.1.1 Vegetation Communities and Land Cover Types

The only vegetation communities or land cover types observed within the Project Area include annual grassland and developed areas. These are described in the following sections.

Annual Grassland

Predominant species within the cattle-grazed annual grassland include wild oats (*Avena* spp.), foxtail barley (*Hordeum murinum*), ripgut brome (*Bromus diandrus*), soft brome (*Bromus hordeaceus*), and shamrock clover (*Trifolium dubium*). This vegetation community most resembles the *Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance as characterized by the Manual of California Vegetation (California Native Plant Society [CNPS] 2023b). Semi-natural alliances are strongly dominated by nonnative plants that have become naturalized in the state, do not have state rarity rankings, and are not considered sensitive natural communities.

Developed

An unnamed one-lane gravel surface access road is located within the Project Area. The road is gated and limited to use by authorized personnel only, and was largely devoid of vegetation at the time of the site reconnaissance.

4.4.1.2 Wildlife

Wildlife observed within or near the Project Area during the site reconnaissance includes Canada goose (*Branta canadensis*), great egret (*Ardea alba*), turkey vulture (*Cathartes aura*), black phoebe (*Sayornis nigricans*), red-winged blackbird (*Agelaius phoeniceus*), western meadowlark (*Sturnella neglecta*), and northern mockingbird (*Mimus polyglottos*).

4.4.1.3 Aquatic Resources

Based on the results of the aquatic resources delineation, no aquatic resources are located within the Project Area (Figure 4.4-1 and Appendix B). Evaluation of Species Identified in the Literature Search

Table 4.4-1 (Appendix B) lists all the special-status plant and wildlife species identified in the literature review as potentially occurring within the vicinity of the Project Area, including the listing status for each species, a brief habitat description, and an evaluation on the potential for each species to occur within the Project Area. Following the table is a summary of the special-status species evaluation.

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description[1]**	**Survey Period**	**Potential to Occur Onsite**
	ESA	**CESA**	**Other**			
Plants						
Bent-flowered fiddleneck (*Amsinckia lunaris*)	–	–	1B.2	Cismontane woodland, coastal bluff scrub, and valley and foothill grasslands (10'–1,640').	March–June	Low potential to occur. The grassland within the Study Area may provide marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Ferris' milk-vetch *(Astragalus tener* var. *ferrisiae)*	–	–	1B.1	Vernally mesic meadows and seeps and in sub-alkaline flats within valley and foothill grasslands (7'–246').	April–May	Low potential to occur. The aquatic features and grassland within the Study Area may provide suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Heartscale *(Atriplex cordulata* var. *cordulata)*	–	–	1B.2	Alkaline or saline valley and foothill grasslands, meadows and seeps, and chenopod scrub communities (0'–1,837').	April–October	Low potential to occur. The aquatic features and grassland within the Study Area may provide suitable habitat. However, this species was not observed during the 2023 special-status plant survey.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Lesser saltscale *(Atriplex minuscula)*	–	–	1B.1	Alkaline, sandy soils in chenopod scrub, playas, and valley and foothill grassland (49'–656').	May–October	Low potential to occur. The grassland within the Study Area may provide suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Subtle orache (*Atriplex subtilis*)	–	–	1B.2	Alkaline valley and foothill grasslands (131'–328').	June–September	Low potential to occur. The grassland within the Study Area may provide suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Mexican mosquito fern *(Azolla microphylla)*	–	–	4.2	Marshes and swamps, ponds or slow-moving bodies of water (98'–328').	August	Absent. No suitable habitat within Study Area.
Watershield *(Brasenia schreberi)*	–	–	2B.3	Freshwater marshes and swamps (98'–7,218').	June–September	Absent. No suitable habitat within Study Area.
Pink creamsacs *(Castilleja rubicundula* var. *rubicundula)*	–	–	1B.2	Serpentinite substrates in chaparral openings, cismontane woodland, meadows and seeps, and valley and foothill grassland (66'–2,986').	April–June	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Pappose tarplant (*Centromadia parryi* ssp. *parryi*)	–	–	1B.2	Often on alkaline soils within chaparral, coastal prairie, meadows and seeps, coastal salt marshes and swamps, vernally mesic valley and foothill grassland (0'–1,378').	May–November	Low potential to occur. The aquatic features and grassland within the Study Area may provide suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Parry's rough tarplant *(Centromadia parryi* ssp. *rudis)*	–	–	4.2	Alkaline, vernally mesic seeps in valley and foothill grassland and vernal pools, sometimes found on roadsides (0'–328').	May–October	Low potential to occur. The aquatic features and grassland within the Study Area may provide suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Red-stemmed cryptantha (*Cryptantha rostellata*)	–	–	4.2	Often gravelly, volcanic openings and often roadsides within cismontane woodland and valley and foothill grasslands (131'–2,625').	April–June	Low potential to occur. The grassland within the Study Area may provide marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Peruvian dodder (*Cuscuta obtusiflora* var. *glandulosa*)	–	–	2B.2	Freshwater marshes and swamps (49'–919').	July–October	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Recurved larkspur *(Delphinium recurvatum)*	–	–	1B.2	Chenopod scrub, cismontane woodland, and valley and foothill grasslands (10'–2,592').	March–June	Low potential to occur. The grassland within the Study Area may provide suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Water star-grass (*Heteranthera dubia*)	–	–	2B.2	Alkaline (pH of 7 of higher), still or slow-moving, and usually slightly eutrophic waters of marshes and swamps (98'–4,905').	July–October	Absent. No suitable habitat within Study Area.
Woolly rose-mallow *(Hibiscus lasiocarpos* var. *occidentalis)*	–	–	1B.2	Marshes and freshwater swamps. Often in riprap on sides of levees (0'–394').	June–September	Absent. No suitable habitat within Study Area.
Ahart's dwarf rush *(Juncus leiospermus* var. *ahartii)*	–	–	1B.2	Mesic areas in valley and foothill grassland. Species has an affinity for slight disturbance such as farmed fields (USFWS 2005) (98'–751').	March–May	Low potential to occur. Aquatic features and other mesic areas of the grassland within the Study Area may provide suitable habitat. However, this species was not observed during the 2023 special-status plant survey.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Colusa layia *(Layia septentrionalis)*	–	–	1B.2	Sandy or serpentinite soils in chaparral, cismontane woodland, and valley and foothill grasslands (328'–3,593').	April–May	Low potential to occur. The grassland within the Study Area may provide marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Woolly meadowfoam *(Limnanthes floccosa* ssp. *floccosa)*	–	–	4.2	Vernally mesic chaparral, cismontane woodland, valley and foothill grassland, and vernal pools (197'–4,380').	March–May	Low potential to occur. Aquatic features and other mesic areas of the grassland within the Study Area may provide suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Veiny monardella *(Monardella venosa)*	–	–	1B.1	Heavy clay soils in cismontane woodland and valley and foothill grasslands (197'–1,345').	May–July	Low potential to occur. The grassland within the Study Area may provide marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Baker's navarretia *(Navarretia leucocephala* ssp. *bakeri)*	–	–	1B.1	Vernal pools and mesic areas within cismontane woodlands, lower montane coniferous forests, meadows and seeps, and valley and foothill grasslands (16'–5,709').	April–July	Low potential to occur. Aquatic features and other mesic areas of the grassland within the Study Area may provide marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Adobe navarretia *(Navarretia nigelliformis* ssp. *nigelliformis)*	–	–	4.2	Clay and sometimes serpentinite soils in vernally mesic valley and foothill grasslands and sometimes in vernal pools (328'–3,281).	April–June	Low potential to occur. Aquatic features and other mesic areas of the grassland within the Study Area may provide marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Wine-colored tufa moss *(Plagiobryoides vinosula)*	–	–	4.2	Usually in granitic rock or granitic soil along seeps and streams, sometimes in clay (98'–5,692').	Any season	Low potential to occur. Soils within the Study Area may provide marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Hartweg's golden sunburst *(Pseudobahia bahiifolia)*	FE	CE	1B.1	Clay, often acidic soils in cismontane woodland, valley and foothill grasslands (49'–492').	March–April	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
California alkali grass (*Puccinellia simplex*)	–	–	1B.2	Alkaline, vernally mesic areas in sinks, flats and lake margins in chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools (7'–3,051').	March–May	Present. This species was mapped in a seasonal wetland swale within the Study Area during the 2023 special-status plant survey.
Sanford's arrowhead *(Sagittaria sanfordii)*	–	–	1B.2	Shallow marshes and freshwater swamps (0'–2,133').	May–October	Absent. No suitable habitat within Study Area.
Wright's trichocoronis *(Trichocoronis wrightii* var. *wrightii)*	–	–	2B.1	Alkaline soils in meadows and seeps, marshes and swamps, riparian forest, and vernal pools (16'–1,427').	May–September	Low potential to occur. Aquatic features and other mesic areas of the grassland within the Study Area may provide marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Greene's tuctoria *(Tuctoria greenei)*	FE	CR	1B.1	Vernal pools (98'–3,510').	May–July	Low potential to occur. Aquatic features within the Study Area may provide marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey**.**
Brazilian watermeal *(Wolffia brasiliensis)*	–	–	2B.3	Assorted shallow freshwater marshes and swamps (66'–328').	April–December	Absent. No suitable habitat within Study Area.
Invertebrates						

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	–	–	Vernal pools/wetlands.	November-April	Potential to occur. The seasonal wetlands and swales within the Study Area may provide suitable habitat for this species.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	–	–	Vernal pools/wetlands.	November - April	Low potential to occur. The seasonal wetlands and swales within the Study Area may provide marginally suitable habitat for this species.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	–	–	Elderberry shrubs (host plant for this species).	Any season	Absent. No suitable habitat within Study Area.
Monarch – California overwintering population (*Danaus plexippus plexippus* pop. 1)	FC	–	–	Adult monarchs west of the Rocky Mountains typically overwinter in sheltered wooded groves of Monterey pine, Monterey cypress, and gum eucalyptus along coastal California, then disperse in spring throughout California, Nevada, Arizona, and parts of Oregon and Washington. Adults require milkweed and additional nectar sources during the breeding season. Larval caterpillars feed exclusively on milkweed.	Any season	Absent. No suitable habitat within the Study Area.
Fish						

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Green sturgeon (*Acipenser medirostris*)	FT	–	SSC	Anadromous; undammed cold-water rivers having relatively deep pools with large substrates.	N/A	Absent. No suitable habitat within Study Area.
Chinook salmon (Central Valley spring-run ESU (*Oncorhynchus tshawytscha*)	FT	CT	–	Undammed rivers, streams, creeks.	N/A	Absent. No suitable habitat within Study Area.
Chinook salmon (Sacramento River winter-run ESU) *(Oncorhynchus tshawytscha)*	FE	CE	–	Undammed rivers, streams, creeks.	N/A	Absent. No suitable habitat within Study Area.
Steelhead (CA Central Valley Distinct Population Segment [DPS]) (*Oncorhynchus mykiss*)	FT	–	–	Undammed rivers, streams, creeks.	N/A	Absent. No suitable habitat within Study Area.
Delta smelt (*Hypomesus transpacificus*)	FT	CE	–	Sacramento-San Joaquin delta.	N/A	Absent. Outside of the known geographic range for this species and no suitable habitat within Study Area.
Amphibians						
California tiger salamander (Central California DPS) (*Ambystoma californiense*)	FT	CT	SSC	Vernal pools, wetlands (breeding) and adjacent grassland or oak woodland; needs underground refuge (e.g., ground squirrel and/or gopher burrows). Largely terrestrial as adults.	January -May	Absent. Study Area is outside of geographic range for this species.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Foothill yellow-legged frog (North Fork Feather and Upper Feather River Clade) (*Rana boylii*)	FT	CT	SSC	Foothill yellow-legged frogs can be active all year in warmer locations but may become inactive or hibernate in colder climates. At lower elevations, foothill yellow-legged frogs likely spend most of the year in or near streams. Adult frogs, primarily males, will gather along main-stem rivers during spring to breed.	April - October	Absent. Study Area is outside of geographic range for this species.
California red-legged frog (*Rana draytonii*)	FT	–	SSC	Lowlands or foothills at waters with dense shrubby or emergent riparian vegetation. Adults must have aestivation habitat to endure summer dry down.	May 1- November 1	Absent. Study Area is outside of geographic range for this species.
Reptiles						
Northwestern pond turtle (*Actinemys marmorata*)	–	–	SSC	Requires basking sites and upland habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches.	April-September	Potential to occur. This species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989).The ditch may provide marginally suitable aquatic habitat and the rest of the undeveloped Study Area may provide suitable upland habitat.
Giant garter snake (*Thamnophis gigas*)	FT	CT	–	Freshwater ditches, sloughs, and marshes in the Central Valley. Almost extirpated from the southern parts of its range.	April-October	Potential to occur. The ditch may provide suitable aquatic habitat and the grassland may provide suitable upland habitat.

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description[1]**	**Survey Period**	**Potential to Occur Onsite**
	ESA	**CESA**	**Other**			
Birds						
Aleutian cackling goose *(Branta hutchinsii leucopareia)*	De-listed	–	CDFW WL	Overwintering habitat includes mudflats, shallow tidal waters, salt marsh, wet grasslands, freshwater marsh, lakes, reservoirs and rivers (breeds in Alaska on various Aleutian Islands; winters in California's Central Valley, with a small wintering population in southwestern Oregon, and migration staging areas around Humboldt Bay and Crescent City in California and New River bottoms in Oregon.	October-March (wintering)	Potential to occur. The Study Area may provide suitable wintering habitat for this species.
Western grebe (*Aechmophorus occidentalis*)	–	–	BCC	Winters on salt or brackish bays, estuaries, sheltered sea coasts, freshwater lakes, and rivers. Nests on freshwater lakes and marshes with open water bordered by emergent vegetation.	June-August (breeding)	Absent. There is no suitable aquatic habitat in the Study Area.
Long-billed curlew (*Numenius americanus*)	–	–	BCC	Breeds east of the Cascades in Washington, Oregon, northeastern California (Siskiyou, Modoc, Lassen counties), east-central California (Inyo County), through Great Basin region into Great Plains. Winters in California, Texas, and Louisiana. Wintering habitat includes tidal mudflats and estuaries, wet pastures, sandy beaches, salt marsh, managed wetlands, evaporation ponds, sewage ponds, and grasslands.	September-March (wintering)	Potential to occur. The Study Area may provide suitable wintering habitat for this species.

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description[1]**	**Survey Period**	**Potential to Occur Onsite**
	ESA	**CESA**	**Other**			
Short-billed dowitcher *(Limnodromus griseus)*	–	–	BCC	Nests in Canada, southern Alaska; winters in coastal California south to South America; wintering habitat includes coastal mudflats and brackish lagoons	Wintering/ migrant period: late-August-May	Absent. No suitable habitat within Study Area.
Osprey *(Pandion haliaetus)*	–	–	CDFW WL	Nesting habitat requires close proximity to accessible fish, open nest site free of mammalian predators, and extended ice-free season. The nest in large trees, snags, cliffs, transmission/communication towers, artificial nest platforms, channel markers/buoys.	April-September	Absent. No suitable habitat within Study Area.
Golden eagle (*Aquila chrysaetos*)	–	–	BCC, CFP	Nesting habitat includes mountainous canyon land, rimrock terrain of open desert and grasslands, riparian, oak woodland/ savannah, and chaparral. Nesting occurs on cliff ledges, river banks, trees, and human-made structures (e.g., windmills, platforms, and transmission towers). Breeding occurs throughout California, except the immediate coast, Central Valley floor, Salton Sea region, and the Colorado River region, where they can be found during winter.	Nesting February-August	Potential to occur. This species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989) and the Study Area may provide suitable foraging habitat for this species.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Bald eagle (*Haliaeetus leucocephalus*)	De-listed	CE	CFP, BCC	Typically nests in forested areas near large bodies of water in the northern half of California; nest in trees and rarely on cliffs; wintering habitat includes forest and woodland communities near water bodies (e.g., rivers, lakes), wetlands, flooded agricultural fields, open grasslands	Nesting February – September	Potential to occur. This species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989) and the Study Area may provide suitable foraging habitat for this species.
Northern harrier (*Circus hudsonius*)	–	–	SSC	Nests on the ground in open wetlands, marshy meadows, wet/lightly grazed pastures, (rarely) freshwater/brackish marshes, tundra, grasslands, prairies, croplands, desert, shrub-steppe, and (rarely) riparian woodland communities.	April-September	Potential to occur. This species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989) and the Study Area may provide suitable nesting and foraging habitat for this species.
Swainson's hawk (*Buteo swainsoni*)	–	CT	BCC	Nesting occurs in trees in agricultural, riparian, oak woodland, scrub, and urban landscapes. Forages over grassland, agricultural lands, particularly during disking/harvesting, irrigated pastures	March-August	Potential to occur. This species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989) and the Study Area may provide suitable foraging habitat for this species. Potentially suitable nesting habitat was observed near the Study Area but not onsite.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Nuttall's woodpecker *(Dryobates nuttallii)*	–	–	BCC	Resident from northern California south to Baja California. Nests in tree cavities in oak woodlands and riparian woodlands.	April-July	Absent. No suitable habitat within Study Area.
Merlin *(Falco columbarius)*	–	–	CDFW WL	Breeds in Oregon, Washington north into Canada. Winters in southern Canada to South America, including California. Breeds near forest openings, fragmented woodlots, and riparian areas. Wintering habitat includes wide variety, open forests, grasslands, tidal flats, plains, and urban settings.	September-April (wintering in the Central Valley); does not breed in California	Potential to occur. The grassland within the Study Area represents potentially suitable winter foraging habitat.
California black rail (*Laterallus jamaicensis coturniculus*)	–	CT	BCC, CFP	Salt marsh, shallow freshwater marsh, wet meadows, and flooded grassy vegetation. In California, primarily found in coastal and Bay-Delta communities, but also in Sierran foothills (Butte, Yuba, Nevada, Placer, El Dorado counties)	March-September (breeding)	Absent. No suitable habitat within Study Area.
California gull (nesting colony) *(Larus californicus)*	–	–	BCC, CDFW WL	Nesting occurs in the Great Basin, Great Plains, Mono Lake, and south San Francisco Bay. Winters along Pacific Coast from southern British Columbia south to Baja California and Mexico. In California, winters along coast and inland (Central Valley, Salton Sea).	April-August	Absent. There is no suitable breeding habitat onsite.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Greater sandhill crane *(Antigone canadensis tabida)*	–	CT	CFP	Breeds in northeast California, Nevada, Oregon, Washington, and BC, Canada; winters from California to Florida. In winter, they forage in burned grasslands, pastures, and feed on waste grain in a variety of agricultural settings (e.g., corn, wheat, milo, rice, oats, and barley), tilled fields, recently planted fields, alfalfa fields, row crops and burned rice fields.	March-August (breeding); September-March (wintering)	Potential to occur. This species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989) and the Study Area may provide suitable wintering habitat for this species.
Yellow-billed cuckoo (*Coccyzus americanus*)	FT	CE	BCC	Breeds in California, Arizona, Utah, Colorado, and Wyoming. In California, they nest along the upper Sacramento River and the South Fork Kern River from Isabella Reservoir to Canebrake Ecological Reserve. Other known nesting locations include Feather River (Butte, Yuba, Sutter counties), Prado Flood Control Basin (San Bernardino and Riverside counties), Amargosa River and Owens Valley (Inyo County), Santa Clara River (Los Angeles County), Mojave River and Colorado River (San Bernardino County). Nests in riparian woodland. Winters in South America.	June 15-August 15	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Burrowing owl *(Athene cunicularia)*	–	–	BCC, SSC	Nests in burrows or burrow surrogates in open, treeless, areas within grassland, steppe, and desert biomes. Often with other burrowing mammals (e.g., prairie dogs, California ground squirrels). May also use human-made habitat such as agricultural fields, golf courses, cemeteries, roadside, airports, vacant urban lots, and fairgrounds.	February-August	Low potential to occur. No sign of burrowing mammals, burrows, or burrow surrogates were observed in Study Area. However, this species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989) and the Study Area may provide foraging habitat for this species.
Yellow-billed magpie (*Pica nuttalli*)	–	–	BCC	Endemic to California; found in the Central Valley and coast range south of San Francisco Bay and north of Los Angeles County; nesting habitat includes oak savannah with large in large expanses of open ground; also found in urban parklike settings.	April-June	Absent. No suitable nesting habitat within Study Area.
Bank swallow (*Riparia riparia*)	–	CT	–	Nests colonially along coasts, rivers, streams, lakes, reservoirs, and wetlands in vertical banks, cliffs, and bluffs in alluvial, friable soils. May also nest in sand, gravel quarries and road cuts. In California, breeding range includes northern and central California.	May-July	Absent. No suitable nesting habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description[1]**	**Survey Period**	**Potential to Occur Onsite**
	ESA	**CESA**	**Other**			
Oak titmouse (*Baeolophus inornatus*)	–	–	BCC	Nests in tree cavities within dry oak or oak-pine woodland and riparian; where oaks are absent, they nest in juniper woodland, open forests (e.g., gray, Jeffrey, Coulter, pinyon pines and Joshua tree)	March-July	Absent. No suitable nesting habitat within Study Area.
Wrentit (*Chamaea fasciata*)	–	–	BCC	Coastal sage scrub, northern coastal scrub, chaparral, dense understory of riparian woodlands, riparian scrub, coyote brush and blackberry thickets, and dense thickets in suburban parks and gardens.	March-August	Absent. No suitable nesting habitat within Study Area.
Cassin's finch (*Haemorhous cassinii*)	–	–	BCC	Breeds throughout the conifer belts of North America's western interior mountains, from central British Columbia to northern New Mexico and Arizona; mostly between 3,000'-10,000' elevation. Often in mature forests of pine, spruce and aspen; especially open, dry pine forests. Some will breed in open sagebrush shrubland with scattered western junipers.	May-July	Absent. There is no suitable breeding habitat onsite.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Lawrence's goldfinch (*Spinus lawrencei*)	–	–	BCC	Breeds in Sierra Nevada and inner Coast Range foothills surrounding the Central Valley and the southern Coast Range to Santa Barbara County east through southern California to the Mojave Desert and Colorado Desert into the Peninsular Range. Nests in arid and open woodlands with chaparral or other brushy areas, tall annual weed fields, and a water source (e.g., small stream, pond, lake), and to a lesser extent riparian woodland, coastal scrub, evergreen forests, pinyon-juniper woodland, planted conifers, and ranches or rural residences near weedy fields and water.	March-September	Absent. There is no suitable nesting habitat onsite.
Song sparrow "Modesto" (*Melospiza melodia heermanni*)	–	–	BCC, SSC	Resident in central and southwest California, including Central Valley; nests in marsh, scrub habitat	April-June	Absent. No suitable nesting habitat within Study Area.
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)	–	CE	BCC	Resident coastally from Point Conception south into Baja California; coastal salt marsh	year round resident; nests March-August	Absent. There is no suitable breeding habitat onsite.
Bullock's oriole (*Icterus bullockii*)	–	–	BCC	Breeding habitat includes riparian and oak woodlands.	March-July	Absent. No suitable breeding habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
San Clemente spotted towhee (*Pipilo maculatus clementae*)	–	–	BCC, SSC	Resident on Santa Catalina and Santa Rosa islands; extirpated on San Clemente Island, California. Breeds in dense, broadleaf shrubby brush, thickets, and tangles in chaparral, oak woodland, island woodland, and Bishop pine forest.	Year round resident; breeding season is April-July	Absent. This species is found only on the Channel Islands.
Tricolored blackbird (*Agelaius tricolor*)	–	CT	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta counties south to San Bernardino, Riverside and San Diego counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc and Lassen counties. Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck and fava bean fields.	March-August	Potential to occur. This species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989) and the Study Area may provide suitable foraging habitat for this species. Suitable nesting habitat may be present in the vicinity of the Study Area but is not present onsite.
Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*)	–	–	BCC, SSC	Breeds in salt marshes of San Francisco Bay; winters San Francisco south along coast to San Diego County.	March-July	Absent. No suitable habitat and Study Area is outside the known range of this subspecies.

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description[1]**	**Survey Period**	**Potential to Occur Onsite**
	ESA	**CESA**	**Other**			
Mammals						
Western red bat (*Lasiurus blossevillii*)	–	–	SSC	Roosts in foliage of trees or shrubs; day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores) (Western Bat Working Group [WBWG] 2023).	April-September	Potential to occur. There is no potential roosting habitat in the Study Area but this species may forage onsite.
Pallid bat (*Antrozous pallidus*)	–	–	SSC	Crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of redwoods, cavities of oaks, exfoliating pine and oak bark, deciduous trees in riparian areas, and fruit trees in orchards). Also roosts in various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings (WBWG 2023).	April-September	Potential to occur. This species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989).There is no potential roosting habitat in the Study Area but this species may forage onsite.
Marysville California kangaroo rat (*Dipodomys californicus eximius*)	–	–	SSC	Known only from the Sutter Buttes area. Occurs in areas with friable soil in grass-forb stages of chaparral and valley and foothill grassland (CDFW 2023a).	Any season	Absent. Study Area is not located within the Sutter Buttes and does not provide suitable habitat for this species.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
American badger *(Taxidea taxus)*	–	–	SSC	Drier open stages of most shrub, forest, and herbaceous habitats with friable soils.	Any season	Low potential to occur. No dens were observed within the Study Area. However, this species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989), and the cattle-grazed grassland within and adjacent to the Study Area may provide marginally suitable foraging habitat for this species.

[1]Habitat descriptions for plant species are from the CNPS Inventory of Rare and Endangered Plants (CNPS 2023a), unless otherwise stated.
CDFG = California Department of Fisha and Game; DPS = Distinct Population Segment; ESU = Evolutionarily Significant Unit; USFWS = U.S. Fish and Wildlife Service; WBWG = Western Bat Working Group

Status Codes:

ESA	Federal Endangered Species Act
CESA	California Endangered Species Act
FE	FESA listed, Endangered.
FT	FESA listed, Threatened.
BCC	USFWS Bird of Conservation Concern
CR	CESA- or NPPA-listed, Rare.
CT	CESA- or NPPA-listed, Threatened.
CE	CESA or NPPA listed, Endangered.
CFP	California Fish and Game Code Fully Protected Species (§ 3511-birds, § 4700-mammals, §5 050-reptiles/amphibians).
CDFW WL	CDFW Watch List
SSC	CDFW Species of Special Concern (CDFW, updated July 2017).
CNDDB	Species that is tracked by CDFG's CNDDB but does not have any of the above special-status designations otherwise.
1B	CRPR/Rare or Endangered in California and elsewhere.
3	CRPR/Plants About Which More Information is Needed – A Review List.
4	CRPR/Plants of Limited Distribution – A Watch List.
0.1	Threat Rank/Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2	Threat Rank/Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
0.3	Threat Rank/Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)
Delisted	Formally Delisted (delisted species are monitored for 5 years).

Plants

A total of 28 special-status plant species were identified as having potential to occur in the vicinity of the BRA Study Area based on the literature review (See BRA, Appendix B). Of those, 17 species are considered to be absent from the BRA Study Area due to the lack of suitable habitat. The remaining 11 species were determined to have suitable habitat onsite and were included as targets for the 2023 special-status plant survey. One special-status plant species, California alkali grass, was identified within the BRA Study Area during the plant survey but was not observed within the Project Area.

Wildlife

A total of 46 special-status animals including invertebrates, fish, amphibians, reptiles, birds, and mammals were identified as having potential to occur in the vicinity of the BRA Study Area based on the literature review. Of those, two reptiles (Northwestern pond turtle, giant garter snake), 10 birds (Aleutian cackling goose, long-billed curlew, golden eagle, bald eagle, northern harrier, Swainson's hawk, merlin, Greater sandhill crane, burrowing owl, tricolored blackbird), and three mammals (western red bat, pallid bat, American badger) were determined to have potential habitat within the Project Area.

In addition to the above-listed special-status birds, all native or naturally occurring birds and their occupied nests/eggs are protected under the California Fish and Game Code and the Migratory Bird Treaty Act (MBTA). The Study Area supports potential nesting habitat for a variety of native birds protected under these regulations.

4.4.1.4 Critical Habitat and Essential Fish Habitat

There is no designated critical habitat mapped or essential fish habitat within the Project Area (USFWS 2021a and 2021b).

4.4.1.5 Riparian Habitats and Sensitive Natural Communities

Six sensitive natural communities were identified as having potential to occur within the vicinity of the Study Area based on the literature review (CDFW 2021a). These include Northern Hardpan Vernal Pool, Coastal and Valley Freshwater Marsh, Great Valley Cottonwood Riparian Forest, Great Valley Mixed Riparian Forest, Great Valley Oak Riparian Forest, and Great Valley Willow Scrub. Upon further analysis and site reconnaissance, all six sensitive natural communities were determined to be absent from the Study Area.

Based on the site reconnaissance, no sensitive natural communities or riparian habitats are located within the Project Area.

4.4.1.6 Wildlife Movement/Corridors and Nursery Sites

The Project Area does not fall within an Essential Habitat Connectivity area mapped by the CDFW and is not identified as a critical and non-critical winter and summer range, fall holding areas, fawning grounds, or migration corridors for mule deer (*Odocoileus hemionus*) (CDFW 2021b). Therefore, the Project Area is

not expected to support critical wildlife movement corridors or potential nursery sites. However, a variety of common bird species were observed within or near the Project Area during the site reconnaissance and other wildlife species also likely move through the Project Area. The Gray Lodge Wildlife Area Management Plan (California Department of Fish and Game [CDFG] 1989) lists species that are known to occur within the wildlife area, and it is likely that a subset of those species move through the Project Area.

For the purposes of this analysis, nursery sites include but are not limited to concentrations of nest or den sites such as heron rookeries or bat maternity roosts. This data is available through CDFW's Biogeographic Information and Observation System database or as occurrence records in the CNDDB and is supplemented with the results of the site reconnaissance. No nursery sites have been documented within the Study Area (CDFW 2021a) and none were observed during the site reconnaissance.

4.4.2 Biological Resources (IV) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

Less Than Significant Impact With Mitigation Incorporated.

No special-status species are known to occur within the Study Area; however, the Study Area includes potential habitat for several special-status species. Potential effects to special-status species are summarized in the following sections.

4.4.3 Special-Status Plants

ECORP biologist Stephanie Castle conducted a special-status plant survey on April 27 and August 2, 2023 in accordance with guidelines promulgated by USFWS, CDFW, and CNPS (Appendix B). The biologist walked meandering transects throughout the Survey Area (which was much larger than the Project Area) during the survey, including all suitable habitat for target species, and identified all plant species to the lowest possible taxonomic level required to assess rarity. One special-status plant species, California alkali grass, was observed during the survey (Appendix B, Attachment C). California alkali grass is not listed pursuant to the federal or California Endangered Species Acts, but is designated as a California Rare Plant Rank 1B.2 species (CNPS 2023a). The population is located in a seasonal wetland swale in the southern portion of the Survey Area, and outside of the Project Area. The population consists of approximately 50 individuals. No other occurrences of California alkali grass and no other special-status plant species were observed during the survey. The Project proposes to avoid the known occurrence of California alkali grass and all seasonal wetlands and seasonal wetland swales, which provide suitable habitat for this species.

Implementation of mitigation measures BIO-1 through BIO-4, and BIO-5 described in Section 4.4.7 would avoid and/or minimize potential effects on special-status plants. With implementation of these measures, the Project is not expected to significantly impact special-status plants.

4.4.4 Special-Status Reptiles

There is potential for two special-status reptiles, giant garter snake and northwestern pond turtle, to occur in the Project Area. Giant garter snake is federally and State-listed, and northwestern pond turtle is proposed for listing under the federal ESA and is a CDFW Species of Special Concern (SSC).Potential impacts are described for each species in the following sections.

4.4.4.1 Northwestern Pond Turtle

A small amount of potential upland habitat within the footprint of the solar arrays would be permanently removed or altered, and turtles may be directly impacted by construction or temporarily displaced from upland habitats during construction. There is an abundant amount of aquatic and upland habitat near the Project Area that is managed for wildlife habitat. Therefore, removal or alteration of a small amount of upland habitat on the edge of the wildlife area and potential temporary displacement of turtles during construction is not expected to significantly impact the species.

Implementation of recommendations BIO-1 through BIO-4 and BIO-6 described in Section 4.4.7 would avoid and/or minimize potential effects on northwestern pond turtles. These include a preconstruction northwestern pond turtle survey, avoidance measures if necessary, worker awareness environmental training, and measures to avoid offsite impacts. With implementation of these measures, the Project is not expected to significantly impact northwestern pond turtle.

4.4.4.2 Giant Garter Snake

With implementation of recommendations described in Section 4.4.7, no direct impacts to giant garter snake are expected. However, a small amount of potential upland habitat would be impacted as detailed below.

Giant garter snake may utilize aquatic resources (i.e., ditches and rice fields) adjacent to the Project Area and upland habitats within 200 feet of potential aquatic resources. While it is possible, it is not expected that giant garter snakes would utilize upland habitats further than 200 feet from aquatic habitat. Therefore, for this BRA, habitats further than 200 feet from potential aquatic habitat are not considered to be habitat for giant garter snake. Permanent impacts to potential upland habitat would occur within the location of the solar array, which is within 200 feet of the offsite ditch and rice fields located north of West Liberty Avenue (Figure 1, Appendix B). Temporary impacts to potential upland habitat would occur within the trenching location, which is located within 200 feet of the ditch directly to the east of the Project Area (Figure 1). There is an abundant amount of aquatic and upland habitat adjacent to the Project Area that is managed for wildlife habitat. Therefore, impacts to a small amount of upland habitat on the edge of the wildlife management area are not expected to affect individuals or the persistence of populations.

Implementation of recommendations BIO-1 through BIO-4, and BIO-7 through BIO-11 described in Section 4.4.7 would avoid and/or minimize potential effects to giant garter snake. These include a preconstruction wildlife survey, exclusion fencing, worker awareness environmental training, and measures to avoid offsite impacts. With implementation of these measures, the Project is not expected to significantly impact giant garter snake.

4.4.5 Special-Status and Migratory Bird Treaty Act-Protected Birds

There is potential foraging/wintering habitat for four State-listed bird species (bald eagle, Swainson's hawk, greater sandhill crane, and tricolored blackbird) within the Project Area.

There is potential nesting and foraging habitat for two non-listed special-status bird species (northern harrier and burrowing owl) within the Study Area and potential foraging/wintering habitat for two other non-listed special-status bird species (Aleutian cackling goose, long-billed curlew, golden eagle, merlin). Additionally, a variety of other birds that are protected under the MBTA and the California Fish and Game Code may nest within or adjacent to the Study Area.

The Project would permanently remove or alter a minimal amount of potential habitat for these species, and birds may be directly impacted by construction or temporarily displaced from the vicinity of the Study Area during construction. There is an abundant amount of habitat adjacent to the Project Area that is managed for wildlife habitat. Therefore, removal or alteration of a small amount of habitat on the edge of the wildlife area and temporary displacement of foraging birds during construction is not expected to adversely impact these species. Due to the small footprint of the solar arrays and the short duration of the Project, disturbance to birds during construction and mortality of birds due to collisions is not expected.

Implementation of recommendations BIO-4 and BIO-12 described in Section 4.4.7 would avoid or minimize potential effects to special-status birds and other protected birds. These include a preconstruction nesting-bird survey, avoidance measures if necessary, worker awareness environmental training, and measures to avoid offsite impacts. With implementation of these measures, the Project is not expected to significantly impact special-status and MBTA-protected birds.

4.4.6 Special-Status Mammals

No federally or State-listed mammals have potential to occur in the Study Area. However, there is potential or low potential for three CDFW SSC (western red bat, pallid bat, and American badger) to forage within the Study Area. No impacts to bats are expected.

A small amount of potential foraging habitat for American badger within the footprint of the solar arrays would be permanently removed or altered, and in the unlikely event that American badgers occur near the Project Area during construction they may be temporarily displaced. There is an abundant amount of adjacent potential habitat for American badger to utilize within the Gray Lodge Wildlife Area. Therefore, removal or alteration of a small amount of foraging habitat and temporary displacement of American badgers from the small Project footprint during construction is not expected to significantly impact this species.

Implementation of recommendations BIO-4 and BIO-13 described in Section 4.4.7 would avoid and/or minimize potential effects to American badger. These include a preconstruction badger survey, avoidance measures if necessary, worker awareness environmental training, and measures to avoid offsite impacts. With implementation of these measures, the Project is not expected to significantly impact American badger.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	☒

No Impact.

No riparian habitat or sensitive natural communities are located within the Study Area. Therefore, the Project would not impacts those resources.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒

No Impact.

Based on the aquatic resources delineation and the current Project limits, the Project would have no impact on aquatic resources. There are aquatic resources which may be considered Waters of the U.S. and/or State adjacent to the Project Area. The Project is not proposing impacts to aquatic resources. Implementation of recommendations BIO-1 through BIO-4, and BIO-14 described below would avoid or minimize for potential effects to Waters of the U.S. and State.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒

No Impact.

Project construction is likely to temporarily disturb and displace most wildlife from the Project Area. Some wildlife such as birds or nocturnal species are likely to continue to use the habitats opportunistically for the duration of construction. Once construction is complete, wildlife movements are expected to resume but will likely be more limited through the developed areas of the Project Area. The Project is not expected to substantially interfere with wildlife movement.

There are no documented nursery sites and no nursey sites were observed within the Project Area during the site reconnaissance. Therefore, the Project is not expected to impact wildlife nursery sites.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

No Impact.

The Project is within the Gray Lodge Wildlife Area on land owned by CDFW. The only known local policies relevant to the Project are outlined in the Gray Lodge Wildlife Area Management Plan (CDFG 1989). The Project is not expected to conflict with goals and objectives outlined within the Plan.

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

No Impact.

The Study Area is not covered by any local, regional, or State conservation plan. Therefore, the Project would not conflict with a local, regional, or State conservation plan.

4.4.7 Mitigation Measures

Following are the minimization and mitigation measures to further reduce or eliminate Project-associated impacts to special-status wildlife species. These proposed measures may be amended or superseded by the Project-specific permits issued by the regulatory agencies.

BIO-1: **Project Impact Area.** The Project impact limits shall be clearly demarcated prior to construction and all workers shall be made aware of the impact limits and avoided areas, including aquatic resources and California alkali grass. If orange construction fencing is to be used, it shall be placed such that there is a one-foot gap between the ground and the

bottom of the fencing to prevent snakes and other ground-dwelling animals from being caught in the fencing. No work shall occur outside of the Project impact limits. All vehicles and equipment shall be restricted to the Project impact limits and/or existing designated access roads and staging areas. Project-related vehicles shall observe a speed limit of 15 miles per hour in construction areas and on access roads where it is safe and feasible to do so, except on county roads and State and federal highways. Extra caution shall be used on cool days when giant garter snakes may be basking on roads.

Timing/Implementation: *Prior to construction*

Monitoring/Enforcement: *Developer/Project Biologist*

BIO-2: **Erosion Control.** Erosion control measures shall be placed between avoided aquatic resources and the outer edge of the impact limits prior to commencement of construction activities and shall be maintained until construction is completed and soils have been stabilized. Plastic monofilament netting or similar material shall not be used for erosion control, because smaller wildlife may become entangled or trapped in it. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine, or other similar fibers or tackified hydroseeding compounds.

Timing/Implementation: *Prior to construction*

Monitoring/Enforcement: *Developer*

BIO-3: **Fueling Areas.** Any fueling in the Study Area shall use appropriate secondary containment techniques to prevent spills and shall occur at least 150 feet from potential aquatic resources.

Timing/Implementation: *During construction*

Monitoring/Enforcement: *Developer*

BIO-4: **Mandatory Worker Environmental Awareness Training.** A qualified biologist shall conduct mandatory worker environmental awareness training for all contractors, work crews, and any onsite personnel to aid workers in recognizing special-status species and sensitive biological resources that may occur onsite. The program shall include identification of the special-status species and their habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction, environmentally sensitive areas (including aquatic resources and California alkali grass), and measures required to reduce impacts to biological resources. The Project shall retain a qualified biologist on an as-needed basis to assist with potential biological issues that may arise during construction (i.e., wildlife relocation).

Timing/Implementation: *Prior to construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-5: **California Alkali Grass Avoidance.** Establish and clearly demarcate avoidance zones for California alkali grass prior to construction and designate as an environmentally sensitive area. Avoidance zones shall include the extent of California alkali grass plus a 25-foot buffer, and shall be maintained until the completion of construction. A qualified biologist or biological monitor shall be present if work must occur within the avoidance buffer to ensure California alkali grass is not impacted by the work.

Timing/Implementation: *Prior to and during construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-6: **Preconstruction Survey for Northwestern Pond Turtle.** A qualified biologist shall conduct a pre-construction northwestern pond turtle survey in the Project Area (including impacts areas, access roads, and staging areas) within 48 hours prior to construction activities. Any northwestern pond turtles discovered in the Project Area immediately prior to or during Project activities shall be kept out of harm's way and allowed to move out of the work area of their own volition. If this is not feasible, they shall be captured by a qualified biologist and relocated out of harm's way to the nearest suitable habitat at least 100 feet from the Project work area where they were found.

Timing/Implementation: *Prior to construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-7: **Giant Garter Snake Habitat.** Avoid construction activities within 200 feet from the banks of giant garter snake aquatic habitat, where feasible. Avoided giant garter snake habitat within or adjacent to the Project shall be designated as environmentally sensitive areas and avoided by all construction personnel. Confine clearing to the minimum area necessary to facilitate construction activities. Confine staging and movement of heavy equipment outside of work areas to existing roadways or staging areas to minimize habitat disturbance.

Timing/Implementation: *Prior to and during construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-8: **Giant Garter Snake.** All construction activity within 200 feet of giant garter snake aquatic habitat shall be conducted during the giant garter snake's active period (between May 1 and October 1). During this timeframe, potential for injury and mortality are lessened because snakes are expected to actively move and avoid danger. Giant garter snakes are more vulnerable to danger during their inactive period because they are occupying underground burrows or crevices and are more susceptible to direct impacts, especially during excavation.

Timing/Implementation: *During construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-9: **Preconstruction Giant Garter Snake Survey.** Within 24-hours prior to construction activities, a qualified biologist shall survey the Project Area (including impact areas, access

roads, and staging areas) for giant garter snakes. Surveys shall be repeated if a lapse in construction activity of two weeks or greater has occurred.

Timing/Implementation: *Prior to construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-10: **Giant Garter Snake Exclusion Fencing.** Exclusion fencing shall be installed along the edge of construction areas that are within 200 feet of aquatic habitat and maintain fencing for the duration of construction. The exclusion fencing shall be installed during the active period for giant garter snakes (May 1 to October 1). The exclusion fencing shall consist of three-foot-tall silt fencing buried four to six inches below ground level. Fencing requirements shall be included in the construction specifications. A qualified biological monitor shall be onsite during exclusion fence installation and initial clearing and grubbing activities. Prior to construction activities each morning, exclusion fencing shall be inspected to ensure it is functional by a biological monitor or by construction personnel that have been trained by a qualified biologist. If any giant garter snakes are observed in the construction area during this inspection or at any other time during construction, construction personnel shall contact a qualified biologist and all Project activities shall cease until the snake has moved out of the Project Area of its own volition or has been relocated by a permitted biologist. Giant garter snake sightings and incidental take shall be reported to the USFWS immediately by telephone at (916) 414-6600. If the installation of exclusion fencing is not feasible, a qualified biological monitor shall be present during all construction activities within 200 feet of aquatic habitat.

Timing/Implementation: *Prior to construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-11: **After Construction Restoration.** After completion of construction activities, remove any construction debris and, where feasible, restore disturbed areas to pre-Project conditions. Restoration methods shall be approved by Gray Lodge Wildlife Area staff and may include reseeding of upland vegetation in disturbed areas.

Timing/Implementation: *After construction*

Monitoring/Enforcement: *Developer*

BIO-12: **Preconstruction Nesting Bird Survey.** If construction is to occur during the nesting season (generally February 1 - August 31), conduct a pre-construction nesting bird survey of all suitable nesting habitat within 14 days prior to construction. The survey shall be conducted within a 500-foot radius of Project work areas for raptors and within a 100-foot radius for other nesting birds. If any active nests are observed, these nests shall be designated an environmentally sensitive area and protected by an avoidance buffer established in coordination with CDFW until the breeding season has ended or until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival.

Timing/Implementation: *Prior to construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-13: **Preconstruction American Badger Survey.** A qualified biologist shall conduct a pre-construction American badger survey in the Project Area (including impacts areas, access roads, and staging areas) within 48 hours prior to construction activities. If any American badgers are discovered in or near the Project Area immediately prior to or during Project activities, the qualified biologist shall have authority to halt Project activity that may harm badgers, and badgers shall be allowed to move out of the work area of their own volition. If an active badger den is detected within or near the work area, it shall be designated an environmentally sensitive area and protected by an avoidance buffer established in coordination with CDFW. The buffer shall be maintained until a qualified biologist determines the den is no longer active. Dens that are determined to be inactive by the qualified biologist shall be collapsed by hand to prevent occupation of the burrow between the time of the survey and construction activities.

Timing/Implementation: *Prior to construction*

Monitoring/Enforcement: *Developer/Project Biologists*

BIO-14: **Aquatic Resource Buffer.** Ground disturbance shall not occur within an avoidance buffer maintained from the top of the bank or furthest outside edge of aquatic resources, whichever is more protective. The avoidance buffer shall include at least a distance of 50 feet from the top of the bank or furthest outside edge of aquatic resources, except in the proposed trenching locations where the avoidance buffer shall include a 10-foot area from the top of the bank or furthest outside edge of aquatic resources.

Timing/Implementation: *Prior to and during construction*

Monitoring/Enforcement: *Developer*

4.5 Cultural Resources

ForeFront Power, LLC retained ECORP Consulting, Inc. in 2023 to conduct an archaeological resources inventory for the Gray Lodge Wildlife Area Solar Project in Butte County, California. A survey of the Project Area was required to identify potentially eligible archaeological resources (i.e., archaeological sites and historic buildings, structures, and objects) that could be affected by the Project.

Sections 6253, 6254, and 6254.10 of the California Code authorize state agencies to exclude archaeological site information from public disclosure under the Public Records Act. In addition, the California Public Records Act (Government Code Section 6250 et seq.) and California's open meeting laws (The Brown Act, Government Code Section 54950 et seq.) protect the confidentiality of Native American cultural place information. Because the disclosure of information about the location of cultural resources is prohibited by the Archaeological Resources Protection Act of 1979 (16 U.S. Code 552 [USC] 470HH) and Section 307103 of the National Historic Preservation Act (NHPA), it is exempted from disclosure under Exemption 3 of the federal Freedom of Information Act (5 USC 552)] Likewise, the Information Centers of the CHRIS maintained by the California Office of Historic Preservation prohibit public dissemination of

records search information. In compliance with these requirements, the results of this cultural resource investigation were prepared as a confidential document, which is not intended for public distribution in either paper or electronic format. As such, the Cultural Resources Inventory Report is not included in this IS/MND.

4.5.1 Environmental Setting

The Project Area is within the Gray Lodge Wildlife Area and is situated in the northern Sacramento Valley, within the greater Central Valley. The land surrounding the Project Area consists of flat agricultural fields. The Sutter Buttes are located approximately 5 miles to the south of the Project Area, Morrison Creek is located approximately 4 miles to the east, and Butte Creek and Sanborn Slough are located approximately 6 miles to the west. Elevations within the Project Area range from 75 to 76 feet AMSL (ECORP 2023b, Appendix C).

4.5.1.1 Area of Potential Effects

The Area of Potential Effects (APE) consists of the horizontal and vertical limits of a project and includes the area within which significant impacts or adverse effects to Historical Resources or Historic Properties could occur as a result of the project. The APE is defined for projects subject to regulations implementing Section 106 (federal law and regulations). For projects subject to the California Environmental Quality Act (CEQA) review, the term *Project Area* is used rather than *APE*. The terms *Project Area* and *APE* are interchangeable for the purpose of this document (ECORP 2023b, Appendix C).

The horizontal APE consists of all areas where activities associated with a project are proposed and, in the case of this Project, equals the Project Area subject to environmental review under CEQA. This includes areas proposed for solar array installation, vegetation removal, grading, trenching, stockpiling, staging, paving, and other elements in the official Project description. The horizontal APE (Appendix C) represents the survey coverage area, which measures 4.47 acres (ECORP 2023b, Appendix C).

The vertical APE is described as the maximum depth below the surface to which excavations for project foundations and facilities will extend. Therefore, the vertical APE for this Project includes all subsurface areas where archaeological deposits could be affected. The subsurface vertical APE varies across the Project and could extend as deep as 10 feet below the current surface for the electrical conduit and wire installation; therefore, a review of geologic and soils maps was necessary to determine the potential for buried archaeological sites that cannot be seen on the surface (ECORP 2023b, Appendix C).

The vertical APE also is described as the maximum height of structures that could impact the physical integrity and integrity of setting of cultural resources, including districts and traditional cultural properties. For this Project, the above-surface vertical APE is as high as 20 feet above the surface, which is the maximum height of structures associated with the solar array installation (ECORP 2023b, Appendix C).

4.5.2 Cultural Resources Records Search

ECORP requested a records search for the property at the Northeast Information Center (NEIC) of the CHRIS at California State University, Chico on March 10, 2023 (NEIC File #NE23-104; Appendix C). The

purpose of the records search was to determine the extent of previous surveys within a 0.5-mile (800-meter) radius of the Proposed Project Area, and whether previously documented pre-contact or historic archaeological sites, architectural resources, or traditional cultural properties exist within this area. NEIC staff completed and returned the records search to ECORP on March 20, 2023.

In addition to the official records and maps for archaeological sites and surveys in Butte County, multiple (ECORP 2023b, Appendix C).

Historic maps reviewed include 1856 BLM GLO Plat map for Township 17 North, Range 2 East; 1888 USGS Marysville, California topographic quadrangle map (1:125,000 scale); 1891 USGS Marysville, California topographic quadrangle map (1:125,000 scale); 1894 USGS Marysville, California topographic quadrangle map (1:125,000 scale); 1895 USGS Marysville, California topographic quadrangle map (1:125,000 scale); 1912 (photorevised 1947) USGS Pennington, California topographic quadrangle map (1:31,680 scale); 1942 USGS Butte Sink, California topographic quadrangle map (1:62,500 scale); 1954 Historical Topographic Map Collection 1955 - USGS Pennington, California topographic quadrangle map (1:24,000 scale); and 1954 USGS Butte City, California topographic quadrangle map (1:62,000 scale). ECORP reviewed historic aerial photographs taken in 1969, 1973, 1998, 2005, 2009, 2010, 2012, 2014, 2016, 2018, and 2020 for any indications of property usage and built environment (ECORP 2023b, Appendix C).

In addition to the records search, ECORP contacted the California NAHC on March 1, 2023 to request a search of the Sacred Lands File for the Project Area. This search determines whether the California Native American tribes within the Project Area have recorded Sacred Lands, because the Sacred Lands File is populated by members of the Native American community with knowledge about the locations of tribal resources. In requesting a search of the Sacred Lands File, ECORP solicited information from the Native American community regarding TCRs, but the responsibility to formally consult with the Native American community lies exclusively with the federal and local agencies under applicable state and federal laws. The lead agencies do not delegate government-to-government authority to any private entity to conduct tribal consultation (ECORP 2023b, Appendix C).

4.5.2.1 Ethnography

When European-Americans first arrived in the region, Indigenous groups speaking more than 100 different languages and occupying a variety of ecological settings inhabited California. The uniqueness of California's Indigenous groups were classified as belonging to the California culture area and further subdivided California cultural area into four subculture areas: Northwestern, Northeastern, Southern, and Central. When the first European explorers entered the regions between 1772 and 1821, an estimated 100,000 people, about 1/3 of the state's native population, lived in the Central Valley). At least seven distinct languages of Penutian stock were spoken among these populations: Wintu, Nomlaki, Konkow, River Patwin, Nisenan, Miwok, and Yokuts. Common linguistic roots and similar cultural and technological characteristics indicate that these groups shared a long history of interaction. The Central area encompasses the current Project Area and includes the Patwin and Konkow (ECORP 2023b, Appendix C).

The Konkow spoke versions of a Penutian language classified as Maidu. As with most pre-contact populations, tribal boundaries were not static, but rather, were plastic and constantly changing in part as a reflection of resource exploitation patterns or changes in sociopolitical relationships between groups.

4.5.2.2 Regional History

The first Viceroy of New Spain, Antonio de Mendoza, commissioned maritime explorer Hernando de Alarcón to chart the Gulf of California and Colorado River in 1540. Alarcón and his crew became the first Europeans to reach Alta (Upper) California when they set foot on the banks of the Colorado River in what is now Imperial County. In 1542, Juan Rodriguez Cabrillo sailed north up the Pacific coast from Mexico in search of the Strait of Anián. Cabrillo and his crew, the first Europeans to explore the Alta California coast, visited San Diego Bay, Santa Catalina Island, and San Pedro Bay, and may have reached as far north as Point Reyes. In 1579, the English privateer Francis Drake visited Miwok villages north of San Francisco Bay.

Sebastian Vizcaíno, sailing north from Mexico, charted Monterey Bay in 1602. Spanish colonization of Alta California began in 1769 with the Portolá land expedition. Led by Captain Gaspar de Portolá and Father Junipero Serra, the expedition proceeded north from San Diego on foot to the Santa Clara Valley, where an advance party of scouts led by José Ortega became the first Europeans to observe San Francisco Bay. Spain subsequently established a string of 21 Franciscan missions, 4 presidios (forts), and 4 pueblos (towns) in coastal regions of Alta California. In 1808, the explorer Gabriel Moraga led an expedition from San Jose pueblo into the Central Valley. Moraga named the valley's major rivers, including the Sacramento and San Joaquin, but made no attempt to establish missions, presidios, or pueblos in Alta California's interior (ECORP 2023b, Appendix C).

The Republic of Mexico achieved independence from Spain in 1821. A year later, Alta California became a territory of Mexico with its capital at Monterey. In 1827, the American fur trapper Jedediah Smith led a party associated with the Rocky Mountain Fur Company across the Mojave Desert to Southern California, north up the Central Valley, and east into Nevada, demonstrating the possibility of overland travel across the Sierra Nevada mountain range (ECORP 2023b, Appendix C).

During the 1830s the Mexican government confiscated mission lands and expelled Alta California's Franciscan friars. Former mission lands, along with unclaimed lands in the Sacramento and San Joaquin valleys, became granted to retired soldiers and other Mexican citizens. Vast swaths of Alta California's coastal regions and interior valleys became private *ranchos*, or cattle ranches. Three of the region's Spanish pueblos—Los Angeles, San Jose, and Sonoma—survived as Mexican towns. Other settlements developed around presidios at San Francisco, Monterey, Santa Barbara, and San Diego. Many rancho owners maintained residences in town, while hired vaqueros and unpaid Native American laborers worked on ranchos to produce cow hides and tallow (cow fat) prized by foreign merchants (ECORP 2023b, Appendix C).

After 1821, the Mexican government began welcoming non-Hispanic immigrants to Alta California. Hundreds of Americans, British, and other foreigners arrived to establish trading relationships; others became naturalized Mexican citizens and applied for land grants. John Sutter, a German-speaking immigrant from Switzerland, built a fort at the confluence of the Sacramento and American rivers in 1839

and petitioned the Mexican governor of Alta California for a land grant; he received nearly 49,000 acres along the Sacramento River in 1841 (ECORP 2023b, Appendix C).

Following the Mexican-American War of 1846-1848, Mexico ceded Alta California to the United States. Under the Treaty of Guadalupe Hidalgo, Congress agreed to honor the property rights of former Mexican citizens living within the new boundaries of the United States. That meant recognizing Alta California's Mexican land grants. In 1851, Congress passed the California Land Act creating the Board of Land Commissioners to determine the validity of the individual grants, placing the burden of proof on patentees. The Board, with assistance from U.S. courts, confirmed most of California's Mexican land grants in subsequent decades (ECORP 2023b, Appendix C).

In January 1848, one of John Sutter's hired laborers, James Marshall, discovered gold in the flume of a lumber mill at Coloma on the South Fork of the American River. News of Marshall's discovery spread around the world, leading to the California Gold Rush of 1849. Tens of thousands of prospectors arrived in the Sierra Nevada foothills, prompting the creation of hundreds of small mining camps along streambeds. The cities of Marysville, Sacramento, and Stockton sprang up in the Sacramento and San Joaquin valleys as supply centers for the mines; San Francisco became California's largest city and the focal point for Gold Rush economic activity. In 1850, following a year of rapid growth, Congress admitted California as the 31st U.S. state. In the following decades, federal surveyors arrived in California to stake out 36-square-mile townships and 1-square-mile sections on California's unclaimed public lands. At general land offices, buyers paid cash for public lands. After 1862, many filed homestead applications to obtain 40, 80, and 160-acre tracts at low upfront costs in exchange for establishing farms (ECORP 2023b, Appendix C).

4.5.2.3 Butte County

The Mexican governors of Alta California, Manuel Micheltorena and Pio Pico, made 6 lands grants in 1844 and 1845 that covered arable lands located between the Sacramento and Feather rivers north and east of the Sutter Buttes. These included ranchos Arroyo Chico, Farwell, Esquon, Aguas Frias, Llano Seco, and Fernandez. During the California Gold Rush, thousands arrived in the northern Sierra Nevada foothills to mine the Feather River and its tributaries for placer gold, prompting the creation of Bidwell Bar, Oroville, and other mining camps. Butte County became one of California's original 27 counties in 1850; Oroville became its county seat in 1856. John Bidwell, one of the earliest Americans to settle in California, made the initial discovery of gold on the Feather River in 1848. Bidwell made a small fortune as a miner and merchant during the early days of the Gold Rush. In 1849 he acquired the 22,000-acre Arroyo Chico rancho and turned his attention to agriculture. In 1860, Bidwell established the town of Chico on the Arroyo Chico rancho. A decade later he helped to organize the California & Oregon Railroad, which traversed the western flatlands of Butte County to Chico and points farther north. The railroad's arrival led to the creation of Gridley, Biggs, Nelson, Nord, and other small towns and settlements along its tracks. After 1870, grain farming and livestock grazing became important activities in western Butte County. Logging and lumber milling gradually eclipsed mining in the county's eastern foothills and mountains. Turn-of-the-century irrigation projects diversified Butte County's agricultural output to include rice, almonds, fruit, and olives, as well as alfalfa and dairy farming. The State Water Project's Oroville Dam, built

on the Feather River during the 1960s, created Lake Oroville in the southeastern part of Butte County, inundating many of the county's early gold camps (ECORP 2023b, Appendix C).

4.5.3 Gray Lodge Wildlife Area History

In 1953, the California Fish and Game Commission acquired 2,540 acres of poorly drained lands 5 miles southwest of Gridley. Previous owners had attempted commercial farming on the lands, through a few areas of native marshlands remained undisturbed. The Fish and Game Commission dedicated the entire area to the provision of seasonally flooded wetlands for migratory birds; the Commission also preserved 600 acres of riparian woodlands of cottonwood, willow, blackberry, and wild grape (ECORP 2023b, Appendix C).

4.5.3.1 Records Search

The records search consisted of a review of previous research and literature records on file with the Central California Information Center for previously recorded resources, and aerial photographs and maps of the vicinity.

Two previous archaeological resource investigations have been conducted within 0.5 mile of the Project Area, covering approximately 25 percent of the total area surrounding the Project Area within the records search radius (Appendix C). None of the studies overlapped the Project Area. The previous studies were conducted in 2008 and 2011.

The results of the records search indicate portions of the 0.5-mile radius has been previously surveyed for cultural resources; however, these studies did not include the current Project Area. Therefore, ECORP conducted a pedestrian survey of the Project Area under current protocols. The records search determined that there are no previously recorded cultural resources within the Project Area or the 0.5-mile radius.

4.5.3.2 Records

The OHP's Built Environment Resource Directory for Butte County (dated March 3, 2020) did not include any resources within 0.5 mile of the Project Area . The National Register Information System failed to reveal any eligible or listed properties within the Project Area. The nearest National Register properties are located 5 miles east of the Project Area in the City of Gridley, California (ECORP 2023b, Appendix C).

ECORP reviewed resources listed as *California Historical Landmarks* by the OHP on February 27, 2023. The nearest listed landmark is #770: Chinese Temple, which is located in the City of Oroville, California, approximately 21 miles northeast of the Project Area. *Historic Spots in California* mentions that Butte County is one of California's original 27 counties. Early pioneers used the term *Butte* to identify a high place, mountain, or mountain range. In this case, the Sutter Buttes are high hills to the south of the Project Area, in Sutter County (ECORP 2023b, Appendix C).

Historic GLO land patent records from the BLM's patent information database (BLM 2022) revealed the northeastern quarter of Section 7 was patented to Central Pacific Railroad Company on March 5, 1872.

The Caltrans Bridge Local and State Inventories did not list any historic bridges within 0.5 mile of the Project Area (ECORP 2023b, Appendix C).

The *Handbook of North American Indians* lists the nearest Native American villages as *Bauka* and *Bieyem,* both of which are approximately 6.5 miles southeast of Project Area (ECORP 2023b, Appendix C).

4.5.4 Cultural Resources (V) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☒	☐

Less Than Significant Impact.

ECORP surveyed the Project Area for archaeological and architectural history resources on March 30, 2023. Dense grasses and sparse 1-to-2-foot-tall shrubs covered the Project Area. Ground surface visibility was less than 10 percent. A north–south-oriented canal parallels the proposed trench alignment to the east. A north–south-oriented transmission line parallels the proposed trench alignment to the west of the Project Area. A northeast–southwest-oriented dirt road intersects the proposed trench alignment at its intersection with the solar array.

The records search results failed to indicate the presence of previously recorded archaeological or architectural history resources within the Project Area. As a result of the 2023 survey, ECORP recorded one previously unrecorded architectural history resource: GL-01, an earthen canal segment. This resource has not been evaluated using National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) eligibility criteria; therefore, it is not currently known whether this resource is considered a historical resource under CEQA or historic property under NHPA Section 106 (if applicable). If found to be eligible for the NRHP or CRHR, a determination would need to be made about whether the Project would have a significant effect on the qualities that made GL-01 significant. Efforts to avoid, reduce, or mitigate those impacts would be needed if any significant resources will be adversely affected by the Project. Additionally, the Project Area may overlap a larger rural historic landscape (i.e., a historic district) that extends beyond the Project Area to include the entire Gray Lodge Wildlife Area. The National Park Service identifies *conservation (including natural reserves) areas* as a type of rural historic landscape. Such a historic district has not been fully defined or recorded, as its scope far exceeds the Project Area, and the Proposed Project is not likely to have a significant effect on the district (ECORP 2023b, Appendix C).

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐

Less Than Significant Impact With Mitigation Incorporated.

As discussed previously, a records search consisting of a review of previous research and literature and historical aerial photographs and maps of the vicinity was conducted for the Project Site.

The records search results failed to indicate the presence of previously recorded archaeological or architectural history resources within the Project Area. As a result of the 2023 survey, ECORP recorded one previously unrecorded architectural history resource. This resource has not been evaluated using NRHP and CRHR eligibility criteria; therefore, it is not currently known whether this resource is considered a historical resource under CEQA or historic property under NHPA Section 106 (if applicable). If found to be eligible for the NRHP or CRHR, a determination would need to be made about whether the Project would have a significant effect on the qualities that made GL-01 significant. Efforts to avoid, reduce, or mitigate those impacts would be needed if any significant resources will be adversely affected by the Project. Additionally, the Project Area may overlap a larger rural historic landscape (i.e., a historic district) that extends beyond the Project Area to include the entire Gray Lodge Wildlife Area. The National Park Service identifies *conservation (including natural reserves) areas* as a type of rural historic landscape. Such a historic district has not been fully defined or recorded, as its scope far exceeds the Project Area, and the Proposed Project is not likely to have a significant effect on the district (ECORP 2023b, Appendix C).

Due to the presence of alluvium along Morrison Creek (located approximately 4 miles to the east) and Butte Creek and Sanborn Slough (located approximately 6 miles to the west), and given the likelihood of pre-contact archaeological sites located along perennial waterways, there exists a low to moderate potential for buried pre-contact archaeological sites in the Project Area. The nearby sloughs and Morrison Creek would have provided a habitat for resources that Native Americans would have exploited; therefore, the area has a moderate likelihood of containing buried pre-contact cultural resources. However, there is a low potential for intact buried pre-contact archaeological sites in the Project Area due to the disturbances caused by the construction of the canal that borders the Project Area to the east, construction of West Liberty Avenue, and previous extension of Farris Road southward into the Project Area. Additionally, the presence of clay reduces the likelihood of subsurface cultural deposits because clay takes thousands of years to form. Overall, the potential for subsurface cultural deposits is low to moderate throughout the Project Area.

There always remains the potential for ground-disturbing activities to expose previously unrecorded cultural resources. Both CEQA and Section 106 of the NHPA require the lead agency to address any unanticipated cultural resource discoveries during Project construction. Therefore, mitigation measure CUL-1 is provided to reduce potential impacts to a level that is considered less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Less than Significant Impact With Mitigation Incorporated.

As discussed above, there are no known formal or informal cemeteries within the Project Site. Regardless, there is a possibility of the unanticipated and accidental discovery of human remains during ground-disturbing Project-related activities. Therefore, mitigation measure CUL-1 is provided to reduce potential impacts to a level that is considered less than significant.

4.5.5 Mitigation Measures

CUL-1: **Implement Measures to Protect Unanticipated Cultural, Archaeological, and/or Tribal Cultural Resources Discoveries.** The following mitigation measure is intended to address the evaluation and treatment of inadvertent/unanticipated discoveries of potential tribal cultural resources (TCRs), archaeological, or cultural resources during a project's ground disturbing activities.

- If any suspected archaeological or cultural resources are discovered during ground disturbing construction activities, all work shall cease within 100 feet of the find, or an agreed upon distance based on the project area and nature of the find. A professional archaeologist who meets the Secretary of Interior's Standards for Archaeology will make recommendations for further evaluation and treatment, as necessary.
- If any suspected TCRs are discovered during ground disturbing construction activities, all work shall cease within 100 feet of the find, or an agreed upon distance based on the project area and nature of the find. A Tribal Representative from a California Native American tribe that is traditionally and culturally affiliated with a geographic area shall be immediately notified and shall determine if the find is a TCR (PRC §21074). The Tribal Representative will make recommendations for further evaluation and treatment, as necessary.
- When avoidance is infeasible, preservation in place is the preferred option for mitigation of TCRs, or archaeological or cultural resources under CEQA 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 the California Native American Tribe(s) that is traditionally and culturally affiliated with the project area.

- 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, have been satisfied.

Human Remains

- If the find includes human remains, or remains that are potentially human, he or she shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Butte County Coroner (per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the project (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.

Timing/Implementation: *During construction*

Implementation/Responsibility/Verification: *Developer and Department of General Services*

4.6 Energy

4.6.1 Environmental Setting

California relies on a regional power system comprised of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. Natural gas provides California with a majority of its electricity followed by renewables, large hydroelectric and nuclear (California Energy Commission 2022). PG&E provides electricity and natural gas to Butte County. It generates or buys electricity from hydroelectric, nuclear, renewable, natural gas, and coal facilities. PG&E provides natural gas and electricity to most of the northern two-thirds of California, from Bakersfield and Barstow to near the Oregon,

Nevada and Arizona State Line. It provides 5.2 million people with electricity and natural gas across 70,000 square miles. In 2019, PG&E announced that 100 percent of the company's delivered electricity comes from Greenhouse Gas (GHG) emission-free sources, including renewables, nuclear, and hydropower (PG&E 2023).

Potential energy-related impacts associated with this Project include the depletion of nonrenewable resources (e.g., oil, natural gas, coal) and emissions of pollutants during the construction. Since the Proposed Project is a solar PV power generation system, there will be no operational energy uses, and thus will not be discussed in this analysis. Discussion of the impact will focus on the single source of energy that is relevant to the Proposed Project: the equipment-fuel necessary for Project construction.

4.6.1.1 Energy Consumption

Electricity use is measured in Kilowatt-Hours (kWh). Natural gas is measured in therms. Vehicle fuel use is typically measured in gallons (e.g., of gasoline or diesel fuel), although energy use for electric vehicles is measured in kWh. Total automotive fuel consumption in Butte County from 2018 to 2022 is shown in Table 4.6-1. As shown, automotive fuel consumption decreased since 2018.

Table 4.6-1. Automotive Fuel Consumption in Butte County 2018-2022

Year	Total Fuel Consumption (gallons)
2022	118,261,744
2021	118,122,078
2020	106,642,798
2019	121,842,862
2018	126,146,889

Source: California Air Resources Board (CARB) 2023

4.6.2 Energy (VI) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐

Less Than Significant Impact.

Operations of the Proposed Project would not result in the consumption of electricity or natural gas and thus, would not contribute to the County wide usage. Instead, the Project would directly support California's Renewable Portfolio Standard goal of increasing the percentage of electricity procured by renewable sources. The one quantifiable source of energy associated with the Project includes the

equipment fuel necessary for construction. For the purpose of this analysis, Project increases in construction fuel consumption are compared with the countywide fuel consumption in 2022, the most recent full year of data. The amount of total construction-related fuel used was estimated using ratios provided in the Climate Registry's General Reporting Protocol for the Voluntary Reporting Program, Version 2.1 (2016).

Addressing energy impacts requires an agency to make a determination as to what constitutes a significant impact. There are no established thresholds of significance, statewide or locally, for what constitutes a wasteful, inefficient, and unnecessary consumption of energy for a proposed land use. For the purposes of this analysis, the amount of fuel necessary for Project construction is calculated and compared to that consumed in Butte County.

Table 4.6-2. Proposed Project Energy and Fuel Consumption

Energy Type	Annual Energy Consumed	Percentage Increase Countywide
Vehicular/Equipment Fuel Consumption		
Construction Calendar Year One	5,990 gallons	0.005

Source: ECORP 2023c (Appendix D)
Notes: The Project increase construction-related fuel consumption is compared with the countywide construction-related fuel consumption in 2022, the most recent full year of data.

As shown in Table 4.6-2, the Project's gasoline fuel consumption during the first calendar year of construction is estimated to be 5,990 gallons of fuel. This would increase the annual gasoline fuel use in the county by 0.005 and 0.011 percent, respectively, during Project construction. As such, Project construction would have a nominal effect on local and regional energy supplies, especially over the long-term. No unusual Project characteristics would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in the region or the state. Construction contractors would purchase their own gasoline and diesel fuel from local suppliers and would judiciously use fuel supplies to minimize costs due to waste and subsequently maximize profits. Additionally, construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency combined with state regulations limiting engine idling times and requiring recycling of construction debris, would further reduce the amount of transportation fuel demand during Project construction. For these reasons, it is expected that construction fuel consumption associated with the Project would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature.

Once construction is completed the Project would be remotely controlled. No employees would be based at the Project Site. Operations of the Project would not generate any fuel consumption as it would not be contributing to any mobile sources. As such, fuel consumption associated with vehicle trips generated by the Project during operation would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region.

For these reasons, this impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

No Impact.

The purpose of the Proposed Project is the construction of a renewable energy facility. Once in operation, it will decrease the need for energy from fossil fuel–based power plants in the state. The result would be a net increase in electricity resources available to the regional grid, generated from a renewable source. Therefore, the Project would directly support the Renewable Portfolio Standard goal of increasing the percentage of electricity procured from renewable sources.

4.6.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.7 Geology and Soils

4.7.1 Environmental Setting

Rosenthal and Willis (2017) describe the geology of the Sacramento Valley as a large, asymmetric, structural trough (syncline) formed by westward-tilting blocks of plutonic and metamorphic rocks on the eastern side, and highly folded and faulted blocks of metamorphic rocks (Franciscan) on the western side. This basin has been partially filled by a thick sequence (up to 12.4 miles [20 km] thick) of sedimentary rocks and alluvial deposits that range from late Jurassic to Historical in age. During the Pleistocene, erosion of the Sierra Nevada led to the deposition of large alluvial fans at the base of the foothills along the eastern side of the valley. Glacial conditions are generally credited for the deposition of these fans, while subsequent interglacial periods are marked by landscape stability, soil formation, and channel incision. Subsequent depositional cycles during the Holocene progressively buried downstream sections of many older alluvial fans and led to the formation of inset stream terraces and nested alluvial fans along the foothills (Rosenthal and Willis 2017).

4.7.1.1 Site Soils

According to the Web Soil Survey (NRCS 2023), two soil map units, or types, have been mapped within the Study Area (Figure 2-1):

- 127 – Gridley taxadjunct loam, 0 to 2 percent slopes
- 416 – Calcic Haploxerolls, 0 to 1 percent slopes

The 127 - Gridley taxadjunct loam, 0 to 2 percent slopes map unit consists of 85 percent Gridley taxadjunct loam and similar soils, and 15 percent minor components. Gridley taxadjunct loam is described as moderately deep, somewhat poorly drained soils formed in loamy and clayey alluvium over cemented loamy alluvium derived from igneous and metamorphic rock. This map unit includes one minor component with a hydric soil rating (Unnamed, frequently flooded) (NRCS 2021a).

The 416 - Calcic Haploxerolls, 0 to 1 percent slopes map unit consists of 90 percent Calcic Haploxerolls, sandy loam, and similar soils, and 10 percent minor components. Calcic Haploxerolls, sandy loam is described as deep, moderately well-drained soils formed in coarse-loamy alluvium derived from igneous, metamorphic, and sedimentary rock. This map unit does not include any soils rated as hydric (NRCS 2021a).

No soil units derived from serpentinite or other ultramafic parent materials have been reported to occur within the Study Area or its immediate vicinity (NRCS 2023; Horton 2017; Jennings et al. 1977).

4.7.1.2 Regional Seismicity and Fault Zones

In California, special definitions for active faults were devised to implement the Alquist-Priolo Earthquake Fault Zoning Act of 1972, which regulates development and construction in order to avoid the hazard of surface fault rupture. The State Mining and Geology Board established policies and criteria in accordance with the act and defines an active fault as one that has had surface displacement within Holocene time (about the last 11,000 years). A potentially active fault was considered to be any fault that showed evidence of surface displacement during Quaternary time (last 1.6 million years). Because of the large number of potentially active faults in California, the State Geologist adopted additional definitions and criteria in an effort to limit zoning to only those faults with a relatively high potential for surface rupture. Thus, the term *sufficiently active* was defined as a fault for which there was evidence of Holocene surface displacement. This term was used in conjunction with the term *well-defined*, which relates to the ability to locate a Holocene fault as a surface or near-surface feature (California Geological Survey [CGS] 2011).

4.7.1.3 Paleontological Resources

ECORP conducted a query of the University of California Museum of Paleontology (UCMP) catalog records, a review of regional geologic maps from the CGS, a review of local soils data, and a review of existing literature on paleontological resources of Butte County. The purpose of the assessment was to determine the sensitivity of the Project Area, whether known occurrences of paleontological resources are present within or immediately adjacent to the Project Area, and whether implementation of the Project could result in significant impacts to paleontological resources. Paleontological resources include mineralized (i.e., fossilized) or unmineralized bones, teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains.

The results of the search of the UCMP indicated that 144 paleontological specimens were recorded from 29 identified localities and 75 unidentified localities in Butte County. Paleontological resources include fossilized remains of birds, mammals, reptiles, and amphibians (UCMP 2023).

4.7.2 Geology and Soils (VII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☒	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐

a) Less Than Significant Impact.

i) No Impact.

The Proposed Project Site is not located within the Alquist-Priolo Earthquake Zone (CGS 2011). The Project Site is not within a currently established State of California Earthquake Fault Zone for surface fault rupture hazards. No active or potentially active faults are known to pass directly beneath the Site. By CGS definition, an active fault is one with surface displacement within the last 11,000 years. A potentially active fault has demonstrated evidence of surface displacement within the past 1.6 million years. Faults that have not moved in the last 1.6 million years are typically considered inactive. There would be no impact related to fault rupture.

ii) Less Than Significant Impact.

Depending upon the magnitude, proximity to epicenter, and subsurface conditions (e.g., bedrock stability and the type and thickness of underlying soils), ground shaking damage could vary from slight to intensive. According to CGS' Earthquake Shaking Potential for California mapping, the Proposed Project Site is located in an area with a moderate likelihood of experiencing ground shaking (CGS 2023a). According to the CGS Seismic Hazard Zone Map, the Project Site is not subject to significant geologic

hazards such as significant seismic shaking (CGS 2023c). The Proposed Project would have a less than significant impact related to strong ground shaking.

iii) Less Than Significant Impact.

Liquefaction occurs when loose sand and silt saturated with water behaves like a liquid when shaken by an earthquake. Liquefaction can result in the following types of seismic-related ground failure:

- Loss of bearing strength – soils liquefy and lose the ability to support structures,
- Lateral spreading – soils slide down gentle slopes or toward stream banks,
- Flow failures – soils move down steep slopes with large displacement,
- Ground oscillation – surface soils, riding on a buried liquefied layer, are thrown back and forth by shaking,
- Flotation – floating of light buried structures to the surface,
- Settlement – settling of ground surface as soils reconsolidate, and
- Subsidence – compaction of soil and sediment.

Liquefaction potential has been found to be greatest where the groundwater level and loose sands occur within a depth of about 50 feet or less. The Department of Conservation provides mapping for areas susceptible to liquefaction in California. According to this mapping, the Project Site is not located in an area identified for the risk of liquefaction (CGS 2023a). As such, the Proposed Project would result in less than significant impacts with regard to seismic-related ground failure, including liquefaction.

iv) Less Than Significant Impact.

The 1.7-acre Project Site is relatively flat with elevations ranging between 90 to 95 feet AMSL throughout the Site. The Project Site has minimal elevation gain and the area does not have steep hillsides or other formations susceptible to landslides during a seismic event. As such, the potential for landslides would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

Less Than Significant Impact.

As previously discussed in section 4.7.1.1, most of the Project Site's soils have a slight erosion potential. The Proposed Project includes the construction of a new ground-mounted solar system, with construction involving grading, excavation, and soil hauling, which would disturb soils and potentially expose them to wind and water erosion.

Any development involving clearing, grading, or excavation that causes soil disturbance of 1 or more acres, or any project involving less than 1 acre that is part of a larger development plan and includes clearing, grading, or excavation, is subject to National Pollutant Discharge Elimination System (NPDES) State General Permit (Order No. 2009-0009-DWQ) provisions. Any development of this size, including the Project Site, would be required to prepare and comply with an approved Stormwater Pollution Prevention Plan (SWPPP) that provides a schedule for the implementation and maintenance of erosion control measures and a description of the erosion control practices, including appropriate design details and a time schedule. The SWPPP would consider the full range of erosion control Best Management Practices (BMPs), including any additional site-specific and seasonal conditions. Erosion control BMPs include, but are not limited to, the application of straw mulch, hydroseeding, the use of geotextiles, plastic covers, silt fences, and erosion control blankets, as well as construction site entrance and outlet tire washing. The State General Permit also requires that those implementing SWPPPs meet prerequisite qualifications that would demonstrate the skills, knowledge, and experience necessary to implement SWPPPs. The NPDES requirements would significantly reduce the potential for substantial erosion or topsoil loss to occur in association with new development. In addition, the Proposed Project would be required to use BMPs to control runoff from all new development and thus limit erosion.

Since erosion impacts are often dependent on the type of development, intensity of development, and amount of lot coverage of a particular project site, impacts can vary. However, compliance with NPDES and SWPPP requirements would ensure that soil erosion and related impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐

Less Than Significant Impact.

As discussed previously, the Project Site has little potential for landslides. Lateral spreading is a form of horizontal displacement of soil toward an open channel or other *free* face, such as an excavation boundary. Lateral spreading can result from either the slump of low cohesion and unconsolidated material or, more commonly, by liquefaction of either the soil layer or a subsurface layer underlying soil material on a slope, resulting in gravitationally driven movement. One indicator of potential lateral expansion is frost action. Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing (NRCS 2023b). As indicated in Table 4.7-1 above, the Web Soil Survey identifies the Project Site as having soils with no frost action potential. Additionally, as discussed in Item a) iii) above, the Project Site is identified as not being susceptible to liquefaction. As such, the potential for impacts due to lateral spreading would be less than significant.

With the withdrawal of fluids, the pore spaces within the soils decrease, leading to a volumetric reduction. If that reduction is significant enough over an appropriately thick sequence of sediments, regional ground subsidence can occur. This typically only occurs within poorly lithified sediments and not within competent rock.[1] This can occur as a result of high-volume water, oil, or gas extraction operations. No oil, gas, or high-volume water extraction wells are known to be present in the Project vicinity. According to the USGS Areas of Land Subsidence in California webpage, the City, including the Project Site, is located in an area no land subsidence (USGS 2023). As such, the potential for impacts due to subsidence would be less than significant.

Collapse occurs when water is introduced to poorly cemented soils, resulting in the dissolution of the soil cementation and the volumetric collapse of the soil. In most cases, the soils are cemented with weak clay (argillic) sediments or soluble precipitates. This phenomenon generally occurs in granular sediments situated within arid environments. Collapsible soils will settle without any additional applied pressure when sufficient water becomes available to the soil. Water weakens or destroys bonding material between particles that can severely reduce the bearing capacity of the original soil. The collapse potential of the Project Site soil is considered low due to the high clay content of Dospalos clay loam. Additionally, as the Project proposes the installation of a ground-mounted solar array configuration, impacts associated with off-site landslide, lateral spreading, subsidence, liquefaction or collapse is negligible.

Because of the distance from active faults and the nature of the Project, the potential for settlement or collapse at the Project Site is considered unlikely. As such, there is a less than significant impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐

Less Than Significant Impact.

Expansive soils are types of soil that shrink or swell as the moisture content decreases or increases. Structures built on these soils June experience shifting, cracking, and breaking damage as soils shrink and subside or expand. Expansive soils can be determined by a soil's linear extensibility. There is a direct relationship between linear extensibility of a soil and the potential for expansive behavior, with expansive soil generally having a high linear extensibility. Thus, granular soils typically have a low potential to be expansive, whereas clay-rich soils can have a low to high potential to be expansive. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent, moderate if 3 to 6 percent, high if 6 to 9 percent, and very high if greater than 9 percent. If the linear extensibility is greater than 3 percent, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. As

[1] The processes by which loose sediment is hardened to rock are collectively called lithification.

previously As previously discussed in section 4.7.1.1, the majority of Project Site soils exhibit a linear extensibility value of 6.2 percent. Soils with linear extensibility at this range correlate to having a high expansion potential, respectively.

However, due to the nature of the Proposed Project being the installation of a ground-mounted solar array, with no potential for human occupancy, the Project would have a less than significant impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

No Impact.

Due to the nature of the Project being the installation of a ground-mounted solar array, the Proposed Project does not require any wastewater sewer system and would not require the construction of septic tanks or alternative wastewater disposal systems. Thus, there is no impact associated with Project Site soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Less Than Significant Impact With Mitigation Incorporated.

A search of the UCMP failed to indicate the presence of paleontological resources in the Project Area. Although paleontological resources sites were not identified in the Project Area, there is the possibility that unanticipated paleontological resources will be encountered during ground-disturbing Project-related activities. As such, mitigation measure GEO-1 is included to reduce impacts to unknown paleontological resources to a less than significant level.

4.7.3 Mitigation Measures

GEO-1 If paleontological or other geologically sensitive resources are identified during any phase of project development, the construction manager shall cease operation at the site of the discovery and immediately notify the City of Gridley. The City shall retain a qualified paleontologist to provide an evaluation of the find and to prescribe mitigation measures to reduce impacts to a less-than-significant level. In considering any suggested mitigation proposed by the consulting paleontologist, the City shall determine whether avoidance is

necessary and feasible in light of factors such as the nature of the find, project design, costs, land use assumptions, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work June proceed on other parts of the project site while mitigation for paleontological resources is carried out.

4.8 Greenhouse Gas Emissions

4.8.1 Environmental Setting

GHG emissions are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes, and other human activities. This release of gases, such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and chlorofluorocarbons, creates a blanket around the earth that allows light to pass through but traps heat at the surface, preventing its escape into space. While this is a naturally occurring process known as the greenhouse effect, human activities have accelerated the generation of GHGs beyond natural levels. The overabundance of GHGs in the atmosphere has led to an unexpected warming of the earth and has the potential to severely impact the earth's climate system.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH_4 traps more than 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2. Often, estimates of GHG emissions are presented in Carbon Dioxide Equivalents (CO_2e). Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

The CEQA Guidelines Appendix G thresholds for GHG's do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA. With respect to GHG emissions, the CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or other performance-based standards." (14 CCR 15064.4(b)). A lead agency may use a "model or methodology" to estimate GHG emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change." (14 CCR 15064.4(c)). Section 15064.4(b) provides that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment:

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.

2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

In addition, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7(c)). The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see CEQA Guidelines Section 15130(f)). As a note, the CEQA Guidelines were amended in response to Senate Bill 97. In particular, the CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction plan renders a cumulative impact insignificant.

Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of greenhouse gas emissions." Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significant for GHG emissions if a project complies with adopted programs, plans, policies and/or other regulatory strategies to reduce GHG emissions.

The significance of the Project's GHG emissions is evaluated consistent with CEQA Guidelines Section 15064.4(b)(2) by considering whether the Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Specifically, the Project is evaluated for consistency with the County of Butte Climate Action Plan (CAP). According to the CAP, if a proposed development within unincorporated Butte County is consistent with the emission-reduction strategies included in the 2021 CAP, the project would have a less-than-significant impact on climate change and emissions (Butte County 2021).

4.8.2 Greenhouse Gas Emissions (VIII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

Less Than Significant Impact.

A potent source of GHG emissions associated with the Proposed Project would be combustion of fossil fuels during construction activities. Construction-related activities that would generate GHG emissions include worker commute trips, haul trucks carrying supplies and materials to and from the Project Site, and off-road construction equipment (e.g., dozers, loaders, excavators). Table 4.8-1 illustrates the specific construction generated GHG emissions that would result from construction of the Project. Once construction is complete, the generation of these GHG emissions would cease.

Table 4.8-1. Construction-Related Greenhouse Gas Emissions

Emission Source	CO_2e (Metric Tons/Year)
Construction Calendar Year One	61
Construction Total	**197**

Note: CO_2e = carbon dioxide equivalent
Source: California Energy Estimator Model (CalEEMod) Version 2022.1. Refer to Appendix A for Model Data Outputs.

As shown in Table 4.8-1, Project construction would result in the generation of approximately 61 metric tons of CO_2e over the course of the first calendar year of construction. Once construction is complete, the generation of these GHG emissions would cease.

Operational GHG emissions impacts are long-term air emissions impacts that are associated with any changes in the permanent use of the Project Site by onsite stationary and offsite mobile sources that substantially increase emissions. The Project proposes the installation of a solar PV power system. Once upgrades are complete, the Project would not be a greater source of operational emissions beyond current conditions. Therefore, Proposed Project operations would not contribute to on- or offsite emissions.

As previously described, the County of Butte CAP is a strategic planning document that identifies sources of GHG emissions within the boundaries of the unincorporated county, presents current and future emissions estimates, identifies a GHG reduction target for future years, and presents strategic emission-reduction strategies to reduce emissions from the agriculture, transportation, energy, solid waste, off-road equipment, water and wastewater, and stationary source sectors. The GHG-reduction strategies in the CAP build on inventory results and key opportunities prioritized by County staff and members of the public. According to the CAP, if a proposed development within unincorporated Butte County is consistent with the emission-reduction strategies included in the 2021 CAP, the project would have a less-than-significant impact on climate change and emissions (County of Butte 2021).

All development in the unincorporated County, including the Project, is required to adhere to all County-adopted policy provisions, including those contained in the adopted CAP. The County ensures all applicable provisions of the CAP are incorporated into projects and their permits through development review and applications of conditions of approval as applicable. Nonetheless, a review of the emission-reduction strategies included in the 2021 CAP show that none are directly applicable to a project with no

operational component, such as the Proposed Project. The Project would not include new permanent sources of GHG emissions and would not generate new or unplanned permanent GHG emissions. Once construction is complete, the generation of all Project GHG emissions would cease. Therefore, the Proposed Project would not conflict with the County CAP.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

No Impact.

The Project would not conflict with any adopted plans, policies, or regulations adopted for the purpose of reducing GHG emissions. As discussed previously, the Project would not conflict with the County CAP, which was prepared with the purpose of complying with statewide GHG-reduction efforts. Additionally, once construction is complete, the Project would be a producer of renewable energy, which generates substantially less GHG emissions compared with the more common types of fossil-fueled energy generation facilities.

GHG emissions generated by energy sources account for all stages of the life cycle (including mining, construction, etc.), which are referred to as the cumulative GHG emissions and are usually expressed in grams of CO_2e per unit of busbar electricity (i.e., gCO_2/kWh_e). When comparing various fossil-fueled energy generators, the GHG emissions generated are dependent on the type of fuel (i.e., gas, oil, coal). GHG emissions generated by some of the more common types of fossil-fueled plants and solar-power plants are summarized in Table 4.8-2.

Table 4.8-2. Life-Cycle Greenhouse Gas Emissions for Various Types of Energy Generators

Fossil Fueled ($gCO_2e/kWhe$)	
Coal	950 to 1,250
Oil	500 to 1,200
Gas	440 to 780
Solar	43 to 73[3]

Source: Weisser 2007
Notes:
[1]$gCO_2e/kWhe$ = grams of CO_2e per unit of busbar electricity.
[2]Emissions are based on lifecycle of energy source including mining, construction, operation, etc.
[3]Solar PV life-cycle emissions result from using fossil-fuel-based energy to produce the materials for solar cells, modules, and systems, as well as directly from smelting, production, and manufacturing facilities.

As shown in Table 4.8-2, solar plants generate far less GHG life-cycle emissions (approximately 83 to 94 percent less) than fossil-fueled energy plants. Therefore, the Proposed Project would contribute to the

continued reduction of GHG emissions in the interconnected California and western U.S. electricity systems, as the energy produced by the Project would displace GHG emissions that would otherwise be produced by existing business-as-usual power generation resources (including natural gas, coal, arid renewable combustion resources).

For these reasons, the Project would not conflict with any applicable plan, policy or regulation related to the reduction in GHG emissions.

4.8.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.9 Hazards and Hazardous Materials

4.9.1 Environmental Setting

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined by the California Health and Safety Code, Section 25501 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 that 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.

A hazardous material is defined in Title 22, Section 662601.10, of the California Code of Regulations as follows:

> A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, June either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed.

The release of hazardous materials into the environment could potentially contaminate soils, surface water, and groundwater supplies.

Under Government Code Section 65962.5, both the California Department of Toxic Substance Control (DTSC) and the State Water Resources Control Board (SWRCB) are required to maintain lists of sites known to have hazardous substances present in the environment. Both agencies maintain up-to-date lists on their websites. A search of the DTSC (DTSC 2023) and the SWRCB (SWRCB 2023) identified no open cases of hazardous waste violations within 1 mile of the Project Site.

The USEPA maintains the Enforcement and Compliance History Online (ECHO) program. The ECHO website provides environmental regulatory compliance and enforcement information for approximately 800,000 regulated facilities nationwide. The ECHO website includes environmental permit, inspection, violation, enforcement action, and penalty information about USEPA-regulated facilities. Facilities included on the Site are CAA stationary sources; Clean Water Act facilities with direct discharge permits, under the NPDES; generators and handlers of hazardous waste, regulated under the Resource Conservation and Recovery Act; and public drinking water systems, regulated under the Safe Drinking Water Act. ECHO also includes information about USEPA cases under other environmental statutes. When available, information is provided on surrounding demographics, and ECHO includes other USEPA environmental data sets to provide additional context for analyses, such as Toxics Release Inventory data. According to the ECHO program, the Project Site is not listed as having a hazardous materials violation (USEPA 2023).

4.9.2 Hazards and Hazardous Materials (IX) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐

Less Than Significant Impact.

Construction may include the use of hazardous materials given that construction activities involve the use of heavy equipment, which uses small and incidental amounts of oils and fuels and other potentially flammable substances. The level of risk associated with the accidental release of hazardous substances is not considered significant due to the small volume and low concentration of hazardous materials used during construction. The construction contractor would be required to use standard construction controls and safety procedures that would avoid and minimize the potential for accidental release of such substances into the environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, state, and federal law.

Therefore, potential construction-related impacts for creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials from the Proposed Project would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☒	☐

Less Than Significant Impact.

As discussed in Issue a), the Project would not result in the routine transport, use, disposal, handling, or emission of any hazardous materials that would create a significant hazard to the public or the environment. Potential construction-related hazards could be created during the course of Project construction at the Site, given that construction activities involve the use of heavy equipment, which uses small and incidental amounts of oils and fuels and other potentially flammable substances. The level of risk associated with the accidental release of hazardous substances is not considered significant due to the small volume and low concentration of hazardous materials used during construction. The construction contractor would be required to use standard construction controls and safety procedures that would avoid and minimize the potential for accidental release of such substances into the environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, state, and federal law.

All hazardous materials on the Project Site would be handled in accordance with City and State regulations. Long-term impacts associated with handling, storing, and disposing of hazardous materials from Project operation would be less than significant because any hazardous materials used for operations would be in small quantities.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐

Less Than Significant Impact.

The Project Site is located approximately 5.4 miles west of the Sycamore Middle School, which is located at 1125 Sycamore St, Gridley, CA 95948 within the City of Gridley. The school would not be within 0.25 the Project Site. The construction and operation of the Proposed Project would not include uses that would emit hazardous emissions or include activities that use acutely hazardous materials. Any hazardous materials used on Site would be typical of construction land uses, and would not create hazardous emissions that could adversely affect nearby schools. Once the solar arrays expire, they will be disposed of in a manner consistent with local regulations regarding the disposal of hazardous material. The impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

No Impact.

Under Government Code Section 65962.5, both the DTSC and the SWRCB are required to maintain lists of sites known to have hazardous substances present in the environment. Both agencies maintain up-to-date lists on their websites. A search of the DTSC and SWRCB lists identified that the Proposed Project Site is not located on or adjacent to a hazardous materials site. Given that there are no existing hazardous waste sites within or directly adjacent to the Project Site, the Project will have no impact in this area.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

No Impact.

The Project Site is located approximately 10.8 miles south of the Richvale Airport. Because the Project Site is not located within 2 miles of an airport, there would be no safety hazard to people working in the Project Area due to proximity to planes overhead and in the immediate vicinity. Therefore, no impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

No Impact.

Standard evacuation routes have not been designated in Butte County or the Gray Lodge area. However, the Butte County Office of Emergency Services has an online link to the Butte County Multi-Jurisdictional Hazard Mitigation Plan which identifies resources, information, and strategies for reducing risk from

natural hazards. Elements and strategies in the plan were selected because they meet a program requirement and because they best meet the needs of the planning partners and their citizens. According to the plan, and new as of 2021, the County is encouraging and continuing to establish countywide evacuation zones, sections, and routes. The plan did not include specific evacuation routes in the County but did address the need for crucial response and evacuations in the event of a significant wildfire or flooding and has budgeted for this evacuation planning effort through 2024.

All construction activities of the Proposed Project would not impede the use of surrounding roadways in an emergency evacuation. The Project would be limited to periodic maintenance and inspection activities a few times per year and would not generate a substantial number of people or vehicle trips within the area that could otherwise impede emergency response or evacuation efforts within the Project Area. Based on required compliance with the most recent California Fire Code and County Public Works requirements, the Project would not substantially impair an adopted emergency response plan or emergency evacuation plan. Implementation of the Proposed Project would result in no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Less Than Significant Impact.

The risk of wildfire is related to a variety of parameters, including fuel loading (vegetation), fire weather (winds, temperatures, humidity levels and fuel moisture contents), and topography (degree of slope). Steep slopes contribute to fire hazard by intensifying the effects of wind and making fire suppression difficult. Fuels such as grass are highly flammable because they have a high surface area-to-mass ratio and require less heat to reach the ignition point; while fuels such as trees have a lower surface area-to-mass ratio and require more heat to reach the ignition point.

Fire Hazard Severity Zone (FHSZ) mapping is performed by the California Department of Forestry and Fire Protection (CAL FIRE) and is based on factors such as fuels, terrain, and weather. According to the CAL FIRE, FHSZ mapping, the Project Site is located in an area with no risk of wildfire (CAL FIRE 2023). In addition, the proposed project would not result in development that would increase population or residential development in the area. Therefore, the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fire and would result in a less than significant impact with respect to exposure to risks associated with wildland fires.

4.9.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.10 Hydrology and Water Quality

4.10.1 Environmental Setting

4.10.1.1 Regional Hydrology

Surface/Ground Water

According to the Watershed Boundary Dataset ([WBD] 2023), a seamless and national hydraulic unit dataset, the Project Site is located within Butte Creek Watershed and is part of the Sacramento Valley Butte Subbasin, which in turn is a within the greater Sacramento Valley Groundwater Basin (California Department of Water Resources [DWR] 2023). Butte County is in the Sacramento River Hydrological Region, which includes the Sacramento River, the longest river system in the State of California and its tributaries, including, but not limited to, the Pit, Feather, Yuba, Bear, and American Rivers. The Sacramento River Hydrological Region is the main water supply for many of California's urban and agricultural areas. Major water supplies in the region are provided through surface water storage reservoirs (Butte County 2040).

The Central Valley RWQCB monitors surface water quality through implementation of the Basin Plan and designates beneficial uses for surface water bodies and groundwater within Butte County. The California Basin Plan Beneficial Use Viewer (RWQCB 2023) does not list any surface water bodies with beneficial uses within the Project Site but does state that all groundwater in Region 5 is considered as suitable or potentially suitable for municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply (RWQCB 2019).

4.10.1.2 Project Site Hydrology and Onsite Drainage

Surface Water

The approximate 1-acre Project Site is relatively flat with an elevations approximately 75-76 feet AMSL throughout the Site. Water runoff within the project area is collected by a ditch that runs north-south, ending at a concrete-lined catch basin that is located directly south of the intersection of West Liberty Road and Farris Road.

A 100-year floodplain surrounds the Project Site, encompassing the west side of the Wildlife Area and extends along Colusa Highway. According to the BRA conducted for the Site, aquatic resources are present within the Study Area and consist of wetland features (ECORP 2023a). See appendix B for further information and visual depictions regarding onsite aquatic resources.

Groundwater

Butte County depends heavily on groundwater for its water needs. Historical water data shows the use of surface water supplied by the irrigation districts is decreasing during droughts, while the pumping of groundwater for irrigation has been increasing. Several consequences can occur if aquifer levels continue

to decline, including land subsidence, reduction of drought protection, increased regulatory control, higher energy costs, and reduction in agricultural production.

The following 2040 Butte County General Plan policies seek to protect Butte County's long-term water supply (Butte County 2040).

Goal W-P3.1: Countywide Water Supply: The County shall continue to ensure the sustainability of groundwater resources, including groundwater levels, groundwater quality and avoidance of land subsidence, through a basin management objective program that relies on management at the local level, utilizes sound scientific data and assures compliance.

4.10.2 Hydrology and Water Quality (X) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐

Less Than Significant Impact.

Without implementation of appropriate control measures, grading involved in preparing the Project Site for construction would decrease vegetative cover and potentially increase the rate and quantity of stormwater runoff. This would result in accelerated soil erosion and sediment delivery to the on-site waterway and off-site areas. This could increase the quantity of suspended solids in local waterways and contribute to elevated turbidity in portions of the ditch within and adjacent to the Project Site.

Pursuant to the requirements of the County's General Plan Policies under the Goal W-2 "Ensure an abundant and sustainable water supply to support all uses in Butte County" (Butte County 2040). Conformance with standard RWQCB best management practices minimize erosion impacts. Through the required NPDES Permit, projects are evaluated for potential soil erosion impacts on a site-by-site basis. As impacts are dependent on the type of development, intensity of development, and amount of lot coverage of a particular project, impacts due to soil erosion can vary. However, compliance with adopted erosion control standards and NPDES and SWPPP requirements, as well as implementation of the proposed General Plan policies listed above, would ensure that the Proposed Project soil erosion-related impacts are less than significant).

Additionally, prior to issuance of a grading permit, the applicant would be required to demonstrate coverage for Project activities under the SWRCB's NPDES General Permit for Storm Water Discharges Associated with Construction Activities. To obtain coverage under the permit, the Project applicant would submit a Notice of Intent with the required permit fee and prepare a SWPPP for review by the Central Valley Regional Water Quality Control Board. The SWPPP would include the following four major elements:

1. Identify pollutant sources, including sources of sediment, which June affect the quality of stormwater discharges from the construction site.
2. Identify non-stormwater discharges.
3. Identify, construct, implement in accordance with a time schedule, and maintain BMPs to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the construction site during construction.
4. Identify, construct, implement in accordance with a time schedule, and assign maintenance responsibilities for post-construction BMPs to be installed during construction that are intended to reduce or eliminate pollutants after construction is completed.

In addition, dischargers are also required to inspect construction sites before and after storms to identify stormwater discharge from construction activity, and to identify and implement controls where necessary.

Typical BMPs that would be appropriate to implement at the Project Site June include: scheduling or limiting activities to certain times of the year; implementing dust control procedures throughout the site; stabilizing cut and fill slopes as soon as possible; controlling erosion through a variety of means such as mulch and compost blankets, riprap, and installation of sediment retention structures (such as a sediment retention basin); and sediment control through the use of measures such as storm drain inlet protection, vegetated buffers, fiber rolls and berms, sediment fencing, and straw or hay bales.

Other temporary BMPs would ensure *good housekeeping* at the Project Site during construction. These would include cleaning construction equipment and preventing the leakage of fluids, storing materials away from surface water, protecting sensitive areas with sediment barriers or other containment methods, controlling laying of concrete and washing of related equipment, and collecting debris and gravel associated with paving operations. Adequate temporary storm drainage controls would be provided, including on-site drainage containment, the placement of silt fences around construction areas, and constructing temporary sediment basins, as necessary.

Where feasible, the project will Compliance with the County's General Plan Policies and implementation of the provisions contained in the SWPPP approved by the RWQCB would reduce potential impacts to water quality due to construction activities to less than significant by ensuring that all appropriate and necessary BMPs are implemented to avoid or minimize the discharge of pollutants and sediment to surface water.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project June impede sustainable groundwater management of the basin?	☐	☐	☒	☐

Less Than Significant Impact.

The Proposed Project would not increase the demand for groundwater in the County. The Project proposed to install a new solar array system to increase the renewable energy usage of the CDFW facility. Therefore, the Project would have a less than significant impact on groundwater supply.

Additionally, the Proposed Project would have the potential to remove a portion of the approximate 1-acre Site's potential groundwater recharge area due to the development of this area with impervious surfaces. However, this area would be insignificant in size and all rainfall on this small amount of impervious service would be directed towards the drainage ditch that runs north-south along, ending at a concrete-lined catch basin that is located directly south of the intersection of West Liberty Road and Farris Road. Therefore, the Project would have a less than significant impact on groundwater recharge.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that 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 offsite;	☐	☐	☒	☐
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?	☐	☐	☒	☐

i) Less Than Significant Impact.

Construction activities within the Project Site would result in soil disturbances. For those activities that disturb 1 acre or more of land, an NPDES Construction General Permit would be required prior to the start of construction. To comply with the requirements of the NPDES Construction General Permit, these projects will be required to file a Notice of Intent with the State of California and submit a SWPPP defining BMPs for construction and post-construction-related control of the Proposed Project Site runoff and sediment transport. Requirements for the SWPPP include incorporation of both erosion and sediment control BMPs as discussed previously. Preparation of and compliance with a required SWPPP will reduce potential runoff, erosion, and siltation associated with construction and operation.

As such, the effects of the Proposed Project on on-site and off-site erosion and siltation would be less than significant.

ii-iii) Less Than Significant Impact.

Implementation of the Proposed Project June result in an increase of the rate or amount of surface runoff as the Site is developed. As discussed above, this area of impervious surface is insignificant in size and all surface runoff would be directed to the drainage canal at the southern boundary of the Project Site. As such, the Project would have a less than significant impact in this area.

iv) Less Than Significant Impact.

The Federal Emergency Management Agency (FEMA) flood hazard map indicates that the FEMA-designated 100-year floodplain occurs within the western portion of the Gray Lodge Wildlife Area. The FEMA-designated floodplains were mapped based on regional topography and drainage data and do not reflect site-specific conditions. However, as the Project consists of a solar array system, with no occupied buildings proposed, there would be no redirection or impediment of flood flows onsite. As such, the Project would have a less than significant impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐

Less Than Significant Impact.

While the Project Site is located within the dam inundation area of Oroville Dam, the Proposed Project does not include any buildings that would be occupied by workers or residents. The Project Site would be visited two to four times per year for maintenance purposes. No employees would be required onsite regularly as the solar array system would be remotely controlled to the greatest extent possible. Based on the discussion above, there would be a less than significant impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Less Than Significant Impact.

The Project Site is located within the Water Quality Control Plan (Basin Plan) for the Central Valley Region - Sacramento River Basin (DWR 2018). However, as stated under Item C) above, the Project is obliged to comply with water quality protection requirements of the NPDES Construction General Permit BMPs for construction and post-construction-related control of the Proposed Project Site runoff and sediment

transport. Compliance with these requirements would eliminate the potential for conflicts with the water quality control plan. As such, the Project would have a less than significant impact in this area.

4.10.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.11 Land Use and Planning

4.11.1 Environmental Setting

The Project Site is zoned for agricultural uses in the 2030 Butte County General Plan land use designation (Butte County 2023). The General Plan Land Use Element provides the primary guidance on issues related to land use and land use intensity. The element provides designations for land in the County and outlines goals and policies concerning development and use of land. In concert with the General Plan, the Butte County Code establishes zoning districts in the County and specifies allowable uses and development standards for each district. Under State law, each jurisdiction's zoning ordinance must be consistent with its general plan. The General Plan notes "Alternative energy facilities are allowed in the Agriculture designation, subject to permit requirements" (Butte County 2030).

4.11.2 Land Use and Planning (XI) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒

No Impact.

The existing and proposed land uses surrounding the Project Site are generally agricultural to the north and east of the Project Site. West Liberty Road runs along the northern boundary of the Project Site. The zoning designation surrounding the Project Site is entirely General Agriculture (A-1).

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

No Impact.

As explained above, the Project is consistent with the County of Butte General Plan land use designations. The Project would rely on the General Plan policies and actions, especially those adopted to assist in the protection of the environment. As analyzed in each section of this IS/MND, the Project would not conflict

with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. No impact would occur.

4.11.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.12 Mineral Resources

4.12.1 Environmental Setting

The State-mandated Surface Mining and Reclamation Act of 1975 requires the identification and classification of mineral resources in areas within the State subject to urban development or other irreversible land uses that could otherwise prevent the extraction of mineral resources. These designations categorize land as Mineral Resource Zones (MRZ) MRZ-1 through MRZ-4.

Butte County is rich in nonfuel mineral and soil resources; however, there are very few traditional hard rock mines in operation today. The County's mineral resources are primarily sand and gravel, which are ample in the County. However, according to the Department of Mines and Reclamation (2023), as well as the CGS (2023a), the Project Site is located near a Surface Mining and Reclamation Act study area and the closest mining location is a concrete aggregate resource mine and is located approximately 25 miles southeast of the Site. There is currently no mining activity occurring within the Project vicinity. Furthermore, the Butte County General Plan does not identify any mineral resource zones within the Gray Lodge Wildlife Area (Butte County 2023).

4.12.2 Mineral Resources (XII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒

No Impact.

As discussed above, the County's existing General Plan does not identify any mineral resources in the Project vicinity, including on the Project Site. Therefore, no impacts would occur to mineral resources.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	☒

No Impact.

The Project Site is not identified as a mineral resource recovery site in the Butte County General Plan. There would be no impact in this area.

4.12.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.13 Noise

4.13.1 Environmental Setting

4.13.2 Noise Fundamentals

Noise is generally defined as sound that is loud, disagreeable, or unexpected. The selection of a proper noise descriptor for a specific source is dependent 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 include the average hourly noise level (in L_{eq}) and the Average Daily Noise Levels/Community Noise Equivalent Level (in L_{dn}/CNEL). The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL are measures of community noise. Each is applicable to this analysis and defined as follows:

- **Equivalent Noise Level (L_{eq})** is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- **Day-Night Average (L_{dn})** is a 24-hour average L_{eq} with a 10-dBA "weighting" added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
- **Community Noise Equivalent Level (CNEL)** is a 24-hour average L_{eq} with a 5-dBA weighting during the hours of 7:00 pm to 10:00 pm and a 10-dBA weighting added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the evening and nighttime, respectively.

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations.

Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (Federal Highway Administration [FHWA] 2011). Soft surfaces, such as soft dirt or grass, can absorb sound,

so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed (FHWA 2011).

The manner in which older structures in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (Caltrans 2002). The exterior-to-interior reduction of newer structures is generally 30 dBA or more (Harris Miller Miller & Hanson Inc. 2006).

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60- to 70-dBA range, and high, above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA, the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1.0 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3.0-dBA change is considered a just-perceivable difference.
- A change in level of at least 5.0 dBA is required before any noticeable change in community response would be expected. An increase of 5.0 dBA is typically considered substantial.
- A 10.0-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Sensitive Noise Receptors

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as

parks, historic sites, cemeteries, and recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses. The nearest sensitive receptor to the Project Site is a single-family residence located 251 feet from the northeastern boundary of the Project Site.

4.13.3 Vibration Sources and Characteristics

Ground vibration can be measured several ways to quantify the amplitude of vibration produced, including through Peak Particle Velocity (PPV) or root mean square velocity. These velocity measurements measure maximum particle at one point or the average of the squared amplitude of the signal, respectively.

Vibration impacts on people can be described as the level of annoyance and can vary depending on an individual's sensitivity. Generally, low-level vibrations may cause window rattling but do not pose any threats to the integrity of buildings or structures.

4.13.4 Existing Ambient Noise Environment

There are several significant noise sources in Butte County. According to the Butte County General Plan, examples of major noise sources existing within the County include roadway traffic, railroads, and airports. The Project Site is located in a rural, wildlife area not located in the vicinity of any of these types of land uses, though is affected by traffic noise on private roads. Beyond these sources, the existing ambient noise environment at the Project Site is influenced by the typical sources of noise associated with rural land uses.

The American National Standards Institute (ANSI) Standard 12.9-2013/Part 3 "Quantities and Procedures for Description and Measurement of Environmental Sound – Part 3: Short-Term Measurements with an Observer Present" provides a table of approximate background sound levels in L_{dn}, daytime L_{eq}, and nighttime L_{eq}, based on land use and population density. The ANSI standard estimation divides land uses into six distinct categories. Descriptions of these land use categories, along with the typical daytime and nighttime levels, are provided in Table 4.13-1. At times, one could reasonably expect the occurrence of periods that are both louder and quieter than the levels listed in the table. ANSI notes, "*95% prediction interval [confidence interval] is on the order of +/- 10 dB*." The majority of the Project Area would be considered ambient noise Category 6.

Table 4.13-1. ANSI Standard 12.9-2013/Part 3 A-weighted Sound Levels Corresponding to Land Use and Population Density

Category	Land Use	Description	People per Square Mile	dBA		
				Typical L_{dn}	Daytime L_{eq}	Nighttime L_{eq}
1	Noisy Commercial & Industrial Areas and Very Noisy Residential Areas	Very heavy traffic conditions, such as in busy, downtown commercial areas; at intersections for mass transportation or other vehicles, including elevated trains, heavy motor trucks, and other heavy traffic; and at street corners where many motor buses and heavy trucks accelerate.	63,840	67	66	58
2	Moderate Commercial & Industrial Areas and Noisy Residential Areas	Heavy traffic areas with conditions similar to Category 1, but with somewhat less traffic; routes of relatively heavy or fast automobile traffic, but where heavy truck traffic is not extremely dense.	20,000	62	61	54
3	Quiet Commercial, Industrial Areas and Normal Urban & Noisy Suburban Residential Areas	Light traffic conditions where no mass-transportation vehicles and relatively few automobiles and trucks pass, and where these vehicles generally travel at moderate speeds; residential areas and commercial streets, and intersections, with little traffic, compose this category.	6,384	57	55	49
4	Quiet Urban & Normal Suburban Residential Areas	These areas are similar to Category 3, but for this group, the background is either distant traffic or is unidentifiable; typically, the population density is one-third the density of Category 3.	2,000	52	50	44
5	Quiet Residential Areas	These areas are isolated, far from significant sources of sound, and may be situated in shielded areas, such as a small-wooded valley.	638	47	45	39
6	Very Quiet Sparse Suburban or rural Residential Areas	These areas are similar to Category 4 but are usually in sparse suburban or rural areas; and, for this group, there are few if any nearby sources of sound.	200	42	40	34

Note: dBA = A-weighted decibels; Ldn = Day-Night Average Sound Level; Leq = Equivalent Noise Level
Source: The American National Standards Institute (ANSI) 2013

4.13.5 Noise (XIII.) Environmental Checklist and Discussion

Would the Project result in	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐

Less Than Significant Impact.

As previously described, noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise sensitive and may warrant unique measures for protection from intruding noise. The nearest sensitive receptor to the Project Site is a single-family residence located 251 feet from the northeastern boundary of the Project Site.

4.13.5.1 Onsite Construction Noise Impacts

Construction noise associated with the Proposed Project would be temporary and would vary depending on the specific nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., site preparation, excavation, paving). Noise generated by construction equipment, including earth movers, pile drivers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive land uses in the vicinity of the construction site.

The County does not promulgate a numeric threshold pertaining to the noise associated with construction. This is because construction noise is temporary, short term, intermittent in nature, and would cease on completion of the Project. Butte County Municipal Code Section 41A-9 states that noise associated with construction, repair, remodeling, demolition, paving, or grading of any real property or public works project located within one thousand feet of residential uses, is exempt, provided said activities do not take place between the following hours: sunset to sunrise on weekdays and non-holidays; Friday commencing at 6:00 p.m. through and including 8:00 a.m. on Saturday, as well as not before 8:00 a.m. on holidays; Saturday commencing at 6:00 p.m. through and including 10:00 a.m. on Sunday; and Sunday after the hour of 6:00 p.m. The Project would be required to comply with this Municipal Code requirement.

To estimate the worst-case onsite construction noise levels that may occur at the nearest noise-sensitive receptors and in order to evaluate the potential health-related effects (physical damage to the ear) from construction noise, the construction equipment noise levels were calculated using the Federal Highway Administration's Roadway Noise Construction Model and compared against the construction-related noise level threshold established in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998 by the National Institute for Occupational Safety and Health (NIOSH). A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. For the purposes of this analysis, the lowest, more conservative threshold of 85 dBA L_{eq} is used as an acceptable threshold for construction noise at the nearby sensitive receptors.

It is acknowledged that the majority of construction equipment is not situated at any one location during construction activities, but rather spread throughout the Project Site and at various distances from sensitive receptors. Therefore, this analysis employs the Federal Transit Administration (FTA) guidance for calculating construction noise, which recommends measuring construction noise produced by all construction equipment from the center of the Project Site (FTA 2018), which in this case is approximately 350 feet from the nearest sensitive receptor. The anticipated short-term construction noise levels generated for the necessary equipment is presented in Table 4.13-2.

Table 4.13-2. Construction Average (dBA) Noise Levels at Nearest Residential Receptors

Equipment	Estimated Exterior Construction Noise Level at Existing Residences (dBA)	Construction Noise Standards (dBA L_{eq})	Exceeds Standards?
Site Preparation	68.5	*85*	**No**
Grading/Excavation	69.0	*85*	**No**
Building Construction	68.5	*85*	**No**

Notes: Construction equipment used during construction derived from the California Emissions Estimator Model (CalEEMod), version 2022.1. CalEEMod is designed to calculate air pollutant emissions from construction activity and contains default construction equipment and usage parameters for typical construction projects based on several construction surveys conducted in order to identify such parameters. Consistent with Federal Transit Administration (FTA) recommendations for calculating construction noise, construction noise was measured from the center of the Project Site (FTA 2018), which is 350 feet from the residence to the northeast of the Project Site.

dBA = A-weighted decibels; L_{eq} = The equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.

Source: Construction noise levels were calculated by ECORP Consulting, Inc. using the Federal Highway Administration (FHWA) Roadway Noise Construction Model (2006). Refer to Appendix E for Model Data Outputs.

As shown in Table 4.13-2, Project onsite construction activities would not exceed the NIOSH threshold of 85 dBA L_{eq} at the nearest noise-sensitive receptors.

4.13.5.2 Offsite Construction Traffic Noise Impacts

Construction associated with the Project would result in additional traffic (e.g., worker commutes and material hauling) on adjacent roadways over the period that construction occurs. According to the California Emissions Estimator Model, which is designed to model emissions for land use development projects based on several construction surveys conducted in order to identify such parameters, including those generated by worker commute trips and vendor trips, construction would not instigate more than 28 trips in a single day (up to 8 construction worker commute trips for site preparation, 10 construction worker commute trips for grading, and 10 construction worker commute trips for building construction trips). According to the Caltrans *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013), doubling of traffic on a roadway is required to result in an increase of 3 dB (outside of the laboratory, a 3-dBA change is considered a just-perceivable difference). The Project would not permanently double the traffic on roadways. Additionally, it is noted that construction is temporary, and construction-related trips would cease upon completion of construction.

4.13.5.3 Operational Noise Impacts

The Project would result in the implementation of a solar PV power system. The main stationary operational noise associated with the Project would be from the proposed transformers, inverters, substation, and transmission lines. ECORP staff has conducted noise measurements at an existing solar energy generation facility in order to develop a sampling of potential noise levels associated with solar energy generation activities. These measurements were taken with a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the ANSI for general environmental noise measurement instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator. Based on these measurements, a solar energy generation facility can be expected to generate noise levels of 47.1 dBA at the source.

As previously described, sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dBA for each doubling of distance from a stationary or point source (FHWA 2011), such as a solar energy generation system. Conservatively assuming no noise attenuation at 25 feet from the proposed solar energy generation system, Project noise levels would attenuate to 41.1 dBA at 50 feet from the solar energy generation system. At 100 feet, noise levels would be reduced another 6 dBA to 35.1 dBA. At 200 feet, noise levels would be reduced to 29.1 dBA. Project noise would attenuate another 1.5 dBA over the remaining 51 feet to the nearest residence, resulting in Project-generated noise levels of 27.6 dBA at this receptor, which is below the Butte County non-urban daytime, evening time, and nighttime noise standards of 50 dBA, 45 dBA, and 40 dBA, respectively. Noise generated from the operations of the Project would be less than significant.

Would the Project result in	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐

Less Than Significant Impact.

4.13.5.4 Construction Vibration Impacts

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the Proposed Project would be primarily associated with short-term construction-related activities. Construction on the Project Site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. It is not anticipated that pile drivers would be necessary during Project construction. Vibration decreases rapidly with distance, and it is acknowledged that construction activities would occur throughout the Project Site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with construction equipment are summarized in Table 4.13-3.

Table 4.13-3. Typical Construction Equipment Vibration Levels

Equipment Type	Peak Particle Velocity at 25 Feet (inches per second)
Large Bulldozer	0.089
Pile Driver	0.170
Caisson Drilling	0.089
Loaded Trucks	0.076
Rock Breaker	0.089
Jackhammer	0.035
Small Bulldozer/Tractor	0.003
Vibratory Roller	0.210

Source: California Department of Transportation (Caltrans) 2020; Federal Transit Administration (FTA) 2018;

Butte County does not regulate vibrations associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans

(2020) recommended standard of 0.3 inches per second PPV with respect to the prevention of structural damage for older residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings.

Consistent with FTA recommendations for calculating construction vibration, construction vibration was measured from the center of the Project Site (FTA 2018). The nearest structure of concern to the construction site, with regard to groundborne vibrations, is a telephone pole located northeast of the Project Site approximately 156 feet from the Project Site center.

Based on the representative vibration levels presented for various construction equipment types in Table 4.13-3 and the construction vibration assessment methodology published by the FTA (2018), it is possible to estimate the potential project construction vibration levels. The FTA provides the following equation:

$$[PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}]$$

Table 4.13-4 presents the expected Project related vibration levels at a distance of 156 feet.

Table 4.13-4. Construction Vibration Levels at 156 Feet

Receiver PPV Levels (in/sec)[1]							Peak Vibration	Threshold	Exceed Threshold
Large Dozer	Pile Driver	Drilling & Rock Breaker	Loaded Trucks	Roller	Jack-hammer	Small Dozer			
0.006	0.011	0.006	0.005	0.013	0.002	0.00	**0.013**	*0.3*	**No**

As shown in Table 4.13-4, groundborne vibrations attenuate rapidly from the source due to geometric spreading and material damping. Geometric spreading occurs because the energy is radiated from the source and spreads over an increasingly large distance while material damping is a property of the friction loss which occurs during the passage of a vibration wave. Vibration as a result of construction activities would not exceed 0.3 PPV. Thus, Project construction would not exceed the recommended threshold. This impact is less than significant.

		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c)	For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the Project Area to excessive noise levels?	☐	☐	☐	☒

No Impact.

The Project Site is located approximately 12.5 miles southwest of the closest airport, Oroville Municipal Airport. Aircraft noise does not significantly impact the Project Site area and would not expose people visiting or working on the Project Site to excess airport noise levels. No impact.

4.13.6 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.14 Population and Housing

4.14.1 Environmental Setting

According to the California Department of Finance (DOF), which provides estimated population and housing unit demographics by year throughout the State, the City's population increased 11.7 percent between 2010 and 2023 from 255,399 to 285,337. The DOF estimates that there were 90,133 total housing units in the County and the County had a 7.6 percent vacancy rate as of January 1, 2023 (DOF 2023).

4.14.2 Population and Housing (XIV) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐

Less Than Significant Impact.

The Proposed Project is the installation of a solar array to provide the CDFW facility clean renewable energy. There are no buildings proposed that would occupy residents, nor would there be any extensions of road or other infrastructure that could have an indirect induction of unplanned population growth in the vicinity. Therefore, implementation of the Proposed Project would not directly contribute to a substantial unplanned increase in population within the County. This impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

No Impact.

No housing is located on the Site. Therefore, the Project would have no impact in this area.

4.14.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.15 Public Services

4.15.1 Environmental Setting

Public services include fire protection, police protection, parks and recreation, and schools. Generally, impacts in these areas are related to an increase in population from a residential development. Butte County General Plan Policy PFS-12.3 provides Police Department staffing levels for both sworn Sheriff Deputies and civilian support staff in order to provide quality law enforcement services in the County. Further, Policy PFS-12.2 states the county will provide adequate fire protection and emergency medical response services to serve existing and new development (Butte County 2030). Finally, the County coordinates with the school districts, colleges, and universities to provide for the educational and literary needs of the County residents, as well as encouraging the development of quality childcare services and facilities throughout the County (County of Butte 2023).

4.15.1.1 Fire Services

The Butte County Fire Department (BCFD) and CAL FIRE provide fire and emergency services to the entire unincorporated county population, protecting over 1,600 square miles, with the exception of the Cities of Chico and Oroville, the Town of Paradise and the El Medio Fire Protection District. The BCFD also operates countywide dispatch services, coordinates major emergency response within the county as the Office of Emergency Management's mutual aid coordinator, and provides training for career and volunteer fire fighters. Volunteer fire fighters are an integral component of the fire protection system in Butte County. BCFD is supported by 140 volunteer fire fighters. The volunteer companies are dispatched by the CAL FIRE and BCFD Emergency Command Center as needed. The volunteer companies often provide the first response to an emergency in the rural portions of the county that are some distance from a BCFD or CAL FIRE station (Butte County 2030). Butte County operates 22 fire stations and 16 volunteer fire stations (Butte County 2021). In 2021, the Butte County Fire Department responded to 18,047 incidents. The fire department continually tracks these statistics and looks for ways to improve skills, training, services and response capabilities. The Fire Station nearest to the Site is located at 685 Kentucky St, Gridley, approximately 5.0 miles east of the Project Site.

4.15.1.2 Police Services

The Butte County Sheriff's office provides law enforcement services to the Project Site. The Butte County Sheriff's Office is responsible for criminal investigation and crime prevention for the residents living in the unincorporated areas of the County. The Sherriff's Office is located at 5 Gillick Way, Oroville,

approximately 20 miles northeast of the Project Site. This is also the nearest Sherriff's office to the site in Butte County.

4.15.1.3 Schools

Due to the spread out and rural nature of Butte County, there are a total of 15 school districts supporting both public and private school services. The Project Site is located approximately 5.4 miles west of the Sycamore Middle School, which is located at 1125 Sycamore St, Gridley, CA 95948, within the City of Gridley.

4.15.1.4 Parks

There are no federal, state or county parks in the vicinity of the Project. The proposed project is located within the CDFW Gray Lodge Wildlife Area which is a 9,100-acre state ecological reserve.

4.15.2 Public Services (XV) Environmental Checklist and Discussion

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

No Impact.

4.15.2.1 Fire Protection

Implementation of the Proposed Project would not result in an increased demand for fire protection and emergency services. The Project Site is located approximately 5.0 miles northeast of the County's nearest fire station. The Project Site is currently served by the Butte County for fire protection and the installation

of the proposed solar array would not increase the response time required for the BCFD. Therefore, this impact is less than significant.

4.15.2.2 Police Services

Implementation of the Proposed Project would not result in an increased demand for law enforcement services. The nearest sheriff's office is located at 5 Gillick Way, Oroville, approximately 20 miles northeast of the Project Site. The Project Site is currently served by the County Sheriff's office for law enforcement services and the installation of the proposed solar array would not increase the need for police protection. Therefore, this impact is less than significant.

4.15.2.3 Schools

The Proposed Project would not result in an increase in the existing student population. The Project proposes the installation of a new clean energy solar array to service the CDFW and would not increase the County's population that would require school services. This impact would be less than significant.

4.15.2.4 Parks

The Proposed Project would not increase the overall population of the County that would result in the need for expanded parkland. Therefore, the Project's impacts relating to parks would be less than significant.

4.15.2.5 Other Public Facilities

The Proposed Project would not increase the overall population of the County that would result in the need for expanded public facilities such as childcare services or libraries. Therefore, the Project's impacts relating to other public facilities would be less than significant.

4.15.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.16 Recreation

4.16.1 Environmental Setting

The Project Area is located within the Gray Lodge Wildlife Area. The formation of this wildlife preserve began as part of a series of meetings to establish California State-owned waterfowl management areas in 1953. California Department of Fish and Wildlife (2023) states the purposes of these kind of wildlife management areas for waterfowl is to "protect agricultural crops from waterfowl depredation, waterfowl wintering habitat, and a desire to accommodate public waterfowl hunting." The original refuge was about 2,540 acres and was designated for flooding, burning, and shallow discing. The principal land use currently practiced at Gray Lodge is the provision of seasonally flooded wetlands for migratory birds. The 600 acres of riparian woodlands that remain here include cottonwood, willow, blackberry, and wild grape. They

provide food, shelter and shade for aquatic and terrestrial species like the garter snake, great blue heron, ringtail, and river otter. Today, the wildlife area spans approximately 9,100 acres, consisting of reflective ponds, grassy fields and wooded riparian areas provide food, water and shelter for more than 300 species of resident and migrant birds and mammals. (California Department of Fish and Wildlife 2023).

4.16.2 Recreation (XVI) Materials Checklist

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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?	☐	☐	☒	☐

Less Than Significant Impact.

As stated in the previous Section, the proposed solar array system installation for the CDFW facility would not increase the use of existing neighborhood, regional or other recreational facilities that could cause substantial physical deterioration. Therefore, the Project's impacts relating to recreational facilities deteriorating would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Less Than Significant Impact.

The Project includes the installation of a clean energy solar array system for the CDFW Gray Lodge Wildlife Area just outside of the City of Gridley. The Project does not include any recreational facilities, nor occupancies that would require the construction or expansion of recreational facilities. The Project itself will supply clean solar energy to the wildlife facility, which in and of itself is an existing recreational facility containing wetlands and riparian environments that provide habitat for wildlife, including bird refuge that the public can visit and enjoy recreational activities such as bird-watching. In essence, the Project itself is an alteration of an existing recreational facility's electrical generation capabilities; however, the implementation of the Project, once completed, would not require the construction or expansion of additional recreational facilities. Therefore, Project impacts relating to the inclusion, construction, or expansion of recreational facilities would be less than significant.

4.16.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.17 Transportation

4.17.1 Environmental Setting

4.17.1.1 Existing Street and Highway System

The County maintains a variety of roadways which have differing characteristics. These roadways include everything from low-volume rural local roadways serving agricultural areas to high-volume urban expressways serving large urban areas. All of these roadways play a vital role in how people and goods are transported throughout the County. Regional access to the Project Site would be provided via Highway 99 and West Liberty Road, of which the Site fronts on its southern boundary between W. Liberty Road and Farris Road.

4.17.1.2 Transit Service, Pedestrian and Bicycle Facilities

Public Transportation

Although the automobile is the primary mode of travel for Butte County, there are other modes of travel available, such as mass transit, paratransit and private bus operators. Butte Regional Transit (B-Line) provides fixed route bus and paratransit services to Chico, Oroville, Paradise, Gridley, Biggs and the unincorporated county. The B-Line intercity buses connect Chico, Oroville, Paradise, Gridley and Biggs, as well as the two Tribal Rancherias and casinos. For seniors and disabled individuals, there are also a number of service providers and social service agencies that provide door-to-door service. Additional services that are open to the general public include Glenn Ride, which provides transportation from Chico to Glenn County, Plumas Transit, which provides weekly service between Chico and Quincy, and Greyhound and Amtrak bus lines that provide scheduled service to the Butte County area.

Railroads

Shasta County is served by one railroad lines: The Union Pacific single track main line which parallels Highway 99. The Union Pacific Railroad Company maintains approximately 100 miles of railroad tracks in Butte County. Union Pacific provides transportation services to manufacturing industries, lumber mills, quarries and agricultural producers. Passenger rail service is provided by Amtrak with a station in Chico (Butte County 2030).

Bikeways

Butte County adopted a Countywide Bikeway Master Plan in 1998, and is currently in the process of updating it. The Plan identifies the following classifications of bicycle facilities:

Class I Bike Paths are designed for exclusive use by both bicycles and pedestrians, which are separated from, but usually adjacent to roadways.

Class II Bike Lanes usually consist of one-way lanes adjacent to the traffic lane on either side of the roadway that provide for the exclusive and semi-exclusive use of bicycles within the road travel way. These facilities are intended for the exclusive use of bicycles where they are separated from the motor vehicle

lane by a painted white stripe and designated with signs and permanent pavement markings. In rural areas, bike lanes are located at the roadway shoulder, which is also utilized by pedestrian traffic.

Class III Bike Routes may be located on roadway facilities with sufficient width for shared motor vehicle and bicycle usage and are usually only designated by signs or permanent pavement markings indicating the route and shared use.

4.17.2 Transportation (XVII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐

Less Than Significant Impact.

The Project proposes the installation of a clean energy solar array system to provide electricity to the CDFW Gray Lodge Wildlife Area and does not include the construction of roadways, nor would the Project impede on any roadways within the Project Vicinity, that would otherwise conflict with a program, plan, ordinance, or policy addressing the circulation system of the area. The Project would have a less than significant impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐

Less Than Significant Impact.

The Project does not include any structures that would require occupancies during operation. The only projected vehicle trips associated with the Project would be during the construction component, and the miniscule trips associated with maintenance visits conducted two to four times annually. Vehicle miles travelled associated with construction activities are included in the County's General Plan EIR and would not be included in this analysis. Therefore, the Project would have a less than significant impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐

Less Than Significant Impact.

The Proposed Project would not substantially increase hazards to vehicle safety due to increased traffic at locations with geometric design features (e.g., sharp curves or dangerous intersections). The Project is the installation of a solar array system for the CDFW facility and does not include any internal roadways. The Project does not introduce incompatible users (e.g., farm equipment) to a roadway or transportation facility not intended for those users. The Project's impact with regard to roadway design and users is less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in inadequate emergency access?	☐	☐	☒	☐

Less Than Significant Impact.

The Project Site will be accessed via West Liberty Road and CDFW has several unpaved dirt access road throughout the Gray Lodge Wildlife area. These existing internal access roads would provide access to the solar arrays for maintenance purposes. Therefore, the Project would have a less than significant impact regarding emergency access.

4.17.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.18 Tribal Cultural Resources

A Cultural Resources Inventory Report was prepared by ECORP (2023c) for the Proposed Project to determine if cultural resources, including tribal cultural resources, were present in or adjacent to the Project Area and assess the sensitivity of the Project Area for undiscovered or buried cultural resources. The information provided below is an abridged version of this report and is provided here to afford a brief context of the potential cultural resources in the Project Area.

ECORP requested a records search for the property at the Northeast Information Center (NEIC) of the CHRIS at California State University, Chico on March 10, 2023 (NEIC File # NE23-104; Appendix C). The purpose of the records search was to determine the extent of previous surveys within a 0.5-mile (800-meter) radius of the Proposed Project Area, and whether previously documented pre-contact or historic

archaeological sites, architectural resources, or traditional cultural properties exist within this area. NEIC staff completed and returned the records search to ECORP on March 20, 2023.

In addition to the records search, ECORP contacted the California NAHC on March 1, 2023 to request a search of the Sacred Lands File for the Project Area (Appendix C). This search determines whether the California Native American tribes within the Project Area have recorded Sacred Lands, because the Sacred Lands File is populated by members of the Native American community with knowledge about the locations of tribal resources. In requesting a search of the Sacred Lands File, ECORP solicited information from the Native American community regarding TCRs, but the responsibility to formally consult with the Native American community lies exclusively with the federal and local agencies under applicable state and federal laws. The lead agencies do not delegate government-to-government authority to any private entity to conduct tribal consultation. On June 27, 2023, general request for information letters were sent to the following representative listed for the tribes on the NAHC response letter: Berry Creek Rancheria of Maidu Indians, Estom Yumeka Maidu Tribe of the Enterprise Rancheria, , Greenville Rancheria of Maidu Indians, Chairperson Konkow Valley Band of Maidu, Mooretown Rancheria of Maidu Indians, Nevada City Rancheria Nisenan Tribe, and Tsi Akim Maidu. To date, the project has only received a response from Mooretown Rancheria of Maidu Indians indicating that they are not aware of any known cultural resources in the site and indicated if new information or human remains are found, they have a process to protect important and sacred artifacts. If human remains are found, they have provided contact information for the tribe.

4.18.1 Environmental Setting

4.18.1.1 Konkow

The current Project Area also falls within the ethnographic tribal territory of the Konkow, or Northwestern Maidu, in the Northern Sacramento Valley and surrounding foothills of the Sierra Nevada range. The Maidu, based on cultural and linguistic differences, has been differentiated into three major related divisions: the Northeastern (Mountain Maidu), Northwestern (Konkow), and Southern (Nisenan) (ECORP 2023b, Appendix C)

The Maidu and Konkow languages and associated dialects are members of the Maiduan language family of the California Penutian Linguistic Stock. Unlike the Maidu whose dialects were unique to each of the four major regions of occupation, the Konkow spoke a large number of dialects, with each settlement area supporting more than one dialect. The Konkow referred to themselves as *ko'yo-mkawi*, or "meadowland" (ECORP 2023b, Appendix C).

The Konkow were observed by early ethnographers to occupy territory immediately adjacent to the southwest of the Mountain Maidu, along the Feather and Sacramento rivers, to their southern boundary at the Sutter Buttes. The Konkow were primarily located in the lower elevations of the Sierra Nevada and along the valley floor, in a climate characterized by a wet winter with occasional fog and freezing temperatures, and dry summer season. The habitat was savannah-like with grasses and oaks, and several village communities were noted: *Kewsayoma'a, Yinomma'a,* and *Totoma'a*. Most Konkow in the valley did not venture far from their homes into the neighboring territories (ECORP 2023b, Appendix C).

The village community, the primary settlement type among the Maidu-Konkow, consisted of three to five small villages, each composed of about 35 members. Among the mountain Maidu, village communities were well defined, and based on geography. In contrast, the Konkow were dispersed throughout the valley floor along river canyons, and as a result, village communities were less concentrated or definable. In terms of permanent occupation sites, both groups preferred slightly elevated locations that provided visibility of the surrounding area and were away from the water-laden marshes and meadows. Konkow settlements along the Feather, Yuba, and American river canyons were situated high above the rivers on the ridges, or partway down the canyon side, mainly for defense purposes. Dwellings consisted of conical bark structures or semisubterranean dwellings called *kuns* (ECORP 2023b, Appendix C).

Ethnographic accounts of Konkow political structure describe that the group headman of the village was chosen through a shaman who conveyed the voice of the spirits to the village. The headman was chosen for maturity, wealth, ability, and generosity. He played a relatively minor role in the village community, acting more as an advisor than a leader. He was also responsible to a council of elders of the *Kuksu* cult (like their Nisenan neighbors, Konkow also practiced the *Kuksu* cult). The headman had special rights to the ceremonial lodge as his place or residence and it was often burned at his death. He could declare war and lead the tribe into battle. He directed communal activities such as deer drives, ceremonies, and gathering. He could also be removed from his position by the shaman (ECORP 2023b, Appendix C).

Subsistence and settlement strategies by the Konkow at the time of contact were noted by ethnographers to be like other groups in the region. The Konkow followed a yearly gathering cycle. They journeyed away from their winter river dwellings into the mountains during summer to hunt deer meat to dry, and into the valleys during the spring to collect grass seeds and wild rye. Their summer camps had temporary circular brush enclosures with no roof and a fireplace in the center, each which housed three to four families and was also used for ceremonies. Many foods gathered for substances were used for medicinal, material, and religious purposes as well. Women and children gathered and transported nuts and seeds with baskets.

Oak trees provided acorns, which were an important and primary source of nut meats (ECORP 2023b, Appendix C)

Ethnographers at contact observed various types of knives, spears, and bow and arrows were being manufactured and used for hunting. For blades, obsidian was obtained through trade, but silicates were also used, pitched to the end of a spear or arrow, and wrapped with sinew. Lithic material was obtained from the Table Mountain Cave but had to be exchanged for offerings of meat and beads and gathered according to custom as the cave was considered sacred (Dixon 1905; Riddell 1978).

Peaceful alliances and reciprocal trade were more common than war and conflict among the Konkow based on ethnographic evidence. Konkow procured salmon, pine nuts, and shell beads from neighboring tribes. They procured abalone shells from the Wintuans, which were used for ear ornaments or necklace pendants. They also traded a form of currency of standard clam shell disk shaped bead or strings of these beads (ECORP 2023b, Appendix C).

Contact between the Konkow and Western Culture was initiated as early as 1808 by Spanish explorers and fur trappers. The effects of the introduction of new diseases notwithstanding, native cultures remained essentially unchanged until after the discovery of Gold at Coloma in 1848 (Riddell 1978). An outbreak of

malaria in 1833, in concert with the 1848 Gold Rush and subsequent massacre of Native Americans, resulted in an upset of the ecological and social balance of local Native societies. As a direct result, Aboriginal populations declined from 8,000 in 1846 to only 900 in 1910 (Riddell 1978).

In 1855, the United States Congress authorized treaties to set aside reservation lands for Native Americans, and as a result, some Konkow were relocated to the Nome Lackee reservation in present-day Tehama County (ECORP 2023b, Appendix C).

Currently, descendants of the Maidu and Konkow have revitalized their ancestral heritage and have organized as the Enterprise, Berry Creek, and Mooretown Rancherias in Oroville; the Chico Rancheria in Chico (Mechoopda Indians, a Konkow subgroup); the United Maidu Nation and Susanville Rancheria in Susanville; and the Greenville Rancheria in Plumas County.

4.18.1.2 Patwin

Ethnographically, the Project Area is in the central portion of the territory occupied by the Penutian-speaking Hill Patwin. The Patwin territory included both the River and Hill Patwin and extended from the southern portion of the Sacramento River Valley to the west of the river, from the town of Princeton south to San Pablo and Suisun bays. As a language, Patwin (meaning "people") is a part of the Wintu linguistic family, which has three main groups: Southern or Patwin; Central, of Glenn and Tehama counties; and the Northern, of the upper Sacramento, lower Pit, and the upper Trinity drainages. The Hill Patwin territory includes the lower hills of the eastern Coast Range mountain slope (Long, Indian, Bear, Capay, Cortina, and Napa Valley). Between there and the foothills, the grassy plains were largely unsettled, used mainly as a foraging ground by both valley and hill groups. Patwin pre-contact population numbers are not precise, but there are estimates of 12,500 for the Wintu, Nomlaki, and Patwin groups. These numbers reflect groups prior to the 1833 malaria epidemic (ECORP 2023b, Appendix C).

Individual and extended families "owned" hunting and gathering grounds, and trespassing was discouraged without permission. Residence and marriage were generally matrilocal, but unrestricted. Politically, the Patwin were divided into "tribelets," made up of a primary village and a series of outlying hamlets, presided over by a more-or-less hereditary chief. Villages typically included family dwellings, acorn granaries, a sweathouse, and a dance house, owned by the chief. The chief had unrestricted power and presided over economic and ceremonial decisions (ECORP 2023b, Appendix C).

Subsistence activities centered around hunting of deer, Tule elk, antelope, bear, ducks, geese, quail, turtles, fish, and other small animals. Hunting of deer often took the form of communal drives, with the actual killing of the deer performed by individuals or groups. Decoys were used for attracting such game as deer and ducks. Nets and holding pens were used for fishing, which was also an important part of normal subsistence activities. Types of fish included sturgeon, salmon, perch, chub, sucker, hardhead, pike, trout, steelhead, and mussels. Although acorns were the staple of the Patwin diet, they also harvested sunflower, alfilaria, clover, bunchgrass, wild oak, and yellow flower, which was parched or dried, then pounded into a meal. Buckeye, pine nuts, juniper berries, manzanita berries, blackberries, wild grapes, brodiaea bulbs, and tule roots were also collected. Each village had its own locations for these food sources, and the village chief was in charge of assigning particular families to each collecting area. Game

was prepared by roasting, baking, or drying of the meat. Tobacco was collected along the river and inhaled, but not cultivated. Salt was scraped off rocks (in the Cortina region) or by burning a grass found on the plains (ECORP 2023b, Appendix C).

Patwin houses were built in the form of a dome, using tree branches for the framing, then covered with thatch and earth. House floors were typically dug out and the walls were built up as a mound, with the entrance to the building made through the roof. The closest village location was Moso, located on the north bank of Cache Creek around the town of Capay. No positive cultural material has been located or observed to support this claim.

One of the most distinctive aspects of the Patwin culture was the cult system, found throughout northern central California. The main feature of the cult was the occurrence of one or more secret societies, whose membership was by strict initiation, each with its own series of dances and rituals. Patwin culture is most distinctive in that it possessed three secret societies: the ghost, Hesi, and Kuksu. These involved elaborate ceremonial activities consisting of singing and dancing. Membership included mostly males, beginning around the ages of eight to 16, but on limited occasions, included high status women. Everyday Patwin life centered on the rituals performed within the secret societies. Details involving the ceremonies varied, but most had sacred dances requiring careful preparation, costume, and music. These dances could last several days (ECORP 2023b, Appendix C).

The earliest historical accounts of the Project Area begin with Spanish mission registers of baptisms, marriages, and deaths of Indians. By 1800, Native Americans were taken from the Patwin settlement of Aguastos in the south-central area, and from other villages, by emissaries of Mission Dolores. In addition, missions San Jose and Sonoma actively proselytized the southern Patwin. Between the 1830s and 1840s, both Mexicans and Americans rapidly overtook the Patwin territory under the authority of the Mexican government (ECORP 2023b, Appendix C).

The Spanish arrived on the central California coast in 1769, and by 1776 it had been explored by José Canizares. In 1808, Gabriel Moraga crossed into the territory, and in 1813 a major battle was fought between the Miwok and the Spaniards near the mouth of the Cosumnes River. In 1833, an epidemic most likely to be malaria raged through the Sacramento Valley, killing an estimated 75 percent of the native population. The discovery of gold in 1848 at Sutter's Mill, near the Nisenan village of Colluma (now Coloma) on the South Fork of the American River, drew thousands of miners into the area, and led to widespread killing and the virtual destruction of traditional Native American cultures (ECORP 2023b, Appendix C).

4.18.2 Tribal Cultural Resources (XVIII) Environmental Checklist and Discussion

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

Less Than Significant With Mitigation Incorporated.

As conveyed in the *Cultural Resources Inventory Report* conducted by ECORP Consulting, Inc., no known tribal cultural resources were identified at the Project Site or within a 0.5-mile radius during the records search and literature review performed. On March 30, 2023, ECORP performed a field investigation of the Project Site and APE, which concluded that no cultural resources were observed onsite. Additionally, the NAHC records search of the NAHC Sacred Lands File was completed for the Proposed Project revealing a negative search result for sacred lands within the Project Site.

No known TCRs have been identified within the Project Site. The Project Site has not been identified as either a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American tribe. However, unanticipated, and accidental discovery of California Native American TCRs are possible during Project implementation, especially during excavation, and have the potential to impact unique cultural resources. As such, mitigation measure CUL-1 have been included to reduce the potential for impacts to tribal cultural resources to a less than significant level.

4.18.3 Mitigation Measures

4.19 Utilities and Service Systems

4.19.1 Environmental Setting

The Project Site uses a combination of on-site facilities (treatment of irrigation water, on-site septic system and propane storage tank) and contracted service contracts (irrigation water delivery, solid waste disposal, electrical supply and propane delivery) for its utility requirements. Gray Lodge Wildlife Area is not part of any municipal utility services district.

4.19.1.1 Water Service

The Gray Lodge Wildlife Area is owned and managed by the California Department of Fish and Wildlife (CDFW). The Central Valley Project Improvement Act (CVPIA), Public Law 102-575, Title 34, Section 3406(d), directs the Secretary of the Interior through the Bureau of Reclamation (Reclamation) to deliver specified quantities of water to 19 refuges located in the Central Valley, including Gray Lodge Wildlife Area (WA). Reclamation is obligated to annually deliver water in specific quantities to the boundary of the Gray Lodge WA, meeting both scheduling and timing needs as determined by CDFW. Reclamation and CDFW have developed a strong working relationship and partnership through their combined efforts towards meeting the goals of CVPIA.

The Gray Lodge WA receives both surface water and groundwater supplies. Reclamation is able to provide surface water supplies to the Gray Lodge WA through a partnership with the Biggs-West Gridley Water District (District). These water supplies are conveyed through the District's facilities to three Points of Delivery (POD) on the northern boundary of the Gray Lodge WA. The POD are: Rising River, Cassidy, and Schwinn. Water flow meters are positioned at each of the POD for the purpose of measuring water amounts delivered. The information collected by these water flow meters is provided on this Web site.

Biggs-West Gridley Water District (District) is located in Gridley, California, and was founded in 1943 when the local landowners bought approximately 29% of the waterways and water rights from the Sutter Butte Canal Company. The District is currently comprised of approximately 32,000 acres, of which approximately 29,000 acres are irrigated annually. Approximately 85% of the District is planted to rice with the remainder consisting of orchard, pasture and alfalfa.

The District holds 160,950 acre feet of pre-1914 water rights from the Feather River, which is diverted from the Thermalito Afterbay of Oroville Dam through the Sutter Butte Main Canal. The District consists of three main laterals through which water is diverted into smaller waterways to service all of its members, including Gray Lodge Wildlife Area.

Biggs-West Gridley Water District is governed by a five-member Board of Directors and operates with a general manager and a staff of four ditch tenders and one maintenance worker (link).

4.19.1.2 Wastewater

The Gray Lodge utilizes an on-site septic system for wastewater disposal. The system is sized for the needs of the headquarters facilities. The Project Site is not located near a service area requiring wastewater services.

4.19.1.3 Storm Drainage

Due to the nature of the Wildlife Area, the project site does not have a managed storm drainage system in place.

4.19.1.4 Solid Waste

Butte County provides weekly solid waste disposal and recycling for the WA headquarters; on site there are two dumpsters for the disposal of solid Waste.

4.19.1.5 Electricity/Natural Gas Services

Electricity

Electric service in this portion of the County is provided by PG&E. PG&E's power is generated in fossil-fueled plants, hydroelectric powerhouses, geothermal generators, a nuclear power plant, and ten combustion turbines. PG&E also buys power from independent power producers and other utilities. PG&E provides service to approximately 5.1 million customers in Northern and Central California and has approximately 106,681 circuit miles of electric distribution lines and 18,466 circuit miles of interconnected transmission lines (PG&E 2023).

PG&E's services are provided in accordance with California Public Utilities Commission rules and regulations. Electric connections would be provided to the site from the existing transmission network in the Project vicinity. The Project applicant would be responsible for the costs associated with extension of electrical service infrastructure to the Project Site.

Natural Gas

PG&E supplies natural gas to homes and businesses in the Project Area. PG&E has 42,141 miles of distribution pipelines supplying 4.5 million natural gas customers. Extension of the natural gas infrastructure by PG&E is financed through the collection of developer fees and through consumer payment for service (PG&E 2023).

4.19.2 Utilities and Service Systems (XIX) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐

Less Than Significant Impact.

The Project proposes the installation of a clean-energy solar array system to supply electricity to the existing CDFW facility, with no occupational component that would require or result in the relocation or construction of new or expanded water, wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications facilities. The very nature of the Proposed Project is to generate clean energy onsite to reduce the burden of fossil fuels and support the overall electrical grid. The only potential generation of wastewater associated with the Project would come from the brief construction period; however, this amount would be negligible and would cease upon completion of the Proposed Project. As such, the Project impacts associated with utilities and service systems would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐

Less Than Significant Impact.

Water demand for the project would primarily be associated with dust control during project construction. It has been estimated that approximately 45,000 gallons would be required. Water would either be supplied from onsite supplies or provided by the contractor. Once construction is complete, water demand would be limited to occasional cleaning of the panels and would require minimal quantities. The project would not have an appreciable impact on local water supplies and this impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Result in a determination by the wastewater treatment provider, which serves or June serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐

Less Than Significant Impact.

Refer to Item a) above.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐

Less Than Significant Impact.

The Project proposes the installation of a clean-energy solar array system to supply electricity to the existing CDFW facility, with no occupational component that would generate solid waste. The only potential generation of solid waste would come from the brief construction period; however, this amount would be negligible and would cease upon completion of the Proposed Project. As such, the Project impacts associated with solid waste generation would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Less Than Significant Impact.

Where feasible, the Proposed Project will comply with all local, state, and federal statutes regarding solid waste, including PUB-9, PUB-10, and PUB-11 of the Butte County General Plan. No operations-generated acutely toxic or otherwise hazardous materials are expected to be generated by the proposed solar Project. This impact is considered less than significant.

4.19.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.20 Wildfire

4.20.1 Environmental Setting

The risk of wildfire is related to a variety of parameters, including fuel loading (vegetation), fire weather (e.g., winds, temperatures, humidity levels and fuel moisture contents), and topography (degree of slope). Steep slopes contribute to fire hazard by intensifying the effects of wind and making fire suppression difficult. Fuels such as grass are highly flammable because they have a high surface area-to-mass ratio and require less heat to reach the ignition point, while fuels such as trees have a lower surface area-to-mass ratio and require more heat to reach the ignition point.

The Project Site is relatively flat and dominated by vacant undeveloped land. As discussed in Section 4.16, the area is not designated as a Very High Fire Hazard Severity Zone (VHFHSZ, CAL FIRE 2023).

4.20.2 Wildfire (XX) Environmental Checklist and Discussion

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

No Impact.

The Project Site is not in an area designated by CAL FIRE as a VHFHSZ. Furthermore, no VHFHSZs are located nearby. Also, the Project Site is not located in a State Responsibility Area (SRA) (CAL FIRE 2023). The Project would have no impact in this area.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	☒

No Impact.

The Project Site is not in an area designated by CAL FIRE as a VHFHSZ. Furthermore, no VHFHSZs are located nearby. Also, the Project Site is not located in an SRA (CAL FIRE 2023). The Project would have no impact in this area.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that June exacerbate fire risk or that June result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒

No Impact.

The Project Site is not in an area designated by CAL FIRE as a VHFHSZ. Furthermore, no VHFHSZs are located nearby. Also, the Project Site is not located in an SRA (CAL FIRE 2023). The Project would have no impact in this area.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

No Impact.

The Project Site is not in an area designated by CAL FIRE as a VHFHSZ. Furthermore, no VHFHSZs are located nearby. Also, the Project Site is not located in an SRA (CAL FIRE 2023). The Project would have no impact in this area.

4.20.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.21 Mandatory Findings of Significance

4.21.1 Mandatory Findings of Significance (XXI) Environmental Checklist and Discussion

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

Less than Significant with Mitigation Incorporated.

With mitigation measures described in this Initial Study, the Proposed Project would not have a significant impact on fish and wildlife species or their habitat or eliminate important examples of major periods of California history or prehistory.

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐

Less Than Significant Impact.

As described in the impact analysis of this IS/MND, potentially significant impacts to biological resources, cultural resources, geology and soils, and tribal cultural resources have been identified and mitigation measures have been proposed to offset any project specific contribution to cumulative impacts. Current and proposed projects in the project area would also implement mitigation as necessary. All other impacts from the Proposed Project are short term in nature and associated with construction activities on the project site and, therefore, would not be cumulatively considerable. No other cumulative impacts were identified.

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Less Than Significant Impact.

Direct and indirect impacts to human beings would be less than significant with the implementation of mitigation measures listed in this IS/MND.

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APPENDIX A

Emissions and Greenhouse Gas for Gray Lodge Wildlife Area Solar Ground Mount Project
ECORP Consulting, Inc.
March 23, 2023

Grey Lodge Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Grey Lodge
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.90
Precipitation (days)	12.0
Location	39.346246, -121.782555
County	Butte
City	Unincorporated
Air District	Butte County AQMD
Air Basin	Sacramento Valley
TAZ	226
EDFZ	3
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	1.75	Acre	1.75	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.68	1.40	10.8	12.3	0.02	0.44	0.07	0.51	0.40	0.02	0.42	—	2,093	2,093	0.09	0.02	0.34	2,102
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.18	1.83	17.6	16.8	0.02	0.83	2.83	3.67	0.77	1.35	2.12	—	2,530	2,530	0.11	0.02	0.01	2,539
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.66	0.55	4.26	4.76	0.01	0.17	0.06	0.20	0.16	0.02	0.17	—	820	820	0.03	0.01	0.06	823
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.12	0.10	0.78	0.87	< 0.005	0.03	0.01	0.04	0.03	< 0.005	0.03	—	136	136	0.01	< 0.005	0.01	136
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	137	137	—	—	—	80.0	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	—	No	—	—	—	—	—	—	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Threshol	—	137	137	—	—	—	80.0	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	—	No	—	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.68	1.40	10.8	12.3	0.02	0.44	0.07	0.51	0.40	0.02	0.42	—	2,093	2,093	0.09	0.02	0.34	2,102
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	2.18	1.83	17.6	16.8	0.02	0.83	2.83	3.67	0.77	1.35	2.12	—	2,530	2,530	0.11	0.02	0.01	2,539
2024	1.67	1.39	10.8	12.1	0.02	0.44	0.07	0.51	0.40	0.02	0.42	—	2,083	2,083	0.09	0.02	0.01	2,091
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.31	0.26	2.04	2.18	< 0.005	0.09	0.06	0.15	0.08	0.02	0.11	—	366	366	0.02	< 0.005	0.03	368
2024	0.66	0.55	4.26	4.76	0.01	0.17	0.03	0.20	0.16	0.01	0.17	—	820	820	0.03	0.01	0.06	823
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.06	0.05	0.37	0.40	< 0.005	0.02	0.01	0.03	0.02	< 0.005	0.02	—	60.6	60.6	< 0.005	< 0.005	< 0.005	60.8
2024	0.12	0.10	0.78	0.87	< 0.005	0.03	0.01	0.04	0.03	< 0.005	0.03	—	136	136	0.01	< 0.005	0.01	136

3. Construction Emissions Details

3.1. Site Preparation (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.84	1.54	15.1	13.7	0.02	0.72	—	0.72	0.66	—	0.66	—	2,063	2,063	0.08	0.02	—	2,070
Dust From Material Movement	—	—	—	—	—	—	2.44	2.44	—	1.17	1.17	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.3	11.3	< 0.005	< 0.005	—	11.3
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.87	1.87	< 0.005	< 0.005	—	1.88
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.41	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	57.1	57.1	< 0.005	< 0.005	0.01	58.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.32	0.32	< 0.005	< 0.005	< 0.005	0.33
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.05	0.05	< 0.005	< 0.005	< 0.005	0.05
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.12	1.78	17.5	16.3	0.02	0.83	—	0.83	0.77	—	0.77	—	2,453	2,453	0.10	0.02	—	2,462

Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.19	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.9	26.9	< 0.005	< 0.005	—	27.0
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.45	4.45	< 0.005	< 0.005	—	4.47
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.55	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	76.2	76.2	0.01	< 0.005	0.01	77.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.86	0.86	< 0.005	< 0.005	< 0.005	0.87
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.14
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.70	1.42	11.2	11.7	0.02	0.49	—	0.49	0.45	—	0.45	—	2,008	2,008	0.08	0.02	—	2,015
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.22	1.75	1.83	< 0.005	0.08	—	0.08	0.07	—	0.07	—	314	314	0.01	< 0.005	—	316
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.05	0.04	0.32	0.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	52.1	52.1	< 0.005	< 0.005	—	52.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.55	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	76.2	76.2	0.01	< 0.005	0.01	77.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.3	12.3	< 0.005	< 0.005	0.03	12.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.03	2.03	< 0.005	< 0.005	< 0.005	2.07
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.61	1.34	10.8	11.6	0.02	0.44	—	0.44	0.40	—	0.40	—	2,009	2,009	0.08	0.02	—	2,015
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.61	1.34	10.8	11.6	0.02	0.44	—	0.44	0.40	—	0.40	—	2,009	2,009	0.08	0.02	—	2,015
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.63	0.53	4.24	4.56	0.01	0.17	—	0.17	0.16	—	0.16	—	790	790	0.03	0.01	—	793
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.77	0.83	< 0.005	0.03	—	0.03	0.03	—	0.03	—	131	131	0.01	< 0.005	—	131
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.68	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	84.9	84.9	< 0.005	< 0.005	0.34	86.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.51	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	74.7	74.7	0.01	< 0.005	0.01	75.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.20	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	30.3	30.3	< 0.005	< 0.005	0.06	30.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.01	5.01	< 0.005	< 0.005	0.01	5.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	10/4/2023	10/6/2023	5.00	2.00	—
Grading	Grading	10/7/2023	10/12/2023	5.00	4.00	—
Building Construction	Building Construction	10/13/2023	7/19/2024	5.00	200	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	6.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	6.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Building Construction	Trenchers	Diesel	Average	1.00	8.00	40.0	0.50

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	10.3	LDA,LDT1,LDT2
Site Preparation	Vendor	—	4.50	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	10.3	LDA,LDT1,LDT2
Grading	Vendor	—	4.50	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	10.0	10.3	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	4.50	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	1.88	0.00	—
Grading	—	—	4.00	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	1.75	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	204	0.03	< 0.005
2024	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	28.6	annual days of extreme heat
Extreme Precipitation	4.60	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	0	0	N/A
Extreme Precipitation	1	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	1	1	4
Extreme Precipitation	1	1	1	2
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A

Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	67.0
AQ-PM	34.5
AQ-DPM	26.2
Drinking Water	39.9
Lead Risk Housing	72.6
Pesticides	91.2
Toxic Releases	6.76
Traffic	2.02
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	61.5
Haz Waste Facilities/Generators	50.1
Impaired Water Bodies	66.7
Solid Waste	0.00

Sensitive Population	—
Asthma	73.4
Cardio-vascular	98.0
Low Birth Weights	18.0
Socioeconomic Factor Indicators	—
Education	67.4
Housing	53.6
Linguistic	61.5
Poverty	61.9
Unemployment	62.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	27.71718209
Employed	18.20864879
Median HI	12.93468497
Education	—
Bachelor's or higher	22.22507378
High school enrollment	100
Preschool enrollment	27.28089311
Transportation	—
Auto Access	40.90850764
Active commuting	52.73963814
Social	—
2-parent households	34.89028615

Voting	54.97241114
Neighborhood	—
Alcohol availability	71.64121648
Park access	23.5724368
Retail density	8.058514051
Supermarket access	39.6894649
Tree canopy	79.16078532
Housing	—
Homeownership	46.75991274
Housing habitability	50.75067368
Low-inc homeowner severe housing cost burden	21.59630438
Low-inc renter severe housing cost burden	91.36404466
Uncrowded housing	48.36391634
Health Outcomes	—
Insured adults	35.27524702
Arthritis	0.0
Asthma ER Admissions	42.4
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	12.6
Cognitively Disabled	11.9
Physically Disabled	3.5
Heart Attack ER Admissions	14.0

Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	75.3
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	45.9
Elderly	26.8
English Speaking	38.7
Foreign-born	46.1
Outdoor Workers	7.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	79.0
Traffic Density	2.5
Traffic Access	0.0
Other Indices	—
Hardship	80.8
Other Decision Support	—
2016 Voting	43.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	62.0
Healthy Places Index Score for Project Location (b)	29.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Solar field will require no paving or architectural coating.
Construction: Off-Road Equipment	Trenching equipment added to cover conduits and wires hidden in trenches
Construction: Trips and VMT	Trips added to generate workers during solar PV installation

Biological Resources Assessment
for the
Gray Lodge Solar Ground Mount Project

Butte County, California

Prepared For:

State of California Department of General Services
Real Estate Services Division

Prepared By:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
2525 Warren Drive
Rocklin, California 95677

Revised Draft to Supersede BRA dated September 16, 2021

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LIST OF ACRONYMS AND ABBREVIATIONS

Term	Definition
°F	Degrees Fahrenheit
BCC	Birds of Conservation Concern
BRA	Biological Resources Assessment
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CE	CESA or NPPA listed, Endangered.
CEQA	California Environmental Quality Act
CFP	California Fish and Game Code Fully Protected Species (§ 3511-birds, § 4700-mammals, §5 050-reptiles/amphibians).
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CR	CESA- or NPPA-listed, Rare.
CRPR	California Rare Plant Rank
CT	CESA- or NPPA-listed, Threatened.
CWA	Clean Water Act
DC	Direct current
DGS	State Department of General Services
DPS	Distinct population segment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit

Term	Definition
FE	FESA listed, Endangered.
FT	FESA listed, Threatened.
GPS	Global Positioning System
HCP	Habitat Conservation Plan
LSAA	Lake or Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
MCV	Manual of California Vegetation
MSL	Mean Sea Level
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
OHWM	Ordinary High Water Mark
Plan	Gray Lodge Wildlife Area Management Plan
Project	Gray Lodge Solar Ground Mount Project
RWQCB	Regional Water Quality Control Board
SNC	Sensitive Natural Community
SSC	Species of Special Concern
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WBWG	Western Bat Working Group
WL	Watch List

1.0 INTRODUCTION

On behalf of the State of California Department of General Services (DGS), ECORP Consulting, Inc. conducted a Biological Resources Assessment (BRA) for the proposed Gray Lodge Solar Ground Mount Project (Project) located in Butte County, California. This document supersedes the original BRA dated September 16, 2021. The original BRA included a smaller area than the Study Area included in this document. However, the location of the Project is expected to be slightly different than what was planned when the original BRA was prepared. Therefore, the Study Area has since been expanded to inform Project planning and allow for flexibility in Project location.

The purpose of the assessment was to collect information on the biological resources present and evaluate the potential for special-status species and their habitats to occur in the Study Area; assess potential biological impacts related to Project activities; and identify potential avoidance, minimization, or mitigation measures to inform the Project's California Environmental Quality Act (CEQA) documentation for biological resources.

1.1 Study Area Location

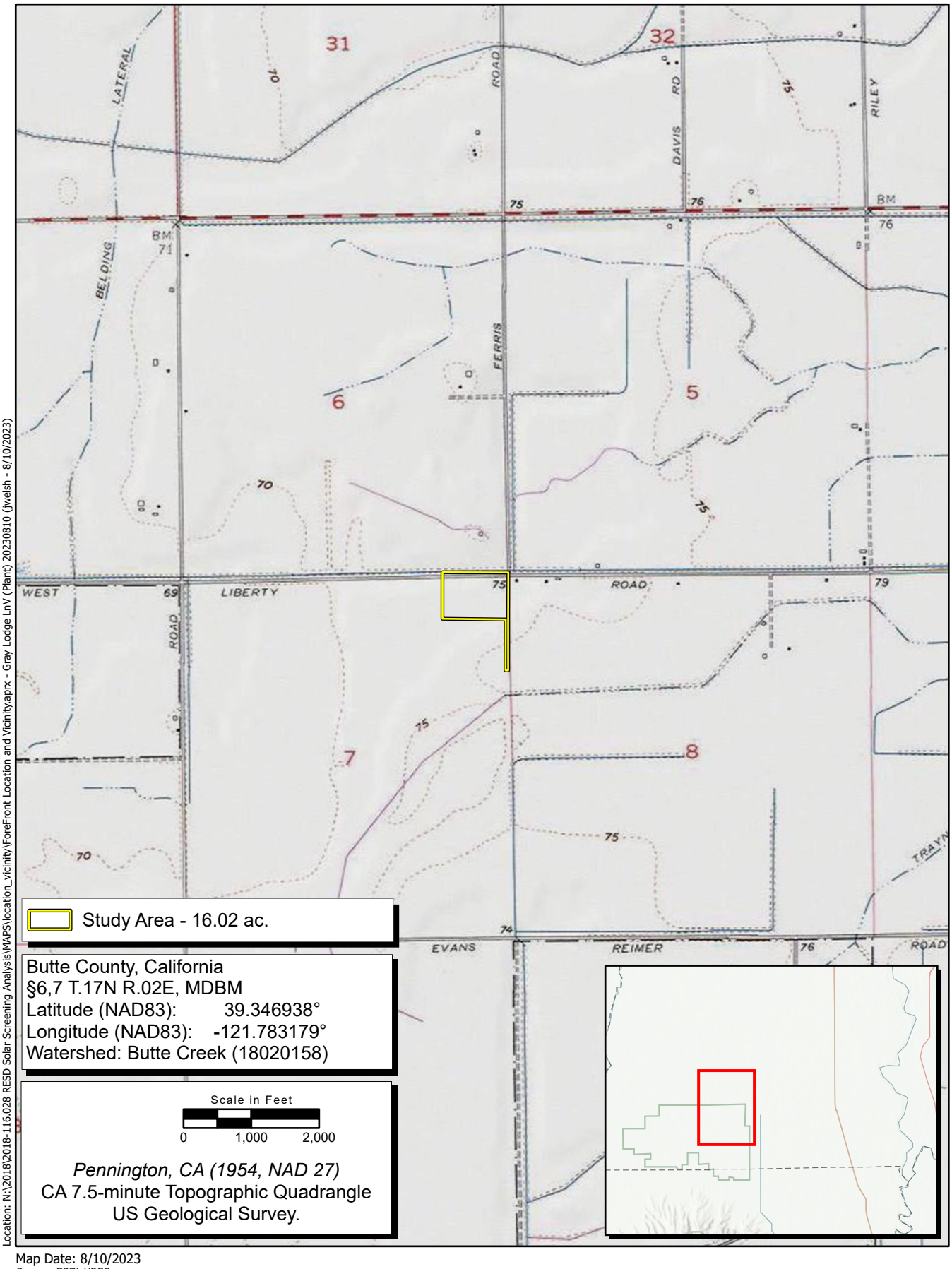
The approximately 16.02-acre Study Area includes the impact limits of the Project (Project Area) which is expected to be no larger than three acres, plus a buffer to allow for flexibility in Project location (Figure 1).

The Study Area is located southwest of the intersection of Farris Road and West Liberty Road, in the northeast corner of the Gray Lodge Wildlife Area in Butte County, California. The Study Area corresponds to a portion of the northeast quarter of Sections 6 and 7, Township 17 North, Range 02 East (Mount Diablo Base and Meridian) within the "Pennington, California" 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1954 [Photo Revised 1973]). The approximate center of the Study Area is located at latitude 38.346938° and longitude -121.783179° (NAD83). The Study Area is within the Butte Creek watershed (Hydrologic Unit Code 18020158) (Natural Resources Conservation Service [NRCS] et al. 2016).

1.2 Project Description

DGS is proposing to install a solar photovoltaic power generation system for the Gray Lodge Wildlife Area California Department of Fish and Wildlife (CDFW) facility. The system would include ground-mounted solar arrays that would convert sunlight to Direct Current (DC) electrical power. The DC electrical power would then be converted to alternating current by string inverters before being delivered to the Pacific Gas and Electric distribution system.

The solar system would be configured into three generally contiguous arrays that are laid out to minimize impacts to natural resources. The solar system would utilize either fixed-tilt or single-axis tracking mounting technology to optimize efficiency and performance. Single-axis trackers are designed to rotate the arrays in the east-to-west plane to track the sun's movement across the horizon. Once installed, the ground-mounted solar arrays would be approximately eight feet in height depending on the time of day to the extent a tracking system is utilized. A security fence would be installed around the solar arrays.



Location: N:\2018\2018-116.028 RESD Solar Screening Analysis\MAPS\location_vicinity\ForeFront Location and Vicinity.aprx - Gray Lodge LnV (Plant) 20230810 (jwelsh - 8/10/2023)

Map Date: 8/10/2023
Sources: ESRI, USGS

Figure 1. Study Area Location and Vicinity

2021-112.04 Gray Lodge Solar Ground Mount Project

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Solar panel wiring (also known as stringing) would be buried in trenches that run between rows and/or installed above-grade to connect the output of each string to an existing inverter located near a concrete-lined catch basin for a ditch in the east end of the Study Area. Trenching would either be excavated and backfilled, pending the final conduit size and equipment utilized, or wiring may be directionally drilled to avoid any existing natural resources or infrastructure features.

Prior to installation of the solar arrays, the Project site would be cleared of debris and vegetation. Minimal site grading would be required for the installation of the system. Construction equipment would include the following: bobcat or tractor with mower attachment, dump truck, grader, water truck, backhoe, forklift, pile driving rig, and generator. Dust generation would be minimized by use of the water truck.

All staging would occur within the Project Area or within existing roadways or developed areas. The Project would utilize existing roads for access.

Once construction is completed, primary production-related monitoring would be done remotely. No employees would be based at the Project site. The public would not have access to the facility. Access to the area would be infrequent and limited to authorized personnel only.

1.3 Purpose of this Biological Resources Assessment

The purpose of this BRA is to assess the potential for occurrence of special-status plant and animal species or their habitats, and sensitive habitats such as wetlands within the Study Area. This assessment does not include determinate presence-absence field surveys for special-status species conducted according to agency-promulgated protocols. The conclusions and recommendations presented in this report are based upon a review of the available literature and site reconnaissance.

For the purposes of this assessment, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of CEQA Guidelines;
- are identified as a Species of Special Concern (SSC) by the CDFW;
- are birds identified as Birds of Conservation Concern (BCC) by the U.S. Fish and Wildlife Service (USFWS);
- are included on the CDFW watch list;
- are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (California Rare Plant Rank [CRPR] 1 and 2), plants listed by CNPS as species about which more information is needed to determine their status (CRPR 3), and plants of limited distribution (CRPR 4);

- are plants listed as rare under the California Native Plant Protection Act (NPPA; California Fish and Game Code, § 1900 et seq.); or
- are fully protected in California in accordance with the California Fish and Game Code, §§ 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

Only species that fall into one of the above-listed groups were considered for this assessment. Other species without special status that are sometimes found in database or literature searches were not included in this analysis.

2.0 REGULATORY SETTING

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

The federal ESA protects plants and animals that are listed as endangered or threatened by the USFWS or the National Marine Fisheries Service (NMFS). Section 9 of the ESA prohibits the taking of listed wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 Code of Federal Regulations [CFR] 17.3). For plants, the ESA prohibits removing or possessing any listed plant on federal land, maliciously damaging or destroying any listed plant in any area, or removing, cutting, digging up, damaging, or destroying any such species in knowing violation of state law (16 U.S. Code 1538). Under Section 7 of ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its designated Critical Habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of a listed species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of the ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a habitat conservation plan (HCP) is developed.

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The protections of the MBTA extend to disturbances that result in abandonment of a nest with eggs or young. As authorized by the MBTA, the USFWS may issue permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits.

2.1.3 Federal Clean Water Act

The purpose of the federal Clean Water Act (CWA) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into Waters of the U.S. without a permit from the U.S. Army Corps of Engineers (USACE). The definition of Waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas:

> "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b).

The U.S. Environmental Protection Agency also has authority over wetlands and may override a USACE permit.

Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

2.2 State Regulations

2.2.1 California Endangered Species Act

The California ESA (California Fish and Game Code §§ 2050-2116) generally parallels the main provisions of the federal ESA, but unlike its federal counterpart, the California ESA applies the take prohibitions to species proposed for listing (called *candidates* by the state). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. *Take* is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Section 2081 allows CDFW to authorize incidental take permits if species-specific minimization and avoidance measures are incorporated to fully mitigate the impacts of the project.

2.2.2 Fully Protected Species

The state of California first began to designate species as *fully protected* prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the state and/or federal ESAs. Previously, the regulations that implement the Fully Protected Species Statute (California Fish and Game Code § 4700 for mammals, § 3511 for birds, § 5050 for reptiles and amphibians, and § 5515 for fish) provided that fully protected species may not be taken or possessed at any time. However, on July 10, 2023, Senate Bill 147 (SB147) was signed into law, authorizing CDFW to

issue take permits under the California ESA for fully protected species for qualifying projects through 2033. Qualifying projects include:

- A maintenance, repair, or improvement project to the State Water Project, including existing infrastructure, undertaken by the Department of Water Resources.
- A maintenance, repair, or improvement project to critical regional or local water agency infrastructure.
- A transportation project, including any associated habitat connectivity and wildlife crossing project, undertaken by a state, regional, or local agency, that does not increase highway or street capacity for automobile or truck travel.
- A wind project and any appurtenant infrastructure improvement, and any associated electric transmission project carrying electric power from a facility that is located in the state to a point of junction with any California based balancing authority.
- A solar photovoltaic project and any appurtenant infrastructure improvement, and any associated electric transmission project carrying electric power from a facility that is located in the state to a point of junction with any California-based balancing authority.

CDFW may also issue licenses or permits for take of these species for necessary scientific research or live capture and relocation, and may allow incidental take for lawful activities carried out under an approved Natural Community Conservation Plan within which such species are covered.

2.2.3 Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 was created with the intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA is administered by CDFW and provided in California Fish and Game Code §§ 1900-1913. The Fish and Wildlife Commission has the authority to designate native plants as *endangered* or *rare* and to protect endangered and rare plants from take. The California ESA of 1984 (California Fish and Game Code §§ 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the California Fish and Game Code.

2.2.4 California Fish and Game Code Special Protections for Birds

Sections 3503, 3513, and 3800 of the California Fish and Game Code specifically protect birds. Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Subsection 3503.5 prohibits the take, possession, or destruction of any birds in the orders Strigiformes (owls) or Falconiformes (hawks and eagles), as well as their nests and eggs. Section 3513 prohibits the take or possession of any migratory nongame bird as designated in the MBTA. Section 3800 states that, with limited exceptions, it is unlawful to take any nongame bird, defined as all birds occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds. These provisions, along with the federal MBTA, serve to protect all nongame birds and their nests and eggs, except as otherwise provided in the code.

2.2.5 Lake or Streambed Alteration Agreements

Section 1602 of the California Fish and Game Code requires that a Notification of Lake or Streambed Alteration be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The notification must incorporate proposed measures to protect affected fish and wildlife resources. During their review, CDFW may suggest additional protective measures. A Lake or Streambed Alteration Agreement (LSAA) is the final proposal mutually agreed upon by CDFW and the applicant. Projects that require an LSAA often also require a permit from the USACE under Section 404 of the CWA. The conditions of the Section 404 permit and the LSAA frequently overlap in these instances.

2.2.6 Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB also regulates actions that would involve "discharging waste, or proposing to discharge waste, within any region that could affect the water of the state" (Water Code 13260(a)). Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050(e)). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State, that are not regulated by the USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of a Waste Discharge Requirements for these activities.

2.2.7 California Environmental Quality Act

Per CEQA Guidelines Section 15380, a species not protected on a federal or state list may be considered rare or endangered if the species meets certain specified criteria. These criteria follow the definitions in the federal and California ESAs, and Sections 1900-1913 of the California Fish and Game Code, which deal with rare or endangered plants or animals. Section 15380 was included in the CEQA Guidelines primarily to deal with situations where a project under review may have a significant effect on a species that has not yet been listed by either the USFWS or CDFW.

2.2.7.1 CEQA Significance Criteria

Sections 15063-15065 of the CEQA Guidelines address how an impact is identified as significant. Generally, impacts to listed (rare, threatened, or endangered) species are considered significant. Assessment of "impact significance" to populations of non-listed species (e.g., SSC) usually considers the proportion of the species' range that will be affected by a project, impacts to habitat, and the regional and population level effects.

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Pursuant to Appendix G, impacts to biological resources would normally be considered significant if the project would:

- 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 federally protected Waters of the U.S. including wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, and coastal) 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 habitat conservation plan.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA because although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population-wide or region-wide basis.

2.2.7.2 Species of Special Concern

Species of Special Concern (SSC) are defined by the CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under ESA, the California ESA or the California Fish and Game Code, but currently satisfy one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role.
- The species is listed as federally (but not state) threatened or endangered, and meets the state definition of threatened or endangered but has not formally been listed.

- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status.
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.

SSC are typically associated with threatened habitats. Projects that result in substantial impacts to SSC may be considered significant under CEQA.

2.2.7.3 USFWS Bird of Conservation Concern

The 1988 amendment to the Fish and Wildlife Conservation Act mandates the USFWS "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under ESA." To meet this requirement, the USFWS published a list of BCC (USFWS 2021) for the U.S. The list identifies the migratory and nonmigratory bird species (beyond those already designated as federally threatened or endangered) that represent USFWS' highest conservation priorities. Depending on the policy of the lead agency, projects that result in substantial impacts to BCC may be considered significant under CEQA.

2.2.7.4 Watch List Species

The CDFW maintains a list consisting of taxa that were previously designated as "Species of Special Concern" but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status.

Depending on the policy of the lead agency, projects that result in substantial impacts to species on the Watch List (WL) may be considered significant under CEQA.

2.2.7.5 California Rare Plant Ranks

The CNPS maintains the *Rare Plant Inventory* (CNPS 2023a), which provides a list of plant species native to California that are threatened with extinction, have limited distributions, or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academia, non-governmental organizations, and private sector botanists, and is jointly managed by CDFW and the CNPS. The CRPRs are currently recognized in the California Natural Diversity Database (CNDDB). The following are definitions of the CNPS CRPRs:

- Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere
- Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere
- Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere
- Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere

- Rare Plant Rank 3 – a review list of plants about which more information is needed
- Rare Plant Rank 4 – a watch list of plants of limited distribution

Additionally, the CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of 0.1 through 0.3, with 0.1 being the most threatened and 0.3 being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- Threat Rank 0.1 – Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- Threat Rank 0.2 – Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
- Threat Rank 0.3 – Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Rank; and differences in Threat Ranks do not constitute additional or different protection (CNPS 2023a). Depending on the policy of the lead agency, substantial impacts to plants ranked 1A, 1B, 2A, or 2B are typically considered significant under CEQA Guidelines Section 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 3 or 4.

2.2.7.6 Sensitive Natural Communities

Sensitive natural communities (SNCs) are vegetation communities that are imperiled or vulnerable to environmental effects of projects. CDFW maintains the California Natural Community List (CDFW 2022), which provides a list of vegetation alliances, associations, and special stands as defined in *A Manual of California Vegetation Online* (MCV; CNPS 2023b), along with their respective state and global rarity ranks, if applicable. Natural communities with a state rarity rank of S1, S2, or S3 are considered SNCs. Depending on the policy of the lead agency, impacts to SNCs may be considered significant under CEQA.

2.2.7.7 Wildlife Movement Corridors and Nursery Sites

Impacts to wildlife movement corridors or nursery sites may be considered significant under CEQA. As part of the California Essential Habitat Connectivity Project, CDFW and Caltrans maintain data on Essential Habitat Connectivity areas. This data is available in the CNDDB. The goal of this project is to map large intact habitat or natural landscapes and potential linkages that could provide corridors for wildlife. In urban settings, riparian vegetated stream corridors can also serve as wildlife movement corridors. Nursery sites include but are not limited to concentrations of nest or den sites such as heron rookeries, bat maternity roosts, and mule deer critical fawning areas. These data are available through CDFW's Biogeographic Information and Observation System database or as occurrence records in the CNDDB and are supplemented with the results of the field reconnaissance.

2.3 Local Plans and Ordinances

2.3.1 Gray Lodge Wildlife Area Management Plan

The Gray Lodge Wildlife Area Management Plan (Plan; California Department of Fish and Game [CDFG] 1989) defines the goals and objectives for management of the wildlife area, pursuant to the requirements of the California Fish and Game Commission. The Plan provides an inventory of species found within the Plan area as well as goals and objectives for management of seasonally flooded wetlands, plants, and wildlife species; mitigation measures for operations and maintenance activities; and management needs not addressed by operations and maintenance activities.

3.0 METHODS

3.1 Literature Review

The following resources were reviewed to determine the special-status species that have been documented within or in the vicinity of the Study Area.

- CDFW CNDDB data for the "Pennington, California" 7.5-minute USGS quadrangle and the nine surrounding USGS quadrangles (CDFW 2023a).
- USFWS Information, Planning, and Consultation System Resource Report List for the Study Area (USFWS 2023a).
- CNPS' electronic Inventory of Rare and Endangered Plants of California was queried for the "Pennington, California" 7.5-minute USGS quadrangles and the nine surrounding quadrangles (CNPS 2023a).
- NMFS Resources data for the "Pennington, California" 7.5-minute USGS quadrangle (National Oceanic and Atmospheric Administration [NOAA] 2016).
- The Gray Lodge Wildlife Area Management Plan (CDFG 1989)

The results of the database queries are included in Appendix A.

Aerial imagery and site- or species-specific background information, as cited throughout this document, were reviewed to determine the potential for occurrence of sensitive biological resources within or in the vicinity of the Study Area.

3.2 Field Surveys Conducted

3.2.1 Site Reconnaissance

ECORP biologist Hannah Stone conducted a reconnaissance-level field survey for the original BRA (see Section 1.0) on February 23, 2021, which included the northeast portion of the Study Area. Stephanie Castle conducted a reconnaissance-level field survey for the entire Study Area on April 27, 2023. The

biologists visually assessed the Study Area while walking meandering transects through all portions of the site and collected the following biological resource information:

- Characteristics and approximate boundaries of vegetation communities and other land cover types;
- Characteristics and approximate extents of potential aquatic resources observed;
- Plant and animal species or their sign directly observed; and
- Incidental observations of special habitat features if present.

Vegetation communities were qualitatively assessed and mapped based on dominant plant composition. Vegetation community classification was based on the classification systems presented in the MCV. Special attention was given to identifying those portions of the Study Area with the potential to support special-status species or sensitive habitats. Data were recorded on a Global Positioning System (GPS) unit, field notebooks, and/or maps.

Photographs were taken during the survey to provide visual representation of the conditions within the Study Area, and are included in Appendix B.

3.2.2 Aquatic Resources Delineation

ECORP biologist Stephanie Castle conducted an aquatic resources delineation on April 27, 2023 in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a). Non-wetland waters were identified in the field according to *A Field Guide to the Identification of the Ordinary High Water mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b), where applicable. The boundaries of aquatic resources were delineated through standard field methods (e.g., paired sample set analyses) and aerial photograph interpretation. Field data were recorded on Wetland Determination Data Forms – Arid West Region (Appendix B). Color aerial photographs available on Google Earth© (photo dates: 3/2020, 6/2020, 2/2022, and 4/2023) were used to assist with mapping and ground-truthing. *Munsell Soil Color Charts* (Munsell Color 2009) and the Web Soil Survey (NRCS 2023) were used to aid in identifying hydric soils in the field. The Jepson eFlora (Jepson eFlora Project [eds.] 2023) was used for plant nomenclature and identification. Aquatic resources within the Study Area were recorded in the field using a post-processing capable GPS unit with submeter accuracy.

3.2.3 Special-Status Plant Survey

ECORP biologist Stephanie Castle conducted a special-status plant survey on April 27 and July 24, 2023 in accordance with guidelines promulgated by USFWS (2000), and CDFW (2018), CNPS (2001). The biologist walked meandering transects throughout the Study Area during the survey, including all suitable habitat for target species, and identified all plant species to the lowest possible taxonomic level required to assess rarity.

One special-status plant species, California alkali grass (*Puccinellia simplex*), was observed during the survey. The population consists of approximately 50 individuals located in a seasonal wetland swale in the southern portion of the Study Area (Figure 2). No other special-status plant species were observed during the survey. Appendix C provides additional survey details.

3.3 Special-Status Species Considered for the Study Area

Based on database queries, a list of special-status species that are considered to have the potential to occur within the vicinity of the Study Area was generated (Table 1). Each of the species was evaluated for its potential to occur within the Study Area through the literature review and field observations, and categorized based on the following criteria:

- **Present** - Species was observed during the site visit or is known to occur within the Study Area based on documented occurrences within the CNDDB or other literature.
- **Potential to Occur** - Habitat (including soils and elevation requirements) for the species occurs within the Study Area.
- **Low Potential to Occur** - Marginal or limited amounts of habitat occurs and/or the species is not known to occur within the vicinity of the Study Area based on CNDDB records and other available documentation.
- **Absent** - No suitable habitat (including soils and elevation requirements) and/or the species is not known to occur within the vicinity of the Study Area based on CNDDB records and other documentation.

4.0 RESULTS

4.1 Existing Condition

4.1.1 Site Characteristics and Land Use

The Study Area is located on relatively flat terrain situated at an elevational range of approximately 70 to 75 feet above mean sea level (MSL) in the Sacramento Valley subregion of the California floristic province (Jepson eFlora 2023). The average winter low temperature in the vicinity of the Study Area is 39.4 degrees Fahrenheit (˚F) and the average summer high temperature is 92.2˚F. Average annual precipitation is approximately 31.52 inches, which falls as rain (NOAA 2021).

The majority of the Study Area is a cattle-grazed annual grassland within a larger managed marsh complex. The Study Area includes seasonal wetlands, seasonal wetland swales, a ditch used for water distribution, and two developed roads (West Liberty Road and an unnamed access road).

The Study Area is leased for cattle grazing and is on the northeast edge of the Gray Lodge Wildlife Area, which is managed for wildlife habitat. Lands to the southeast are largely undeveloped grasslands and seasonally flooded wetlands managed mostly to provide wintering habitat for migratory waterfowl.

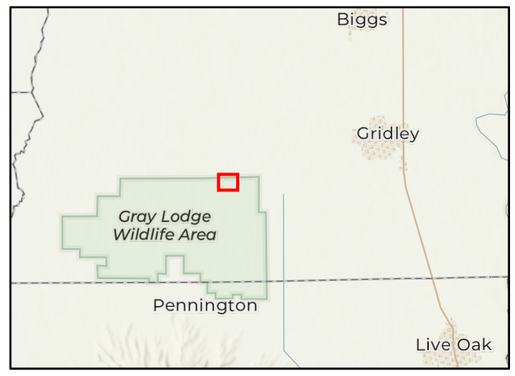
Map Contents

Study Area - 16.02 ac.

Special Status Plant

California Alkali Grass

Sources: Butte County, ESRI, ForeFront, Maxar (2022)



Location: N:\2018\2018-116.028 RESD Solar Screening Analysis\MAPS\biological_resources\ForeFront Biological Resources aprx - Gray Lodge Plant 20230810 (jwelsh - 8/10/2023)

Map Date: 8/10/2023

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Scale in Feet
0 250

Figure 2. California Alkali Grass Location

2021-112.04 Gray Lodge Solar Ground Mount Project

Lands from north to east of the Study Area are largely used for rice agriculture. A rural residence is located directly east of the Study Area. There are no trees in the Study Area.

Representative photographs of the Study Area are included in Appendix B.

4.1.2 Soils

According to the Web Soil Survey (NRCS 2023), three soil map units have been delineated within the Study Area (Figure 3):

- 125 – Gridley taxadjunct-Calcic Haploxerolls, 0 to 2 percent slopes
- 127 – Gridley taxadjunct loam, 0 to 2 percent slopes
- 416 – Calcic Haploxerolls, 0 to 1 percent slopes

The 125 - Gridley taxadjunct-Calcic Haploxerolls, 0 to 2 percent slopes map unit consists of 65 percent Gridley taxadjunct loam, and similar soils, 20 percent Calcic Haploxeroll sandy loam and similar soils, and 15 percent minor components. Gridley taxadjunct loam is described as moderately deep, somewhat poorly drained soils formed in loamy and clayey alluvium over cemented loamy alluvium derived from igneous and metamorphic rock. Calcic Haploxerolls sandy loam is described as deep, moderately well-drained soils formed in coarse-loamy alluvium derived from igneous, metamorphic, and sedimentary rock. This map unit one minor component with a hydric soil rating (Unnamed, frequently flooded) (NRCS 2023).

The 127 - Gridley taxadjunct loam, 0 to 2 percent slopes map unit consists of 85 percent Gridley taxadjunct loam and similar soils, and 15 percent minor components. This map unit includes one minor component with a hydric soil rating (Unnamed, frequently flooded) (NRCS 2023).

The 416 - Calcic Haploxerolls, 0 to 1 percent slopes map unit consists of 90 percent Calcic Haploxerolls sandy loam, and similar soils, and 10 percent minor components. This map unit does not include any soils rated as hydric (NRCS 2023).

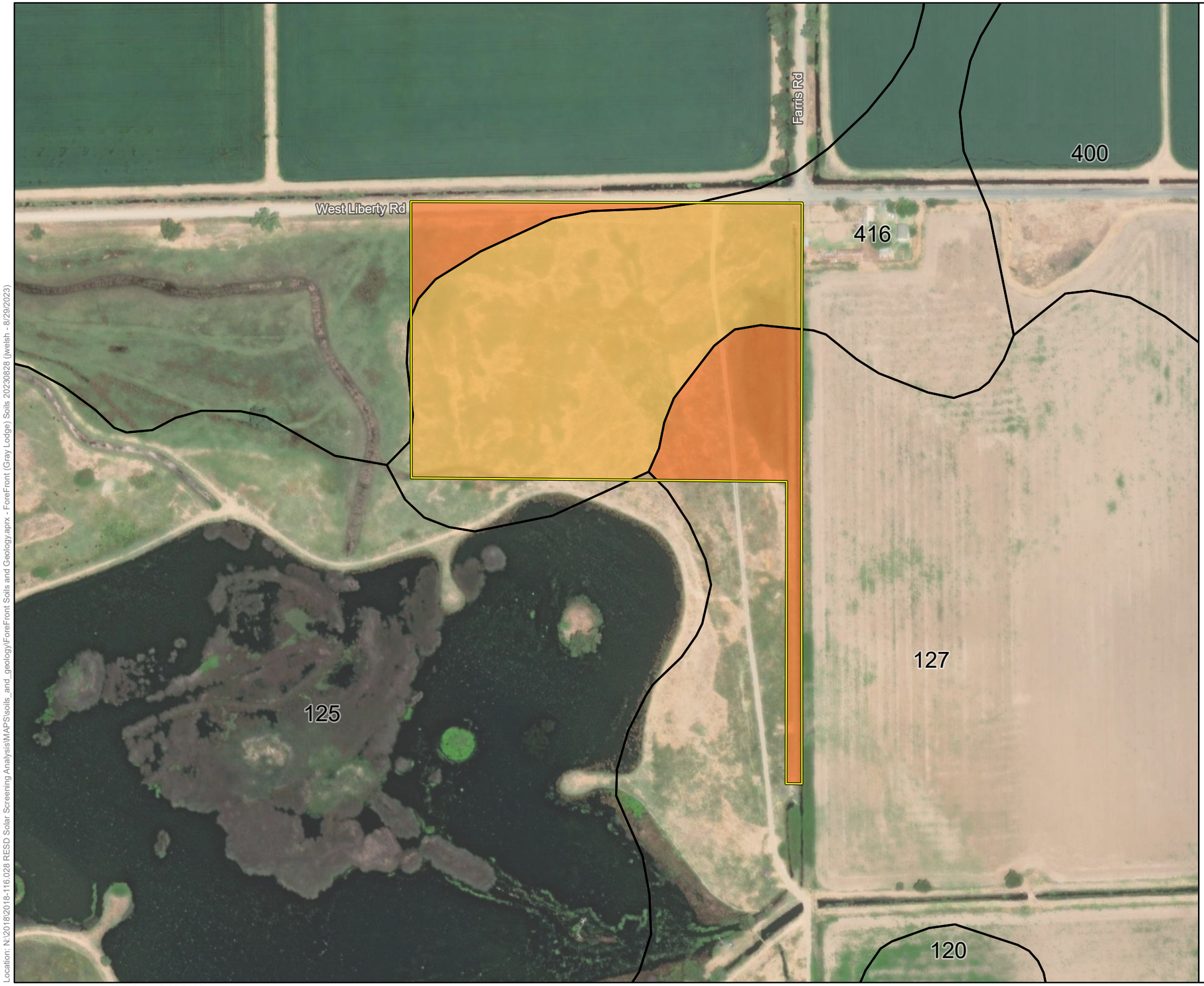
No soil units derived from serpentinite or other ultramafic parent materials have been reported to occur within the Study Area or its immediate vicinity (NRCS 2023; Jennings et al. 1977; Horton 2017).

4.1.3 Vegetation Communities and Land Cover Types

Two terrestrial vegetation communities or land cover types (annual grassland and developed areas) are present within the Study Area. These are described in the following sections.

4.1.3.1 Annual Grassland

The annual grassland is grazed by cattle, and vegetation was characteristic of disturbed places. Predominant vegetation within the annual grassland includes wild oats (*Avena* spp.), soft brome (*Bromus hordeaceus*), foxtail barley (*Hordeum murinum*), ripgut brome (*Bromus diandrus*), and shamrock clover (*Trifolium dubium*). Other common species present included yellow star-thistle (*Centaurea solstitialis*), Bermuda grass (*Cynodon dactylon*), common tarweed (*Centromadia pungens* ssp. *pungens*), red-stemmed filaree (*Erodium cicutarium*), and broad-leaf plantain (*Plantago major*).



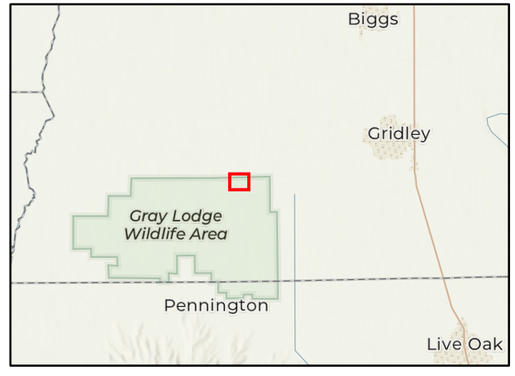
Map Contents

- Study Area - 16.02 ac.

NRCS Soil Types within Study Area

- 125 - Gridley taxadjunct-Calcic Haploxerolls, 0 to 2 percent slopes
- 127 - Gridley taxadjunct loam, 0 to 2 percent slopes
- 416 - Calcic Haploxerolls, 0 to 1 percent slopes

Sources: Butte County, ESRI, Maxar (2022), USDA NRCS SSURGO (2019)



Location: N:\2018\2018-116.028 RESD Solar Screening Analysis\MAPS\soils_and_geology\ForeFront Soils and Geology.aprx - ForeFront (Gray Lodge) Soils 20230828 (jwelsh - 8/29/2023)

Map Date: 8/29/2023

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Scale in Feet
0 250

Figure 3. Natural Resources Conservation Service Soils Types

2021-112.04 ForeFront - Gray Lodge

This vegetation community most resembles the *Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance as characterized by the MCV. Semi-natural alliances are strongly dominated by non-native plants that have become naturalized in the State, do not have state rarity rankings, and are not SNCs.

4.1.3.2 Developed

West Liberty Road is a two-lane paved road open to public access that bounds the Study Area to the north. An unnamed one-lane gravel surface access road runs north-south through the eastern portion of the Study Area. The unnamed access road is gated and limited to use by authorized personnel only. Both roads included sparse patches of purple sandspurry (*Spergularia rubra*), but otherwise were largely devoid of vegetation at the time of the site reconnaissance. A constructed ditch bounds the Study Area to the east, and is described in Section 4.14.

4.1.4 Aquatic Resources

Two seasonal wetlands, two seasonal wetland swales, and one irrigation ditch were delineated within the Study Area (Figure 4) and are described in the following sections. Multiple other irrigation ditches and rice fields are located north and west of the Study Area across West Liberty Road, and a constructed seasonal pond is located south and west of the Study Area. Multiple other potential seasonal wetlands and swales are present within the annual grasslands adjacent to the Study Area.

According to the National Wetlands Inventory, aquatic resources are mapped within the entire Study Area, except for the roads (Figure 5, USFWS 2020). The ditch is mapped as riverine and the remainder of the undeveloped Study Area is mapped as a freshwater emergent wetland.

4.1.4.1 Wetlands

Seasonal Wetland

Seasonal wetlands are ephemerally wet due to accumulation of periodic rainfall and surface runoff within low-lying areas. Inundation periods tend to be relatively short and they are commonly dominated by nonnative annual, and sometimes perennial, hydrophytic species.

One large seasonal wetland was present adjacent to a ditch running north-south within the eastern extent of the Study Area. The seasonal wetland was dominated by creeping spikerush (*Eleocharis macrostachya*), Carter's buttercup (*Ranunculus bonariensis*), and Mediterranean barley (*Hordeum marinum*). Scattered forbs including red clover (*Trifolium pratense*), harlequin downingia (*Downingia insignis*), clustered field sedge (*Carex praegracilis*), and annual rabbit's foot grass (*Polypogon monspeliensis*) were also present. A smaller seasonal wetland with similar vegetation is located northeast of the larger seasonal wetland.

Vegetation composition within the seasonal wetlands most resembles the Lasthenia glaberrima – Eleocharis *macrostachya* Herbaceous Alliance as characterized by the MCV. This alliance has a State rarity ranking of S2 and is considered a SNC.

Map Contents

- Survey Area - 16.02 ac.
- Reference Coordinate
- Transect

Sample Point

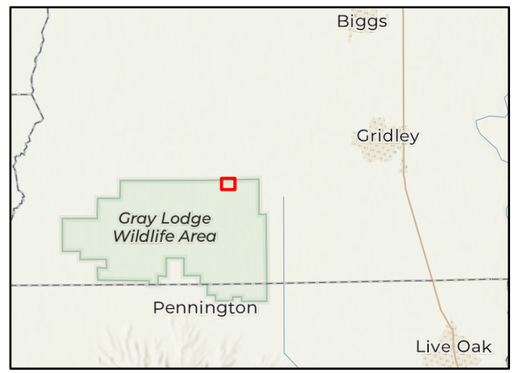
- Upland
- Waters

Aquatic Resource Type - 1.548 ac.

- Ditch - 0.470 ac.
- Seasonal Wetland - 0.964 ac.
- Seasonal Wetland Swale - 0.113 ac.

Photo Source: Maxar (2022)
Boundary Source: ForeFront
Delineator(s): Stephanie Castle
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet

Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.
The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.



Location: N:\2018\2018-116.028 RESD Solar Screening Analysis\MAPS\jurisdictional_delineation\ForeFront Aquatic Resources.aprx - ForeFront (Gray Lodge) ARD 20230821 (jwelsh - 8/21/2023)

Map Date: 8/21/2023

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Scale in Feet
0 175

Figure 4. Aquatic Resources Delineation

2021-112.04 ForeFront - Gray Lodge

Map Contents

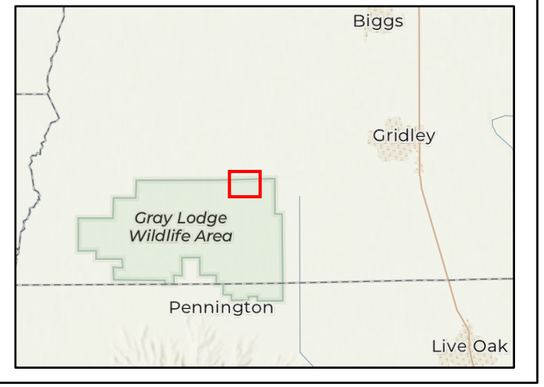
Study Area - 16.02 ac.

NWI Type

Freshwater Emergent Wetland

Riverine

Sources: Butte County, ESRI, Maxar (2022), USFWS NWI (2022)



Location: N:\2018\2018-116.028 RESD Solar Screening Analysis\MAPS\jurisdictional_delineation\ForeFront Aquatic Resources aprx - ForeFront (Gray Lodge) NWI 20230828 (jwelsh - 8/29/2023)

Map Date: 8/28/2023

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Scale in Feet
0 200 400

Figure 5. National Wetlands Inventory

2021-112.04 ForeFront - Gray Lodge

Seasonal Wetland Swale

Seasonal wetland swales are generally linear wetland features that convey precipitation runoff and support a predominance of hydrophytic vegetation, but do not exhibit an OHWM. These are typically inundated for short periods during and immediately after rain events, but usually maintain soil saturation for longer periods during the wet season.

Two seasonal wetland swales were present onsite. The swales were dominated by slender popcorn flower (*Plagiobothrys stipitatus* var. *micranthus*), spiny-fruit buttercup (*Ranunculus muricatus*), and Oregon wooly-heads (*Psilocarphus oregonus*). Annual grasses such as Italian ryegrass (*Festuca perennis*) and Mediterranean barley (*Hordeum marinum*) were also present.

These features were not characterized to the alliance or association level. However, vegetation within the seasonal wetland swales did not resemble any sensitive alliances or associations.

4.1.4.2 Other Waters

Ditch

One ditch runs north-south through the eastern portion of the Study Area. The outlet of the ditch is a concrete-lined catch basin that is located directly south of the intersection of West Liberty Road and Farris Road. The ditch appeared to have an earthen bed except is concrete lined where it abuts the catch basin. Water in the ditch is controlled for water distribution. The ditch adjacent to the Study Area was edged with soft rush (*Juncus effusus*), spotted lady's thumb (*Persicaria maculosa*), patches of seashore vervain (*Verbena litoralis*), annual grasses, and scattered forbs including bur clover (*Medicago polymorpha*), western marsh cudweed (*Gnaphalium palustre*), and scarlet pimpernel (*Lysimachia arvensis*).

Vegetation within the ditch was not characterized to the alliance or association level. However, vegetation within the ditch did not resemble any sensitive alliances or associations.

4.1.5 Wildlife Observations

Wildlife observed within or flying over the Study Area during the site reconnaissance includes Canada goose (*Branta canadensis*), great egret (*Ardea alba*), turkey vulture (*Cathartes aura*), black phoebe (*Sayornis nigricans*), red-winged blackbird (*Agelaius phoeniceus*), western meadowlark (*Sturnella neglecta*), and northern mockingbird (*Mimus polyglottos*).

4.2 Evaluation of Species Identified in the Literature Search

Table 1 lists all the special-status plant and wildlife species (as defined in Section 1.3) identified in the literature review as potentially occurring within the vicinity of the Study Area. Included in this table are the listing status for each species, a brief habitat description, and an evaluation on the potential for each species to occur within the Study Area.

Following the table is a brief description and discussion of California alkali grass, which was determined to be present onsite, and each special-status wildlife species that was determined to have potential to occur onsite.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Plants						
Bent-flowered fiddleneck (*Amsinckia lunaris*)	–	–	1B.2	Cismontane woodland, coastal bluff scrub, and valley and foothill grasslands (10'–1,640').	March–June	Low potential to occur. The grassland within the Study Area may provide marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Ferris' milk-vetch *(Astragalus tener* var. *ferrisiae)*	–	–	1B.1	Vernally mesic meadows and seeps and in sub-alkaline flats within valley and foothill grasslands (7'–246').	April–May	Low potential to occur. The aquatic features and grassland within the Study Area may provide suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Heartscale *(Atriplex cordulata* var. *cordulata)*	–	–	1B.2	Alkaline or saline valley and foothill grasslands, meadows and seeps, and chenopod scrub communities (0'–1,837').	April–October	Low potential to occur. The aquatic features and grassland within the Study Area may provide suitable habitat. However, this species was not observed during the 2023 special-status plant survey.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Lesser saltscale *(Atriplex minuscula)*	–	–	1B.1	Alkaline, sandy soils in chenopod scrub, playas, and valley and foothill grassland (49'–656').	May–October	Low potential to occur. The grassland within the Study Area may provide suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Subtle orache (*Atriplex subtilis*)	–	–	1B.2	Alkaline valley and foothill grasslands (131'–328').	June–September	Low potential to occur. The grassland within the Study Area may provide suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Mexican mosquito fern *(Azolla microphylla)*	–	–	4.2	Marshes and swamps, ponds or slow-moving bodies of water (98'–328').	August	Absent. No suitable habitat within Study Area.
Watershield *(Brasenia schreberi)*	–	–	2B.3	Freshwater marshes and swamps (98'–7,218').	June–September	Absent. No suitable habitat within Study Area.
Pink creamsacs *(Castilleja rubicundula* var. *rubicundula)*	–	–	1B.2	Serpentinite substrates in chaparral openings, cismontane woodland, meadows and seeps, and valley and foothill grassland (66'–2,986').	April–June	Absent. No suitable habitat within Study Area.
Pappose tarplant (*Centromadia parryi* ssp. *parryi*)	–	–	1B.2	Often on alkaline soils within chaparral, coastal prairie, meadows and seeps, coastal salt marshes and swamps, vernally mesic valley and foothill grassland (0'–1,378').	May–November	Low potential to occur. The aquatic features and grassland within the Study Area may provide suitable habitat.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
						However, this species was not observed during the 2023 special-status plant survey.
Parry's rough tarplant *(Centromadia parryi* ssp. *rudis)*	–	–	4.2	Alkaline, vernally mesic seeps in valley and foothill grassland and vernal pools, sometimes found on roadsides (0'–328').	May–October	Low potential to occur. The aquatic features and grassland within the Study Area may provide suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Red-stemmed cryptantha (*Cryptantha rostellata*)	–	–	4.2	Often gravelly, volcanic openings and often roadsides within cismontane woodland and valley and foothill grasslands (131'–2,625').	April–June	Low potential to occur. The grassland within the Study Area may provide marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Peruvian dodder (*Cuscuta obtusiflora* var. *glandulosa*)	–	–	2B.2	Freshwater marshes and swamps (49'–919').	July–October	Absent. No suitable habitat within Study Area.
Recurved larkspur *(Delphinium recurvatum)*	–	–	1B.2	Chenopod scrub, cismontane woodland, and valley and foothill grasslands (10'–2,592').	March–June	Low potential to occur. The grassland within the Study Area may provide suitable habitat. However, this species was not observed during

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
						the 2023 special-status plant survey.
Water star-grass (*Heteranthera dubia*)	–	–	2B.2	Alkaline (pH of 7 of higher), still or slow-moving, and usually slightly eutrophic waters of marshes and swamps (98'–4,905').	July–October	Absent. No suitable habitat within Study Area.
Woolly rose-mallow *(Hibiscus lasiocarpos* var. *occidentalis)*	–	–	1B.2	Marshes and freshwater swamps. Often in riprap on sides of levees (0'–394').	June–September	Absent. No suitable habitat within Study Area.
Ahart's dwarf rush *(Juncus leiospermus* var. *ahartii)*	–	–	1B.2	Mesic areas in valley and foothill grassland. Species has an affinity for slight disturbance such as farmed fields (USFWS 2005) (98'–751').	March–May	Low potential to occur. Aquatic features and other mesic areas of the grassland within the Study Area may provide suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Colusa layia *(Layia septentrionalis)*	–	–	1B.2	Sandy or serpentinite soils in chaparral, cismontane woodland, and valley and foothill grasslands (328'–3,593').	April–May	Low potential to occur. The grassland within the Study Area may provide marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Woolly meadowfoam *(Limnanthes floccosa* ssp. *floccosa)*	–	–	4.2	Vernally mesic chaparral, cismontane woodland, valley and foothill grassland, and	March–May	Low potential to occur. Aquatic features and other mesic areas of the

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
				vernal pools (197'–4,380').		grassland within the Study Area may provide suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Veiny monardella *(Monardella venosa)*	–	–	1B.1	Heavy clay soils in cismontane woodland and valley and foothill grasslands (197'–1,345').	May–July	Low potential to occur. The grassland within the Study Area may provide marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Baker's navarretia *(Navarretia leucocephala* ssp. *bakeri)*	–	–	1B.1	Vernal pools and mesic areas within cismontane woodlands, lower montane coniferous forests, meadows and seeps, and valley and foothill grasslands (16'–5,709').	April–July	Low potential to occur. Aquatic features and other mesic areas of the grassland within the Study Area may provide marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Adobe navarretia *(Navarretia nigelliformis* ssp. *nigelliformis)*	–	–	4.2	Clay and sometimes serpentinite soils in vernally mesic valley and foothill grasslands and sometimes in vernal pools (328'–3,281).	April–June	Low potential to occur. Aquatic features and other mesic areas of the grassland within the Study Area may provide

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
						marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Wine-colored tufa moss *(Plagiobryoides vinosula)*	–	–	4.2	Usually in granitic rock or granitic soil along seeps and streams, sometimes in clay (98'–5,692').	Any season	Low potential to occur. Soils within the Study Area may provide marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Hartweg's golden sunburst *(Pseudobahia bahiifolia)*	FE	CE	1B.1	Clay, often acidic soils in cismontane woodland, valley and foothill grasslands (49'–492').	March–April	Absent. No suitable habitat within Study Area.
California alkali grass (*Puccinellia simplex*)	–	–	1B.2	Alkaline, vernally mesic areas in sinks, flats and lake margins in chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools (7'–3,051').	March–May	Present. This species was mapped in a seasonal wetland swale within the Study Area during the 2023 special-status plant survey.
Sanford's arrowhead *(Sagittaria sanfordii)*	–	–	1B.2	Shallow marshes and freshwater swamps (0'–2,133').	May–October	Absent. No suitable habitat within Study Area.
Wright's trichocoronis *(Trichocoronis wrightii* var. *wrightii)*	–	–	2B.1	Alkaline soils in meadows and seeps, marshes and swamps, riparian forest, and vernal pools (16'–1,427').	May–September	Low potential to occur. Aquatic features and other mesic areas of the grassland within the Study Area may provide

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description[1]**	**Survey Period**	**Potential to Occur Onsite**
	ESA	**CESA**	**Other**			
						marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey.
Greene's tuctoria *(Tuctoria greenei)*	FE	CR	1B.1	Vernal pools (98'–3,510').	May–July	Low potential to occur. Aquatic features within the Study Area may provide marginally suitable habitat. However, this species was not observed during the 2023 special-status plant survey**.**
Brazilian watermeal *(Wolffia brasiliensis)*	–	–	2B.3	Assorted shallow freshwater marshes and swamps (66'–328').	April–December	Absent. No suitable habitat within Study Area.
Invertebrates						
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	–	–	Vernal pools/wetlands.	November-April	Potential to occur. The seasonal wetlands and swales within the Study Area may provide suitable habitat for this species.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	–	–	Vernal pools/wetlands.	November - April	Low potential to occur. The seasonal wetlands and swales within the Study Area may provide marginally suitable habitat for this species.

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description[1]**	**Survey Period**	**Potential to Occur Onsite**
	ESA	**CESA**	**Other**			
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	–	–	Elderberry shrubs (host plant for this species).	Any season	Absent. No suitable habitat within Study Area.
Monarch – California overwintering population (*Danaus plexippus plexippus* pop. 1)	FC	–	–	Adult monarchs west of the Rocky Mountains typically overwinter in sheltered wooded groves of Monterey pine, Monterey cypress, and gum eucalyptus along coastal California, then disperse in spring throughout California, Nevada, Arizona, and parts of Oregon and Washington. Adults require milkweed and additional nectar sources during the breeding season. Larval caterpillars feed exclusively on milkweed.	Any season	Absent. No suitable habitat within the Study Area.
Fish						
Green sturgeon (*Acipenser medirostris*)	FT	–	SSC	Anadromous; undammed cold-water rivers having relatively deep pools with large substrates.	N/A	Absent. No suitable habitat within Study Area.
Chinook salmon (Central Valley spring-run ESU (*Oncorhynchus tshawytscha*)	FT	CT	–	Undammed rivers, streams, creeks.	N/A	Absent. No suitable habitat within Study Area.
Chinook salmon (Sacramento River winter-run ESU) *(Oncorhynchus tshawytscha)*	FE	CE	–	Undammed rivers, streams, creeks.	N/A	Absent. No suitable habitat within Study Area.
Steelhead (CA Central Valley Distinct Population Segment [DPS])	FT	–	–	Undammed rivers, streams, creeks.	N/A	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
(*Oncorhynchus mykiss*)						
Delta smelt (*Hypomesus transpacificus*)	FT	CE	–	Sacramento-San Joaquin delta.	N/A	Absent. Outside of the known geographic range for this species and no suitable habitat within Study Area.
Amphibians						
California tiger salamander (Central California DPS) (*Ambystoma californiense*)	FT	CT	SSC	Vernal pools, wetlands (breeding) and adjacent grassland or oak woodland; needs underground refuge (e.g., ground squirrel and/or gopher burrows). Largely terrestrial as adults.	January - May	Absent. Study Area is outside of geographic range for this species.
Foothill yellow-legged frog (North Fork Feather and Upper Feather River Clade) (*Rana boylii*)	FT	CT	SSC	Foothill yellow-legged frogs can be active all year in warmer locations but may become inactive or hibernate in colder climates. At lower elevations, foothill yellow-legged frogs likely spend most of the year in or near streams. Adult frogs, primarily males, will gather along main-stem rivers during spring to breed.	April - October	Absent. Study Area is outside of geographic range for this species.
California red-legged frog (*Rana draytonii*)	FT	–	SSC	Lowlands or foothills at waters with dense shrubby or emergent riparian vegetation. Adults must have aestivation habitat to endure summer dry down.	May 1- November 1	Absent. Study Area is outside of geographic range for this species.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Reptiles						
Northwestern pond turtle (*Actinemys marmorata*)	–	–	SSC	Requires basking sites and upland habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches.	April-September	Potential to occur. This species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989).The ditch may provide marginally suitable aquatic habitat and the rest of the undeveloped Study Area may provide suitable upland habitat.
Giant garter snake (*Thamnophis gigas*)	FT	CT	–	Freshwater ditches, sloughs, and marshes in the Central Valley. Almost extirpated from the southern parts of its range.	April-October	Potential to occur. The ditch may provide suitable aquatic habitat and the grassland may provide suitable upland habitat.
Birds						
Aleutian cackling goose *(Branta hutchinsii leucopareia)*	De-listed	–	CDFW WL	Overwintering habitat includes mudflats, shallow tidal waters, salt marsh, wet grasslands, freshwater marsh, lakes, reservoirs and rivers (breeds in Alaska on various Aleutian Islands; winters in California's Central Valley, with a small wintering population in southwestern Oregon, and migration staging areas around Humboldt Bay and Crescent City in California and New River bottoms in Oregon.	October-March (wintering)	Potential to occur. The Study Area may provide suitable wintering habitat for this species.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Western grebe (*Aechmophorus occidentalis*)	–	–	BCC	Winters on salt or brackish bays, estuaries, sheltered sea coasts, freshwater lakes, and rivers. Nests on freshwater lakes and marshes with open water bordered by emergent vegetation.	June-August (breeding)	Absent. There is no suitable aquatic habitat in the Study Area.
Long-billed curlew (*Numenius americanus*)	–	–	BCC	Breeds east of the Cascades in Washington, Oregon, northeastern California (Siskiyou, Modoc, Lassen counties), east-central California (Inyo County), through Great Basin region into Great Plains. Winters in California, Texas, and Louisiana. Wintering habitat includes tidal mudflats and estuaries, wet pastures, sandy beaches, salt marsh, managed wetlands, evaporation ponds, sewage ponds, and grasslands.	September-March (wintering)	Potential to occur. The Study Area may provide suitable wintering habitat for this species.
Short-billed dowitcher *(Limnodromus griseus)*	–	–	BCC	Nests in Canada, southern Alaska; winters in coastal California south to South America; wintering habitat includes coastal mudflats and brackish lagoons	Wintering/ migrant period: late-August-May	Absent. No suitable habitat within Study Area.
Osprey *(Pandion haliaetus)*	–	–	CDFW WL	Nesting habitat requires close proximity to accessible fish, open nest site free of mammalian predators, and extended ice-free season. The nest in large trees, snags, cliffs, transmission/communication towers, artificial	April-September	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
				nest platforms, channel markers/buoys.		
Golden eagle (*Aquila chrysaetos*)	–	–	BCC, CFP	Nesting habitat includes mountainous canyon land, rimrock terrain of open desert and grasslands, riparian, oak woodland/ savannah, and chaparral. Nesting occurs on cliff ledges, river banks, trees, and human-made structures (e.g., windmills, platforms, and transmission towers). Breeding occurs throughout California, except the immediate coast, Central Valley floor, Salton Sea region, and the Colorado River region, where they can be found during winter.	Nesting February-August	Potential to occur. This species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989) and the Study Area may provide suitable foraging habitat for this species.
Bald eagle (*Haliaeetus leucocephalus*)	De-listed	CE	CFP, BCC	Typically nests in forested areas near large bodies of water in the northern half of California; nest in trees and rarely on cliffs; wintering habitat includes forest and woodland communities near water bodies (e.g., rivers, lakes), wetlands, flooded agricultural fields, open grasslands	Nesting February – September	Potential to occur. This species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989) and the Study Area may provide suitable foraging habitat for this species.
Northern harrier (*Circus hudsonius*)	–	–	SSC	Nests on the ground in open wetlands, marshy meadows, wet/lightly grazed pastures, (rarely) freshwater/brackish marshes, tundra, grasslands, prairies, croplands, desert, shrub-steppe, and (rarely) riparian woodland communities.	April-September	Potential to occur. This species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989) and the Study Area may provide suitable nesting and foraging

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
						habitat for this species.
Swainson's hawk (*Buteo swainsoni*)	–	CT	BCC	Nesting occurs in trees in agricultural, riparian, oak woodland, scrub, and urban landscapes. Forages over grassland, agricultural lands, particularly during disking/harvesting, irrigated pastures	March-August	Potential to occur. This species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989) and the Study Area may provide suitable foraging habitat for this species. Potentially suitable nesting habitat was observed near the Study Area but not onsite.
Nuttall's woodpecker *(Dryobates nuttallii)*	–	–	BCC	Resident from northern California south to Baja California. Nests in tree cavities in oak woodlands and riparian woodlands.	April-July	Absent. No suitable habitat within Study Area.
Merlin *(Falco columbarius)*	–	–	CDFW WL	Breeds in Oregon, Washington north into Canada. Winters in southern Canada to South America, including California. Breeds near forest openings, fragmented woodlots, and riparian areas. Wintering habitat includes wide variety, open forests, grasslands, tidal flats, plains, and urban settings.	September-April (wintering in the Central Valley); does not breed in California	Potential to occur. The grassland within the Study Area represents potentially suitable winter foraging habitat.
California black rail (*Laterallus jamaicensis coturniculus*)	–	CT	BCC, CFP	Salt marsh, shallow freshwater marsh, wet meadows, and flooded grassy vegetation. In California, primarily found in coastal and	March-September (breeding)	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
				Bay-Delta communities, but also in Sierran foothills (Butte, Yuba, Nevada, Placer, El Dorado counties)		
California gull (nesting colony) *(Larus californicus)*	–	–	BCC, CDFW WL	Nesting occurs in the Great Basin, Great Plains, Mono Lake, and south San Francisco Bay. Winters along Pacific Coast from southern British Columbia south to Baja California and Mexico. In California, winters along coast and inland (Central Valley, Salton Sea).	April-August	Absent. There is no suitable breeding habitat onsite.
Greater sandhill crane *(Antigone canadensis tabida)*	–	CT	CFP	Breeds in northeast California, Nevada, Oregon, Washington, and BC, Canada; winters from California to Florida. In winter, they forage in burned grasslands, pastures, and feed on waste grain in a variety of agricultural settings (e.g., corn, wheat, milo, rice, oats, and barley), tilled fields, recently planted fields, alfalfa fields, row crops and burned rice fields.	March-August (breeding); September-March (wintering)	Potential to occur. This species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989) and the Study Area may provide suitable wintering habitat for this species.
Yellow-billed cuckoo (*Coccyzus americanus*)	FT	CE	BCC	Breeds in California, Arizona, Utah, Colorado, and Wyoming. In California, they nest along the upper Sacramento River and the South Fork Kern River from Isabella Reservoir to Canebrake Ecological Reserve. Other known nesting locations include Feather River (Butte,	June 15-August 15	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
				Yuba, Sutter counties), Prado Flood Control Basin (San Bernardino and Riverside counties), Amargosa River and Owens Valley (Inyo County), Santa Clara River (Los Angeles County), Mojave River and Colorado River (San Bernardino County). Nests in riparian woodland. Winters in South America.		
Burrowing owl *(Athene cunicularia)*	–	–	BCC, SSC	Nests in burrows or burrow surrogates in open, treeless, areas within grassland, steppe, and desert biomes. Often with other burrowing mammals (e.g., prairie dogs, California ground squirrels). May also use human-made habitat such as agricultural fields, golf courses, cemeteries, roadside, airports, vacant urban lots, and fairgrounds.	February-August	Low potential to occur. No sign of burrowing mammals, burrows, or burrow surrogates were observed in Study Area. However, this species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989) and the Study Area may provide foraging habitat for this species.
Yellow-billed magpie (*Pica nuttalli*)	–	–	BCC	Endemic to California; found in the Central Valley and coast range south of San Francisco Bay and north of Los Angeles County; nesting habitat includes oak savannah with large in large expanses of open ground; also found in urban parklike settings.	April-June	Absent. No suitable nesting habitat within Study Area.
Bank swallow (*Riparia riparia*)	–	CT	–	Nests colonially along coasts, rivers, streams, lakes, reservoirs, and	May-July	Absent. No suitable nesting

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
				wetlands in vertical banks, cliffs, and bluffs in alluvial, friable soils. May also nest in sand, gravel quarries and road cuts. In California, breeding range includes northern and central California.		habitat within Study Area.
Oak titmouse (*Baeolophus inornatus*)	–	–	BCC	Nests in tree cavities within dry oak or oak-pine woodland and riparian; where oaks are absent, they nest in juniper woodland, open forests (e.g., gray, Jeffrey, Coulter, pinyon pines and Joshua tree)	March-July	Absent. No suitable nesting habitat within Study Area.
Wrentit (*Chamaea fasciata*)	–	–	BCC	Coastal sage scrub, northern coastal scrub, chaparral, dense understory of riparian woodlands, riparian scrub, coyote brush and blackberry thickets, and dense thickets in suburban parks and gardens.	March-August	Absent. No suitable nesting habitat within Study Area.
Cassin's finch (*Haemorhous cassinii*)	–	–	BCC	Breeds throughout the conifer belts of North America's western interior mountains, from central British Columbia to northern New Mexico and Arizona; mostly between 3,000'-10,000' elevation. Often in mature forests of pine, spruce and aspen; especially open, dry pine forests. Some will breed in open sagebrush shrubland with scattered western junipers.	May-July	Absent. There is no suitable breeding habitat onsite.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Lawrence's goldfinch (*Spinus lawrencei*)	–	–	BCC	Breeds in Sierra Nevada and inner Coast Range foothills surrounding the Central Valley and the southern Coast Range to Santa Barbara County east through southern California to the Mojave Desert and Colorado Desert into the Peninsular Range. Nests in arid and open woodlands with chaparral or other brushy areas, tall annual weed fields, and a water source (e.g., small stream, pond, lake), and to a lesser extent riparian woodland, coastal scrub, evergreen forests, pinyon-juniper woodland, planted conifers, and ranches or rural residences near weedy fields and water.	March-September	Absent. There is no suitable nesting habitat onsite.
Song sparrow "Modesto" (*Melospiza melodia heermanni*)	–	–	BCC, SSC	Resident in central and southwest California, including Central Valley; nests in marsh, scrub habitat	April-June	Absent. No suitable nesting habitat within Study Area.
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)	–	CE	BCC	Resident coastally from Point Conception south into Baja California; coastal salt marsh	year round resident; nests March-August	Absent. There is no suitable breeding habitat onsite.
Bullock's oriole (*Icterus bullockii*)	–	–	BCC	Breeding habitat includes riparian and oak woodlands.	March-July	Absent. No suitable breeding habitat within Study Area.
San Clemente spotted towhee (*Pipilo maculatus clementae*)	–	–	BCC, SSC	Resident on Santa Catalina and Santa Rosa islands; extirpated on San Clemente Island, California. Breeds in	Year round resident; breeding season is April-July	Absent. This species is found only on the Channel Islands.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
				dense, broadleaf shrubby brush, thickets, and tangles in chaparral, oak woodland, island woodland, and Bishop pine forest.		
Tricolored blackbird (*Agelaius tricolor*)	–	CT	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta counties south to San Bernardino, Riverside and San Diego counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc and Lassen counties. Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck and fava bean fields.	March-August	Potential to occur. This species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989) and the Study Area may provide suitable foraging habitat for this species. Suitable nesting habitat may be present in the vicinity of the Study Area but is not present onsite.
Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*)	–	–	BCC, SSC	Breeds in salt marshes of San Francisco Bay; winters San Francisco south along coast to San Diego County.	March-July	Absent. No suitable habitat and Study Area is outside the known range of this subspecies.
Mammals						
Western red bat (*Lasiurus blossevillii*)	–	–	SSC	Roosts in foliage of trees or shrubs; day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact	April-September	Potential to occur. There is no potential roosting habitat in the Study Area but this species may forage onsite.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
				riparian habitat (particularly willows, cottonwoods, and sycamores) (Western Bat Working Group [WBWG] 2023).		
Pallid bat (*Antrozous pallidus*)	–	–	SSC	Crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of redwoods, cavities of oaks, exfoliating pine and oak bark, deciduous trees in riparian areas, and fruit trees in orchards). Also roosts in various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings (WBWG 2023).	April-September	Potential to occur. This species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989).There is no potential roosting habitat in the Study Area but this species may forage onsite.
Marysville California kangaroo rat (*Dipodomys californicus eximius*)	–	–	SSC	Known only from the Sutter Buttes area. Occurs in areas with friable soil in grass-forb stages of chaparral and valley and foothill grassland (CDFW 2023a).	Any season	Absent. Study Area is not located within the Sutter Buttes and does not provide suitable habitat for this species.
American badger *(Taxidea taxus)*	–	–	SSC	Drier open stages of most shrub, forest, and herbaceous habitats with friable soils.	Any season	Low potential to occur. No dens were observed within the Study Area. However, this species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989), and the cattle-grazed grassland within and adjacent to the Study Area may provide

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description[1]**	**Survey Period**	**Potential to Occur Onsite**
	ESA	**CESA**	**Other**			
						marginally suitable foraging habitat for this species.

[1]Habitat descriptions for plant species are from the CNPS Inventory of Rare and Endangered Plants (CNPS 2023a), unless otherwise stated.
CDFG = California Department of Fisha and Game; DPS = Distinct Population Segment; ESU = Evolutionarily Significant Unit; USFWS = U.S. Fish and Wildlife Service; WBWG = Western Bat Working Group

Status Codes:

ESA	Federal Endangered Species Act
CESA	California Endangered Species Act
FE	FESA listed, Endangered.
FT	FESA listed, Threatened.
BCC	USFWS Bird of Conservation Concern
CR	CESA- or NPPA-listed, Rare.
CT	CESA- or NPPA-listed, Threatened.
CE	CESA or NPPA listed, Endangered.
CFP	California Fish and Game Code Fully Protected Species (§ 3511-birds, § 4700-mammals, §5 050-reptiles/amphibians).
CDFW WL	CDFW Watch List
SSC	CDFW Species of Special Concern (CDFW, updated July 2017).
CNDDB	Species that is tracked by CDFG's CNDDB but does not have any of the above special-status designations otherwise.
1B	CRPR/Rare or Endangered in California and elsewhere.
3	CRPR/Plants About Which More Information is Needed – A Review List.
4	CRPR/Plants of Limited Distribution – A Watch List.
0.1	Threat Rank/Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2	Threat Rank/Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
0.3	Threat Rank/Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)
Delisted	Formally Delisted (delisted species are monitored for 5 years).

4.2.1 Plants

A total of 28 special-status plant species were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Table 1). Of those, 9 species are considered to be absent from the Study Area due to the lack of suitable habitat (Table 1). The remaining 19 species were included as targets for the 2023 special-status plant survey (Appendix C). One special-status plant species, California alkali grass, was identified within the Study Area during the plant survey. A brief description of California alkali grass is presented below.

4.2.1.1 California Alkali Grass

California alkali grass (*Puccinellia simplex*) is not listed pursuant to either the federal or California ESAs, and is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in alkaline, vernally mesic chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools along sinks, flats, and lake margins. California alkali grass blooms from March through May and is known to occur at elevations ranging from 5 to 3,050 feet above MSL. The current range for this species in California includes Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kings, Kern, Lake, Los Angeles, Madera, Merced, Napa, San Bernardino, Santa Clara, Santa Cruz, San Luis Obispo, Solano, Stanislaus, Tulare, and Yolo counties. It is presumed extirpated in Kings County (CNPS 2023a).

Approximately 50 individuals were observed in a seasonal wetland swale in the southern portion of the Survey Area during the special-status plant survey (Appendix C, Figure 2). There are three CNDDB occurrences of California alkali grass located within five miles of the Study Area (CDFW 2023a). The seasonal wetland swales, seasonal wetlands, and mesic areas of the grassland within the Study Area provide suitable habitat for this species.

4.2.2 Invertebrates

Three special-status invertebrate species were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Table 1). However, upon further analysis (Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is considered to be absent from the Study Area due to the lack of suitable habitat. No further discussion of valley elderberry longhorn beetle is provided in this assessment. A brief description of the remaining two species that have potential to occur within the Study Area is presented below.

4.2.2.1 Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp (*Branchinecta lynchi*) is listed as threatened pursuant to the ESA. Vernal pool fairy shrimp may occur in seasonal ponds, vernal pools, and swales during the wet season, which generally occurs from December through May. This species can be found in a variety of pool sizes, ranging from less than 0.001 acre to more than 24.5 acres (Eriksen and Belk 1999). The shrimp hatch from cysts when cold water (10° Celsius [50°F] or colder) fills the pool and mature in as few as 18 days, under optimal conditions (Eriksen and Belk 1999). At maturity, mating takes place and cysts are dropped. Vernal pool fairy shrimp occur in disjunct patches dispersed across California's Central Valley from Shasta County to Tulare County, the central and southern Coast Ranges from northern Solano County to Ventura County, and three areas in Riverside County (USFWS 2003).

There are no CNDDB occurrences of vernal pool fairy shrimp within five miles of the Study Area (CDFW 2023a). However, the seasonal wetlands and swales within the Study Area may provide suitable habitat for this species. Vernal pool fairy shrimp has potential to occur within the Study Area.

4.2.2.2 Vernal Pool Tadpole Shrimp

The vernal pool tadpole shrimp (*Lepidurus packardi*) is listed as endangered pursuant to the ESA. This species inhabits vernal pools containing clear to highly turbid water that range in size from 0.001 to 89.0 acres (USFWS 1994). Vernal pool tadpole shrimp are distinguished from other vernal pool branchiopods discussed in this report by a large, shield-like carapace that covers the anterior half of their body (USFWS 2003). Cysts hatch during the wet season and the shrimp reach maturity in a few weeks. This species matures slowly and is long-lived, relative to other species. Vernal pool tadpole shrimp will continue to grow as long as the pools they occur in remain inundated, and in some instances can survive for six months or longer (USFWS 2003). The geographic range of vernal pool tadpole shrimp extends from Shasta County to northern Tulare County in California's Central Valley, and from Solano County to Alameda County in the California's Central Coast (USFWS 2003).

There are no CNDDB occurrences of vernal pool tadpole shrimp within five miles of the Study Area (CDFW 2023a). However, the seasonal wetlands and swales within the Study Area may provide suitable habitat for this species. Vernal pool tadpole shrimp has potential to occur within the Study Area.

4.2.3 Fish

Five special-status fish species or ESUs were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Table 1). However, upon further analysis and after the site visit, all five species or ESUs are considered to be absent from the Study Area due to the lack of suitable habitat and/or because it is outside of the known geographic range for these species. No further discussion of special-status fish is provided within this assessment.

4.2.4 Amphibians

Three special-status amphibian species were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Table 1). However, upon further analysis, all three species are considered to be absent from the Study Area because the project location is outside of the known geographic range for these species. No further discussion of special-status amphibians is provided within this assessment.

4.2.5 Reptiles

Two special-status reptiles were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Table 1). Upon further analysis and after the reconnaissance site visit, both species were identified as having potential to occur in the Study Area. A brief description of these species is presented below.

4.2.5.1 Northwestern Pond Turtle

The northwestern pond turtle is not listed pursuant to either the federal or California ESAs, but it is designated as a CDFW SSC. Northwestern pond turtles occur in a variety of fresh and brackish water habitats including marshes, lakes, ponds, and slow-moving streams (Jennings and Hayes 1994). This

species is primarily aquatic; however, they can leave aquatic habitats to nest, disperse between wetlands, and to overwinter (Jennings and Hayes 1994). Deep, still water with abundant emergent woody debris, overhanging vegetation, and rock outcrops is optimal for basking and thermoregulation. Although adults are habitat generalists, hatchlings and juveniles require shallow edgewater with relatively dense submergent or short emergent vegetation in which to forage. Northwestern pond turtles are typically active between March and November. Mating generally occurs during late April and early May and eggs are deposited between late April and early August (Jennings and Hayes 1994). Eggs are deposited within excavated nests in upland areas, in substrates having high clay or silt fractions (Jennings and Hayes 1994). The majority of nesting sites are located within 650 feet (200 meters) of aquatic sites; however, nests have been documented as far as 1,310 feet (400 meters) from aquatic habitat.

There is one CNDDB occurrence of northwestern pond turtle within five miles of the Study Area (CDFW 2023a) and the species is known to occur within the Gray Lodge Wildlife Area (CDFG 1989). The ditch may provide marginally suitable aquatic habitat and the rest of the undeveloped Study Area may provide suitable upland habitat for this species. There is suitable aquatic habitat adjacent to the Study Area. Northwestern pond turtle has potential to occur within the Study Area.

4.2.5.2 Giant Garter Snake

The giant garter snake (*Thamnophis gigas*) is listed as threatened pursuant to the federal and the California ESAs. The giant garter snake is a California endemic species, only occurring in the Sacramento and San Joaquin valleys from Butte County south to Kern County (Rossman et al. 1996). It is the largest garter snake species, attaining a maximum length of 165 centimeters (65 inches) (Stebbins and McGinnis 2012). Like most Natricines, these snakes are sexually dimorphic with females being both longer and proportionally heavier than males (Wylie et al. 2010).

The giant garter snake is semi-aquatic and occurs in sloughs, ponds, low-gradient streams, and irrigation/drainage canals (USFWS 1999). It is an active, generally diurnal predator, which hunts by sight or olfaction (Ernst and Ernst 2003) and its diet is almost entirely aquatic. Rice agriculture now provides habitat and supports populations when the seasonally flooded fields and associated water conveyance systems are managed for the species (USFWS 1999), and is one reason giant garter snake populations in the Sacramento Valley are more robust than those further south (Halstead et al. 2010). Historically, they depended on native prey such as California red-legged frog (*Rana draytonii*), Sacramento blackfish (*Orthodon microlepidotus*), and thick-tailed chub (*Gila crassicauda*), species that have undergone recent major declines or extirpations (Rossman et al. 1996). Diet is now dominated by introduced species such as mosquitofish, American bullfrogs (*Lithobates catesbeianus*), and common carp (*Cyprinus carpio*) (Rossman et al. 1996).

Both the distribution and abundance of the giant garter snake have been reduced from historic levels. Flood control activities and the drainage of marshes and other wetlands for agriculture have led to extirpation in the Buena Vista, Tulare, and Kern lakebeds in the southern one-third of its range (Hansen and Brode 1980). Most of the San Joaquin Valley has undergone similar wetland modification together with upstream watershed projects, urban development, and the proliferation of introduced and subsidized aquatic predators (USFWS 2012). As a result, the giant garter snake in the central and southern San

Joaquin Valley is extremely rare and population trends appear to be declining (Hansen 2008). At locations in the Sacramento Valley, the garter snake is generally more numerous and habitat quality appears to be better, although trends in abundance are unclear (USFWS 2012).

There are 11 CNDDB occurrences of giant garter snake within five miles of the Study Area (CDFW 2023a) and the species is known to occur within the Gray Lodge Wildlife Area (CDFG 1989). The grassland within the Study Area may provide suitable upland habitat and the ditch within the Study Area may provide suitable aquatic habitat for giant garter snake. Offsite aquatic resources (including the offsite ditches and rice fields that are across West Liberty Road from the Study Area) may also provide suitable aquatic habitat for this species. Giant garter snake has potential to occur within and adjacent to the Study Area.

4.2.6 Birds

A total of 28 special-status bird species were identified as having the potential to occur within the Study Area based on the literature review (Table 1). Of those, 19 species were determined to be absent from the Study Area due to the lack of suitable habitat and/or due to the Study Area being outside of the known geographic range of the species. No further discussion of those species is provided in this assessment. A brief description of the remaining 9 species that have the potential to occur within the Study Area is presented below.

4.2.6.1 Aleutian Cackling Goose

The Aleutian cackling goose (*Branta hutchinsii leucopareia*) was listed and protected under the federal ESA. In 2001, it was considered recovered and delisted. It is currently on the CDFW Watch List. The Aleutian cackling goose breeds on the outer Aleutian Islands and winters in California within coastal Humboldt and Del Norte counties, and the Sacramento and San Joaquin valleys. During winter (October through March), they can be found foraging on grasses, grains, and other vegetation in pastures and wetlands.

There are no CNDDB occurrences of Aleutian cackling goose within five miles of the Study Area (CDFW 2023a). However, this species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989). The Study Area may provide suitable wintering habitat for this species.

4.2.6.2 Long-billed Curlew

The long-billed curlew (*Numenius americanus*) is not listed pursuant to either the federal or California ESAs, but is designated as a USFWS BCC and a CDFW "watch list" species. The breeding range of this species includes the Great Plains, Great Basin and intermontane valleys of the western U.S., and southwestern Canada (Dugger and Dugger 2020). In the U.S. their wintering range includes California, Louisiana, and Texas. Winter foraging habitat includes rice fields (flooded and unflooded), managed wetlands, evaporation ponds, sewage ponds, and grasslands (Dugger and Dugger 2020).

The CNDDB does not often publish occurrence records for BCC species, and there are no published occurrences of long-billed curlew. Long-billed curlew do not nest in the region but may occasionally forage within the grassland of the Study Area during winter.

4.2.6.3 Golden Eagle

The golden eagle (*Aquila chrysaetos*) is not listed pursuant to either the federal or California ESAs, but it is fully protected according to Section 3511 of the California Fish and Game Code and the federal Bald and Golden Eagle Protection Act. Golden eagles generally nest on cliff ledges and/or large lone trees in rolling to mountainous terrain. Golden eagles nest throughout California except the Central Valley, the immediate coast, and portions of southeastern California (Kochert et al. 2020). Occurrences within the Central Valley are usually dispersing post-breeding birds, non-breeding sub-adults, or migrants. Foraging habitat includes open grassland and savannah. Nesting occurs during February through August.

There are no CNDDB occurrences of golden eagle within five miles of the Study Area (CDFW 2023a). However, this species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989). Golden eagles usually do not nest in the region and there is no suitable nesting habitat within the Study Area. Golden eagles may occasionally forage within the grassland of the Study Area during winter or migration.

4.2.6.4 Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) has been delisted under the federal ESA, but is listed as endangered under the California ESA. Additionally, it is fully protected pursuant to the California Fish and Game Code Section 3511 and the federal Bald and Golden Eagle Protection Act and is designated as a USFWS BCC. Bald eagles breed at lower elevations in the northern Sierra Nevada and North Coast ranges. Bald eagles breed in forested areas adjacent to large waterbodies (Buehler 2020). Tree species used for nesting is quite variable and includes conifers (dominant where available), oaks, hickories, cottonwoods and aspens (Buehler 2020). Nest trees are generally the largest tree available in a suitable area (Buehler 2020). Breeding activity occurs during late February through September, with peaks in activity from March to June.

There are no CNDDB occurrences of bald eagle within five miles of the Study Area (CDFW 2023a). However, this species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989). There is no suitable nesting habitat within the Study Area. However, bald eagles may occasionally forage within the grassland of the Study Area during winter.

4.2.6.5 Northern Harrier

The northern harrier (*Circus hudsonius*) is not listed pursuant to either the federal or California ESAs, but is designated as a CDFW SSC. This species is known to nest within the Central Valley, along the Pacific Coast, and in northeastern California. The northern harrier is a ground-nesting species, and typically nests in emergent wetland/marsh, open grasslands, or savannah communities usually in areas with dense vegetation (Smith et al. 2020). Foraging occurs within a variety of open environments such as marshes, agricultural fields, and grasslands. Nesting occurs during April through September.

There is one CNDDB occurrence of northern harrier within five miles of the Study Area (CDFW 2023a), and the species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989). The grassland within the Study Area may provide suitable nesting and foraging habitat for this species.

4.2.6.6 Swainson's Hawk

The Swainson's hawk (*Buteo swainsoni*) is not listed pursuant to the federal ESA but is listed as threatened pursuant to the California ESA, and is designated a USFWS BCC. This species nests in North America (Canada, western U.S., and Mexico) and typically winters from South America north to Mexico. However, a small population has been observed wintering in the Sacramento-San Joaquin River Delta (Bechard et al. 2020). In California, the nesting season for Swainson's hawk ranges from mid-March to late August.

Swainson's hawks nest within tall trees in a variety of wooded communities including riparian, oak woodland, roadside landscape corridors, urban areas, and agricultural areas, among others. Foraging habitat includes open grassland, savannah, low-cover row crop fields, and livestock pastures. In the Central Valley, Swainson's hawks typically feed on a combination of California vole (*Microtus californicus*), California ground squirrel (*Spermophilus beecheyi*), ring-necked pheasant (*Phasianus colchicus*), many passerine birds, and grasshoppers (*Melanoplus* species). Swainson's hawks are opportunistic foragers and will readily forage in association with agricultural mowing, harvesting, disking, and irrigating (Estep 1989). The removal of vegetative cover by such farming activities results in more readily available prey items for this species.

There are two CNDDB occurrences of Swainson's hawk within five miles of the Study Area (CDFW 2023a). There is no suitable nesting habitat within the Study Area. However, Swainson's hawk may forage within the grassland of the Study Area.

4.2.6.7 Greater Sandhill Crane

Greater sandhill crane (*Antigone canadensis tabida*) is not listed pursuant to the federal ESA but is listed as threatened pursuant to the California ESA. In addition, the greater sandhill crane is fully protected pursuant to the California Fish and Game Code. This subspecies nests in northeastern California (Modoc, Siskiyou, Lassen, and Shasta counties and formerly in the Sierra Valley, Sierra and Plumas counties) (Small 1994) and winters in the Central Valley. Nesting occurs during March through August. Wintering habitat includes wetlands and agricultural fields (Gerber et al. 2020).

There are four CNDDB occurrences of greater sandhill crane within five miles of the Study Area (CDFW 2023a), and this species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989). Greater sandhill cranes do not nest in the region. However, greater sandhill cranes may forage within the grassland of the Study Area during winter.

4.2.6.8 Burrowing Owl

The burrowing owl (*Athene cunicularia*) is not listed pursuant to either the federal or California ESAs, but is designated as a USFWS BCC and a CDFW SSC. Burrowing owls inhabit dry open rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. They can also inhabit developed areas such as golf courses, cemeteries, roadsides within cities, airports, vacant lots in residential areas, school campuses, and fairgrounds (Poulin et al. 2020). This species typically uses burrows created by fossorial mammals, most notably the California ground squirrel (*Spermophilus beecheyi*) but may also use man-

made structures such as concrete culverts or pipes; concrete, asphalt, or wood debris piles; or openings beneath concrete or asphalt pavement (CDFG 2012). The breeding season typically occurs between February 1 and August 31 (California Burrowing Owl Consortium 1993; CDFG 2012).

There are no CNDDB occurrences of burrowing owl within five miles of the Study Area (CDFW 2023a). No sign of burrowing mammals such as California ground squirrels (*Otospermophilus beecheyi*), burrows, or burrow surrogates were observed within the Study Area. While there is no suitable burrow habitat onsite, the grassland within the Study Area may provide foraging habitat for this species.

4.2.6.9 Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) is not listed pursuant to the federal ESA but was granted emergency listing for protection under the California ESA in December 2014. The listing status was not renewed in June 2015; however, after an extensive status review, the California Fish and Game Commission listed tricolored blackbirds as a threatened species in 2018. In addition, the tricolored blackbird is currently considered a USFWS BCC and a CDFW SSC. This colonial nesting species is distributed widely throughout the Central Valley, Coast Range, and into Oregon, Washington, Nevada, and Baja California (Beedy et al. 2020). Tricolored blackbirds nest in colonies that can range from several pairs to several thousand pairs, depending on prey availability, the presence of predators, or level of human disturbance. Tricolored blackbird nesting habitat includes emergent marsh, riparian woodland/scrub, blackberry thickets, and densely vegetated agricultural and idle fields (e.g., wheat, triticale, safflower, fava bean fields, thistle, mustard, cane, and fiddleneck), usually with some nearby standing water or ground saturation (Beedy et al. 2020). They feed mainly on grasshoppers during the breeding season, but may also forage upon a variety of other insects, grains, and seeds in open grasslands, wetlands, feedlots, dairies, and agricultural fields (Beedy et al. 2020). The nesting season is generally from March through August.

There are seven CNDDB occurrences of tricolored blackbird within five miles of the Study Area (CDFW 2023a) and this species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989). There is no suitable nesting habitat within the Study Area. However, tricolored blackbird may forage within the Study Area.

4.2.6.10 Other Protected Birds

In addition to the above-listed special-status birds, all native or naturally occurring birds and their occupied nests/eggs are protected under the California Fish and Game Code and the MBTA. The Study Area supports potential nesting habitat for a variety of native birds protected under these regulations.

4.2.7 Mammals

Four special-status mammal species were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Table 1). Of those, one species (Marysville California kangaroo rat) was determined to be absent from the Study Area due to the lack of suitable habitat and because the Study Area is outside of the known geographic range for the species (Table 1). No further discussion of

that species is provided in this assessment. A brief description of the remaining three species that have potential or low potential to occur within the Study Area is presented below.

4.2.7.1 Western Red Bat

The western red bat (*Lasiurus blossevillii*) is not listed pursuant to either the federal of California ESAs, but is designated as a CDFW SSC. The western red bat is easily distinguished from other western bat species by its distinctive red coloration. This species is broadly distributed, its range extending from southern British Columbia in Canada through Argentina and Chile in South America and including much of the western U.S. This solitary species day-roosts primarily in the foliage of trees or shrubs in edge habitats bordering streams or open fields, in orchards, and occasionally urban areas. They may be associated with intact riparian habitat, especially with willows, cottonwoods, and sycamores. This species may occasionally utilize caves for roosting as well. Western red bats feed on a variety of insects, and generally begin to forage one to two hours after sunset. This species is considered highly migratory. However, the timing of migration and the summer ranges of males and females may be different. Winter behavior of this species is poorly understood (WBWG 2023).

There are no CNDDB occurrences of western red bat within five miles of the Study Area (CDFW 2023a). There is no suitable roosting habitat within the Study Area. However, western red bat may forage within the Study Area. Western red bat has potential to occur within the Study Area.

4.2.7.2 Pallid Bat

The pallid bat (*Antrozous pallidus*) is not listed pursuant to either the California or federal ESAs but is designated as a CDFW SSC. The pallid bat is a large, light-colored bat with long, prominent ears and pink, brown, or grey wing and tail membranes. This species ranges throughout North America from the interior of British Columbia, south to Mexico, and east to Texas. The pallid bat inhabits low elevation (below 6,000 feet) rocky arid deserts and canyonlands, shrub-steppe grasslands, karst formations, and higher elevation coniferous forest (above 7,000 feet). This species roosts alone or in groups in the crevices of rocky outcrops and cliffs, caves, mines, trees, and in various human structures such as bridges and barns. Pallid bats are feeding generalists that glean a variety of arthropod prey from surfaces as well as capturing insects on the wing. Foraging occurs over grasslands, oak savannahs, ponderosa pine forests, talus slopes, gravel roads, lava flows, fruit orchards, and vineyards. This species is not thought to migrate long distances between summer and winter sites (WBWG 2023).

There are no CNDDB occurrences of pallid bat within five miles of the Study Area (CDFW 2023a). However, this species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989). There is no suitable roosting habitat within the Study Area. Pallid bat may forage within the Study Area. Pallid bat has potential to occur within the Study Area.

4.2.7.3 American Badger

The American badger (*Taxidea taxus*) is designated a CDFW SSC. The species historically ranged throughout much of the state, except in humid coastal forests. Badgers were once numerous in the

Central Valley; however, populations now occur in low numbers in the surrounding peripheral parts of the valley and in the adjacent lowlands of eastern Monterey, San Benito, and San Luis Obispo counties (Williams 1986).

Badgers occupy a variety of habitats, including grasslands and savannas. The principal requirements seem to be significant food supply, friable soils, and relatively open, uncultivated ground (Williams 1986).

There are no CNDDB occurrences of American badger within five miles of the Study Area (CDFW 2023a). However, this species is known to occur in the Gray Lodge Wildlife Area (CDFG 1989). No potential dens were observed within the Study Area. The grassland may provide marginally suitable foraging habitat for this species. American badger has low potential to occur within the Study Area.

4.3 Critical Habitat and Essential Fish Habitat

There is no designated critical habitat mapped within the Study Area (USFWS 2023a). Based on the literature review, Chinook Salmon Essential Fish Habitat (EFH) occurs in the region (NOAA 2016); however, the ditch within the Study Area is not accessible to any Pacific salmon and does not meet the standard for EFH.

4.4 Riparian Habitats and Sensitive Natural Communities

Six SNCs were identified as having potential to occur within the vicinity of the Study Area based on the literature review (CDFW 2023a). These include Northern Hardpan Vernal Pool, Coastal and Valley Freshwater Marsh, Great Valley Cottonwood Riparian Forest, Great Valley Mixed Riparian Forest, Great Valley Oak Riparian Forest, and Great Valley Willow Scrub. However, this is not an exhaustive list of all SNCs that have potential to occur in the Study Area. The vegetation types identified in the literature review are legacy SNCs that were entered in CNDDB in the mid-1990's prior to currently accepted state and national standards for vegetation classification. SNCs are now classified as MCV alliances or associations. The four legacy SNCs can be converted to one or more MCV alliances.

Upon further analysis and site reconnaissance, it was determined that vegetation within the seasonal wetland is likely considered a SNC by CDFW. There are no other SNCs known to occur within the Study Area. No riparian habitat was observed within the Study Area.

4.5 Wildlife Movement/Corridors and Nursery Sites

The Study Area does not fall within an Essential Habitat Connectivity area mapped by the CDFW and is not identified as a critical and non-critical winter and summer range, fall holding areas, fawning grounds, or migration corridors for mule deer (*Odocoileus hemionus*) (CDFW 2023b). Therefore, the Study Area is not expected to support critical wildlife movement corridors or potential nursery sites. However, a variety of common bird species were observed within the Study Area during the site reconnaissance and other wildlife species also likely move through the Study Area. The Gray Lodge Wildlife Area Management Plan (CDFG 1989) lists species that are known to occur within the wildlife area, and it is likely that a subset of those species move through the Study Area.

For the purposes of this analysis, nursery sites include but are not limited to concentrations of nest or den sites such as heron rookeries or bat maternity roosts. This data is available through CDFW's Biogeographic Information and Observation System database or as occurrence records in the CNDDB and is supplemented with the results of the site reconnaissance. No nursery sites have been documented within the Study Area (CDFW 2023a) and none were observed during the site reconnaissance.

5.0 IMPACT ANALYSIS

This section evaluates potential impacts on biological resources in accordance with the Appendix G environmental checklist of the CEQA Guidelines.

5.1 Special-Status Species

Would the Project result in significant effects, either directly or through habitat modifications, to species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

Potential effects to special-status species are summarized in the following sections.

5.1.1 Special-Status Plants

One special-status plant species, California alkali grass, occurs within the Study Area and there is suitable habitat for multiple other special-status plant species (Table 1). The Project proposes to avoid known occurrences of California alkali grass and all seasonal wetlands and seasonal wetland swales, which provides most of the suitable habitat for this species. However, there are mesic areas within the grassland that may also provide suitable habitat for this species. Project implementation may remove a small amount of potential habitat for this species.

Implementation of recommendations BIO1 through BIO4, PLANT1, and PLANT2 described in Section 6.0 would avoid or minimize potential impacts on California alkali grass and other special-status plants. These include a preconstruction plant survey, avoidance measures, and worker awareness environmental training. With implementation of these measures, the Project would not significantly impact California alkali grass or other special-status plants.

5.1.2 Special-Status Invertebrates

There is potential habitat for two federally listed invertebrate species, vernal pool fairy shrimp and vernal pool tadpole shrimp, within the Study Area. The Project proposes to avoid all potential habitat for these species (seasonal wetlands and seasonal wetland swales).

Implementation of recommendations BIO1 through BIO4 described in Section 6.0 would avoid potential impacts on special-status invertebrates. These include avoidance measures and worker awareness environmental training.

5.1.3 Special-Status Reptiles

There is potential for one federally and State-listed reptile species, giant garter snake, to occur in the Study Area. Additionally, there is potential for one CDFW SSC, northwestern pond turtle, to occur. Potential impacts are described for each species in the following sections.

5.1.3.1 Northwestern Pond Turtle

A small amount of potential upland habitat within the footprint of the solar arrays would be permanently removed or altered, and turtles may be directly impacted by construction or temporarily displaced from upland habitats during construction. There is an abundant amount of aquatic and upland habitat near the Study Area that is managed for wildlife habitat. Therefore, removal or alteration of a small amount of upland habitat on the edge of the wildlife area and temporary displacement of turtles during construction is not expected to significantly impact the species.

Implementation of recommendations BIO1 through BIO4, and NPT1 described in Section 6.0 would avoid and/or minimize potential effects on northwestern pond turtles. These include a preconstruction northwestern pond turtle survey, avoidance measures, and worker awareness environmental training. With implementation of these measures, the Project is not expected to significantly impact northwestern pond turtle.

5.1.3.2 Giant Garter Snake

With implementation of recommendations described in Section 6.0, no direct impacts to giant garter snake are expected. However, a small amount of potential upland habitat would be impacted as detailed below.

Giant garter snake may utilize aquatic resources (i.e., ditches and rice fields) within and adjacent to the Study Area and upland habitats within 200 feet of potential aquatic resources. While it is possible, it is not expected that giant garter snakes would utilize upland habitats further than 200 feet from aquatic habitat. Therefore, for this BRA, habitats further than 200 feet from potential aquatic habitat are not considered to be habitat for giant garter snake. Permanent impacts to potential upland habitat would occur within the location of the solar array, which is within 200 feet of the offsite ditch and rice fields located north of West Liberty Avenue (Figure 1). Temporary impacts to potential upland habitat would occur within the trenching location, which is located within 200 feet of the ditch directly to the east of the Study Area (Figure 1). There is an abundant amount of aquatic and upland habitat adjacent to the Study Area that is managed for wildlife habitat. Therefore, impacts to a small amount of upland habitat on the edge of the wildlife management area are not expected to affect individuals or the persistence of populations.

Implementation of recommendations BIO1 through BIO4, GGS1 through GGS5 described in Section 6.0 would avoid and/or minimize potential effects to giant garter snake. These include a preconstruction wildlife survey, exclusion fencing, worker awareness environmental training, and measures to avoid offsite impacts. With implementation of these measures, the Project is not expected to significantly impact giant garter snake.

5.1.4 Special-Status and Migratory Bird Treaty Act-Protected Birds

There is potential foraging habitat for four State-listed bird species (bald eagle, Swainson's hawk, greater sandhill crane, and tricolored blackbird) within the Study Area. Swainson's hawk and tricolored blackbird may also nest in adjacent habitats.

There is potential nesting and/or foraging habitat for four non-listed special-status bird species (long-billed curlew, northern harrier, golden eagle and burrowing owl) within the Study Area. Additionally, a variety of other birds that are protected under the MBTA and the California Fish and Game Code may nest within or adjacent to the Study Area.

The Project would permanently remove or alter a minimal amount of potential foraging habitat for these species, and birds may be directly impacted by construction or temporarily displaced from the vicinity of the Study Area during construction. There is an abundant amount of habitat adjacent to the Study Area that is managed for wildlife habitat. Therefore, removal or alteration of a small amount of habitat on the edge of the wildlife area and temporary displacement of foraging birds during construction is not expected to adversely impact these species. Due to the small footprint of the solar arrays and the short duration of the Project construction, disturbance to wintering birds from construction activity and mortality of birds due to collisions is not expected.

Implementation of recommendations BIO1 through BIO4, and BIRD1 described in Section 6.0 would avoid or minimize potential effects to special-status birds and other protected birds. These include a preconstruction nesting-bird survey, avoidance measures if necessary, worker awareness environmental training, and measures to avoid offsite impacts. With implementation of these measures, the Project is not expected to significantly impact special-status and MBTA-protected birds.

5.1.5 Special-Status Mammals

No federally or State-listed mammals have potential to occur in the Study Area. However, there is potential or low potential for three CDFW SSC (western red bat, pallid bat, and American badger) to forage within the Study Area. No impacts to bats are expected.

A small amount of potential foraging habitat for American badger within the footprint of the solar arrays would be permanently removed or altered, and in the unlikely event that American badgers occur near the Study Area during construction they may be temporarily displaced. There is an abundant amount of adjacent potential habitat for American badger to utilize within the Gray Lodge Wildlife Area. Therefore, removal or alteration of a small amount of foraging habitat and temporary displacement of American badgers from the small Project footprint during construction is not expected to significantly impact this species.

Implementation of recommendations BIO1 through BIO4, and MAM1 described in Section 6.0 would avoid and/or minimize potential effects to American badger. These include a preconstruction badger survey, avoidance measures if necessary, worker awareness environmental training, and measures to avoid offsite impacts. With implementation of these measures, the Project is not expected to significantly impact American badger.

5.2 Riparian Habitats and Sensitive Natural Communities

Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or USFWS?

No riparian habitat is located within the Study Area.

Vegetation composition within the seasonal wetlands most resembles the Lasthenia glaberrima – Eleocharis *macrostachya* Herbaceous Alliance as characterized by the MCV. This alliance has a State rarity ranking of S2 and is considered a SNC. The Project proposed to avoid impacts to the seasonal wetland. Implementation of recommendations BIO1 through BIO4, WATER1, and WATER2 described in Section 6.0 would avoid, minimize, and/or compensate for potential effects to Waters of the U.S. and State. Therefore, the Project would not have a substantial adverse effect on riparian habitat or SNCs.

5.3 Aquatic Resources, Including Waters the U.S. and State

Would the Project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The Study Area includes aquatic resources which may be considered Waters of the U.S. and/or State. The Project proposes to avoid impacts to all aquatic resources. Implementation of recommendations BIO1 through BIO4, WATER1, and WATER2 described in Section 6.0 would avoid, minimize, and/or compensate for potential effects to Waters of the U.S. and State. Therefore, the Project would not have a substantial adverse effect on aquatic resources.

5.4 Wildlife Movement/Corridors

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

Project construction is likely to temporarily disturb and displace most wildlife from the Study Area. Some wildlife such as birds or nocturnal species are likely to continue to use the habitats opportunistically for the duration of construction. Once construction is complete, wildlife movements are expected to resume but will likely be more limited through the developed areas of the Study Area. The Project is not expected to substantially interfere with wildlife movement.

There are no documented nursery sites and no nursey sites were observed within the Study Area during the site reconnaissance. Therefore, the Project is not expected to impact wildlife nursery sites.

5.5 Local Policies, Ordinances, and Other Plans

Does the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Project is within the Gray Lodge Wildlife Area on land owned by CDFW. The only known local policies relevant to the Project are outlined in the Gray Lodge Wildlife Area Management Plan (CDFG 1989). The Project is not expected to conflict with goals and objectives outlined within the Plan.

Does the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The Study Area is not covered by any local, regional, or State conservation plan. Therefore, the Project would not conflict with a local, regional, or State conservation plan.

6.0 RECOMMENDATIONS

This section summarizes recommended measures to avoid, minimize, or compensate for potential impacts to biological resources from the proposed Project.

6.1 General Recommendations

The following general measures are recommended to avoid impacts to biological resources:

BIO1: The Project impact limits shall be clearly demarcated prior to construction and all workers shall be made aware of the impact limits and avoided areas, including aquatic resources and California alkali grass. If orange construction fencing is to be used, it shall be placed such that there is a one-foot gap between the ground and the bottom of the fencing to prevent snakes and other ground-dwelling animals from being caught in the fencing. No work shall occur outside of the Project impact limits. All vehicles and equipment shall be restricted to the Project impact limits and/or existing designated access roads and staging areas. Project-related vehicles shall observe a speed limit of 15 miles per hour in construction areas and on access roads where it is safe and feasible to do so, except on county roads and State and federal highways. Extra caution shall be used on cool days when giant garter snakes may be basking on roads.

BIO2: Erosion control measures shall be placed between avoided aquatic resources and the outer edge of the impact limits prior to commencement of construction activities and shall be maintained until construction is completed and soils have been stabilized. Plastic monofilament netting or similar material shall not be used for erosion control, because smaller wildlife may become entangled or trapped in it. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine, or other similar fibers or tackified hydroseeding compounds.

BIO3: Any fueling in the Study Area shall use appropriate secondary containment techniques to prevent spills and shall occur at least 150 feet from potential aquatic resources.

BIO4: A qualified biologist shall conduct mandatory worker environmental awareness training for all contractors, work crews, and any onsite personnel to aid workers in recognizing special-

status species and sensitive biological resources that may occur onsite. The program shall include identification of the special-status species and their habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction, environmentally sensitive areas (including aquatic resources and California alkali grass), and measures required to reduce impacts to biological resources. The Project shall retain a qualified biologist on an as-needed basis to assist with potential biological issues that may arise during construction (i.e., wildlife relocation).

6.2 Special-Status Species

Recommendations to minimize impacts to special status species or habitats are summarized below by species or taxonomic group.

6.2.1 Plants

Implementation of general recommendations BIO1 through BIO4, and the following specific measures are expected to avoid and/or minimize potential adverse effects on special-status plants:

PLANT1: Perform floristic plant surveys according to USFWS, CDFW, and CNPS protocols within two years prior to construction. If less than two years but more than one growing season lapses between the completion of plant surveys and Project construction, conduct a one-time floristic preconstruction survey for California alkali grass. Surveys shall be conducted within the Project impact area plus a 25-foot buffer, shall be conducted by a qualified biologist and timed according to the appropriate phenological stage for identifying target species. Known reference populations shall be visited and/or local herbaria records shall be reviewed, if available, prior to surveys to confirm the phenological stage of the target species. If no special-status plants are found within the survey area, no further measures pertaining to special-status plants are necessary.

PLANT2: If special-status plants are identified within 25 feet of the Project impact area, implement the following measures:

- If avoidance of special-status plants is feasible, establish and clearly demarcate avoidance zones for special-status plant occurrences prior to construction and designate as environmentally sensitive areas. Avoidance zones shall include the extent of the special-status plants plus a 25-foot buffer, unless otherwise determined by a qualified biologist, and shall be maintained until the completion of construction. A qualified biologist or biological monitor shall be present if work must occur within the avoidance buffer to ensure special-status plants are not impacted by the work.
- If avoidance of special-status plants is not feasible, mitigation for significant impacts to special-status plants may be required. Mitigation measures shall be developed in consultation with CDFW. Mitigation measures may include restoration or permanent preservation of onsite or offsite habitat for special-status plants and/or translocation of plants or seeds from impacted areas to unaffected habitats.

6.2.2 Northwestern Pond Turtle

Northwestern pond turtle has potential to occur within the Study Area. Implementation of general recommendations BIO1 through BIO4, and the following specific measure would avoid and/or minimize potential adverse effects on northwestern pond turtles:

NPT1: A qualified biologist shall conduct a pre-construction northwestern pond turtle survey in the Project Area (including impacts areas, access roads, and staging areas) within 48 hours prior to construction activities. Any northwestern pond turtles discovered in the Project Area immediately prior to or during Project activities shall be kept out of harm's way and allowed to move out of the work area of their own volition. If this is not feasible, they shall be captured by a qualified biologist and relocated out of harm's way to the nearest suitable habitat at least 100 feet from the Project work area where they were found.

6.2.3 Giant Garter Snake

Giant garter snake has potential to occur within the Study Area. Implementation of recommendations BIO1 through BIO4 and the following specific measures are expected to avoid potential adverse effects on giant garter snakes:

GGS1: Avoid construction activities within 200 feet from the banks of giant garter snake aquatic habitat, where feasible. Avoided giant garter snake habitat within or adjacent to the Project shall be designated as environmentally sensitive areas and avoided by all construction personnel. Confine clearing to the minimum area necessary to facilitate construction activities. Confine staging and movement of heavy equipment outside of work areas to existing roadways or staging areas to minimize habitat disturbance.

GGS2: All construction activity within 200 feet of giant garter snake aquatic habitat shall be conducted during the giant garter snake's active period (between May 1 and October 1). During this timeframe, potential for injury and mortality are lessened because snakes are expected to actively move and avoid danger. Giant garter snakes are more vulnerable to danger during their inactive period because they are occupying underground burrows or crevices and are more susceptible to direct impacts, especially during excavation.

GGS3: Within 24-hours prior to construction activities, a qualified biologist shall survey the Project Area (including impacts areas, access roads, and staging areas) for giant garter snakes. Surveys shall be repeated if a lapse in construction activity of two weeks or greater has occurred.

GGS4: Exclusion fencing shall be installed along the edge of construction areas that are within 200 feet of aquatic habitat and maintain fencing for the duration of construction. The exclusion fencing shall be installed during the active period for giant garter snakes (May 1 to October 1). The exclusion fencing shall consist of three-foot-tall silt fencing buried four to six inches below ground level. Fencing requirements shall be included in the construction specifications. A qualified biological monitor shall be onsite during exclusion fence

installation and initial clearing and grubbing activities. Prior to construction activities each morning, exclusion fencing shall be inspected to ensure it is functional by a biological monitor or by construction personnel that have been trained by a qualified biologist. If any giant garter snakes are observed in the construction area during this inspection or at any other time during construction, construction personnel shall contact a qualified biologist and all Project activities shall cease until the snake has moved out of the Project Area of its own volition or has been relocated by a permitted biologist. Giant garter snake sightings and incidental take shall be reported to the USFWS immediately by telephone at (916) 414-6600. If the installation of exclusion fencing is not feasible, a qualified biological monitor shall be present during all construction activities within 200 feet of aquatic habitat.

GGS5: After completion of construction activities, remove any construction debris and, where feasible, restore disturbed areas to pre-Project conditions. Restoration methods shall be approved by Gray Lodge Wildlife Area staff and may include reseeding of upland vegetation in disturbed areas.

6.2.4 Special-Status Birds and Migratory Bird Treaty Act-Protected Birds

Four special-status birds (northern harrier, Swainson's hawk, burrowing owl, and tricolored blackbird) and various other birds protected under the MBTA have the potential to nest within or in the vicinity of the Study Area. Implementation of general recommendations BIO1 through BIO4, and the following specific measure is recommended to avoid and/or minimize adverse effects on nesting birds:

BIRD1: If construction is to occur during the nesting season (generally February 1 - September 30), conduct a pre-construction nesting bird survey of all suitable nesting habitat within 14 days prior to construction. The survey shall be conducted within a 500-foot radius of Project work areas for raptors and within a 100-foot radius for other nesting birds. If any active nests are observed, these nests shall be designated an environmentally sensitive area and protected by an avoidance buffer established in coordination with CDFW until the breeding season has ended or until a qualified biologist has determined that the young have fledged or the nest is otherwise inactive.

6.2.5 American Badger

American badger has low potential to occur within the Study Area. Implementation of BIO1, BIO4, and the following specific measure is recommended to avoid and/or minimize potential adverse effects on American badger:

MAM1: A qualified biologist shall conduct a pre-construction American badger survey in the Project Area (including impacts areas, access roads, and staging areas) within 48 hours prior to construction activities. If any American badgers are discovered in or near the Project Area immediately prior to or during Project activities, the qualified biologist shall have authority to halt Project activity that may harm badgers, and badgers shall be allowed to move out of the work area of their own volition. If an active badger den is detected within or near the work area, it shall be designated an environmentally sensitive area and protected by an avoidance

buffer established in coordination with CDFW. The buffer shall be maintained until a qualified biologist determines the den is no longer active. Dens that are determined to be inactive by the qualified biologist shall be collapsed by hand to prevent occupation of the burrow between the time of the survey and construction activities.

6.3 Waters of the U.S./State

The Study Area aquatic features which may be considered potential Waters of the U.S. and/or State. The following measures are recommended to avoid, minimize, and/or compensate for impacts to potential Waters of the U.S. and/or State:

WATER1: Ground disturbance shall not occur within an avoidance buffer maintained from the furthest outside edge of aquatic resources of the ditch, whichever is more protective. The avoidance buffer shall include at least a distance of 50 feet from the top of the bank or furthest outside edge of aquatic resources, except in the proposed trenching locations where the avoidance buffer shall include a 10-foot area from the top of the bank or furthest outside edge of aquatic resources.

WATER2: If impacts to aquatic resources cannot feasibly be avoided, the following measures shall apply:

- Submit an aquatic resources delineation for the Project to the USACE and obtain a verification, Preliminary Jurisdictional Determination or an Approved Jurisdictional Determination, whichever is applicable.
- If necessary, file a request for authorization to fill wetlands and other Waters of the U.S. under Section 404 of the federal CWA (Section 404 Permit) prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures shall be developed as part of the Section 404 Permit process to ensure no net loss of wetland function and values. To facilitate such authorization, an application for a Section 404 Nationwide Permit for the Project shall be prepared and submitted to USACE. Final mitigation requirements will be developed by USACE.
- If necessary, file a request for a Water Quality Certification or waiver pursuant to Section 401 of the CWA must be obtained from the RWQCB for Section 404 permit actions.
- Pursuant to the Porter-Cologne Water Quality Act, a permit authorization from the RWQCB is required prior to the discharge of material in an area that could affect Waters of the State. Mitigation requirements for discharge to Waters of the State within the Project site will be developed by the RWQCB.
- If necessary, prepare an LSA Notification to CDFW under California Fish and Game Code Section 1602 to request authorization to impact regulated aquatic features.

7.0 SUMMARY

One CRPR 1B.2 species, California alkali grass, is present within the Study Area. Multiple other special-status plant and wildlife species, including federally and/or State listed species have potential or low potential to occur within the Study Area (Table 1). In addition, there is potential for various birds protected under the MBTA and the California Fish and Game Code to occur. The Study Area also includes aquatic resources (seasonal wetlands, seasonal wetland swales, and a ditch) which may be considered \Waters of the U.S. and/or State. Vegetation within the seasonal wetlands may be considered a SNC by CDFW.

With implementation of recommendations described in Section 6.0, the Project is not expected to have a significant effect on biological resources.

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LIST OF APPENDICES

APPENDIX A

Results of Database Queries

Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Pennington (3912137) OR Gridley (3912136) OR Butte City (3912148) OR West of Biggs (3912147) OR Biggs (3912146) OR Sutter (3912126) OR Meridian (3912128) OR Sanborn Slough (3912138) OR Sutter Buttes (3912127))

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAAAA01181	***Ambystoma californiense pop. 1*** California tiger salamander - central California DPS	Threatened	Threatened	G2G3T3	S3	WL
AAABH01053	***Rana boylii pop. 3*** foothill yellow-legged frog - north Sierra DPS	None	Threatened	G3T2	S2	
ABNJB05035	***Branta hutchinsii leucopareia*** cackling (=Aleutian Canada) goose	Delisted	None	G5T3	S3	WL
ABNKC01010	***Pandion haliaetus*** osprey	None	None	G5	S4	WL
ABNKC10010	***Haliaeetus leucocephalus*** bald eagle	Delisted	Endangered	G5	S3	FP
ABNKC11011	***Circus hudsonius*** northern harrier	None	None	G5	S3	SSC
ABNKC19070	***Buteo swainsoni*** Swainson's hawk	None	Threatened	G5	S4	
ABNKD06030	***Falco columbarius*** merlin	None	None	G5	S3S4	WL
ABNME03041	***Laterallus jamaicensis coturniculus*** California black rail	None	Threatened	G3T1	S2	FP
ABNMK01014	***Antigone canadensis tabida*** greater sandhill crane	None	Threatened	G5T5	S2	FP
ABNRB02022	***Coccyzus americanus occidentalis*** western yellow-billed cuckoo	Threatened	Endangered	G5T2T3	S1	
ABNSB10010	***Athene cunicularia*** burrowing owl	None	None	G4	S2	SSC
ABPAU08010	***Riparia riparia*** bank swallow	None	Threatened	G5	S3	
ABPBXA3013	***Melospiza melodia pop. 1*** song sparrow ("Modesto" population)	None	None	G5T3?Q	S3?	SSC
ABPBXB0020	***Agelaius tricolor*** tricolored blackbird	None	Threatened	G1G2	S2	SSC
ABPBY06100	***Spinus lawrencei*** Lawrence's goldfinch	None	None	G3G4	S4	
AFCAA01031	***Acipenser medirostris pop. 1*** green sturgeon - southern DPS	Threatened	None	G2T1	S1	
AFCHA0205L	***Oncorhynchus tshawytscha pop. 11*** chinook salmon - Central Valley spring-run ESU	Threatened	Threatened	G5T2Q	S2	
AFCHA0209K	***Oncorhynchus mykiss irideus pop. 11*** steelhead - Central Valley DPS	Threatened	None	G5T2Q	S2	

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AMACC01020	***Myotis yumanensis*** Yuma myotis	None	None	G5	S4	
AMACC02010	***Lasionycteris noctivagans*** silver-haired bat	None	None	G3G4	S3S4	
AMACC05032	***Lasiurus cinereus*** hoary bat	None	None	G3G4	S4	
AMACC05080	***Lasiurus frantzii*** western red bat	None	None	G4	S3	SSC
AMACC10010	***Antrozous pallidus*** pallid bat	None	None	G4	S3	SSC
AMAFD01060	***Perognathus inornatus*** San Joaquin pocket mouse	None	None	G2G3	S2S3	
AMAFD03071	***Dipodomys californicus eximius*** Marysville California kangaroo rat	None	None	G4T1	S1	SSC
AMAFJ01010	***Erethizon dorsatum*** North American porcupine	None	None	G5	S3	
AMAJF04010	***Taxidea taxus*** American badger	None	None	G5	S3	SSC
ARAAD02030	***Emys marmorata*** western pond turtle	None	None	G3G4	S3	SSC
ARADB36150	***Thamnophis gigas*** giant gartersnake	Threatened	Threatened	G2	S2	
CTT44110CA	***Northern Hardpan Vernal Pool*** Northern Hardpan Vernal Pool	None	None	G3	S3.1	
CTT52410CA	***Coastal and Valley Freshwater Marsh*** Coastal and Valley Freshwater Marsh	None	None	G3	S2.1	
CTT61410CA	***Great Valley Cottonwood Riparian Forest*** Great Valley Cottonwood Riparian Forest	None	None	G2	S2.1	
CTT61420CA	***Great Valley Mixed Riparian Forest*** Great Valley Mixed Riparian Forest	None	None	G2	S2.2	
CTT61430CA	***Great Valley Valley Oak Riparian Forest*** Great Valley Valley Oak Riparian Forest	None	None	G1	S1.1	
CTT63410CA	***Great Valley Willow Scrub*** Great Valley Willow Scrub	None	None	G3	S3.2	
ICBRA03030	***Branchinecta lynchi*** vernal pool fairy shrimp	Threatened	None	G3	S3	
ICBRA06010	***Linderiella occidentalis*** California linderiella	None	None	G2G3	S2S3	
ICBRA10010	***Lepidurus packardi*** vernal pool tadpole shrimp	Endangered	None	G3	S3	
IICOL02106	***Cicindela hirticollis abrupta*** Sacramento Valley tiger beetle	None	None	G5TH	SH	

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
IICOL48011	***Desmocerus californicus dimorphus*** valley elderberry longhorn beetle	Threatened	None	G3T3	S3	
IIHYM24260	***Bombus pensylvanicus*** American bumble bee	None	None	G3G4	S2	
IMBIV19010	***Gonidea angulata*** western ridged mussel	None	None	G3	S2	
PDAST4R0P2	***Centromadia parryi ssp. parryi*** pappose tarplant	None	None	G3T2	S2	1B.2
PDAST5N0F0	***Layia septentrionalis*** Colusa layia	None	None	G2	S2	1B.2
PDAST7P010	***Pseudobahia bahiifolia*** Hartweg's golden sunburst	Endangered	Endangered	G1	S1	1B.1
PDBOR01070	***Amsinckia lunaris*** bent-flowered fiddleneck	None	None	G3	S3	1B.2
PDCAB01010	***Brasenia schreberi*** watershield	None	None	G5	S3	2B.3
PDCHE040B0	***Atriplex cordulata var. cordulata*** heartscale	None	None	G3T2	S2	1B.2
PDCHE042M0	***Atriplex minuscula*** lesser saltscale	None	None	G2	S2	1B.1
PDCHE042T0	***Atriplex subtilis*** subtle orache	None	None	G1	S1	1B.2
PDCUS01111	***Cuscuta obtusiflora var. glandulosa*** Peruvian dodder	None	None	G5T4?	SH	2B.2
PDFAB0F8R3	***Astragalus tener var. ferrisiae*** Ferris' milk-vetch	None	None	G2T1	S1	1B.1
PDLAM18082	***Monardella venosa*** veiny monardella	None	None	G1	S1	1B.1
PDMAL0H0R3	***Hibiscus lasiocarpos var. occidentalis*** woolly rose-mallow	None	None	G5T3	S3	1B.2
PDPLM0C0E1	***Navarretia leucocephala ssp. bakeri*** Baker's navarretia	None	None	G4T2	S2	1B.1
PDRAN0B1J0	***Delphinium recurvatum*** recurved larkspur	None	None	G2?	S2?	1B.2
PDSCR0D482	***Castilleja rubicundula var. rubicundula*** pink creamsacs	None	None	G5T2	S2	1B.2
PMALI040Q0	***Sagittaria sanfordii*** Sanford's arrowhead	None	None	G3	S3	1B.2
PMJUN011L1	***Juncus leiospermus var. ahartii*** Ahart's dwarf rush	None	None	G2T1	S1	1B.2
PMLEM03020	***Wolffia brasiliensis*** Brazilian watermeal	None	None	G5	S2	2B.3

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PMPOA53110	***Puccinellia simplex*** California alkali grass	None	None	G2	S2	1B.2
PMPOA6N010	***Tuctoria greenei*** Greene's tuctoria	Endangered	Rare	G1	S1	1B.1
PMPON03010	***Heteranthera dubia*** water star-grass	None	None	G5	S2	2B.2

Record Count: 64

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

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

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

Location

Butte County, California

Local office

Sacramento Fish And Wildlife Office

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

Federal Building

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

Endangered species

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

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

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

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

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

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

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

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

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

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

Birds

NAME	STATUS
Yellow-billed Cuckoo Coccyzus americanus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake Thamnophis gigas Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

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

Critical habitats

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

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

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

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

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

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

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

Probability of Presence Summary

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

Probability of Presence (■)

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

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

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

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

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

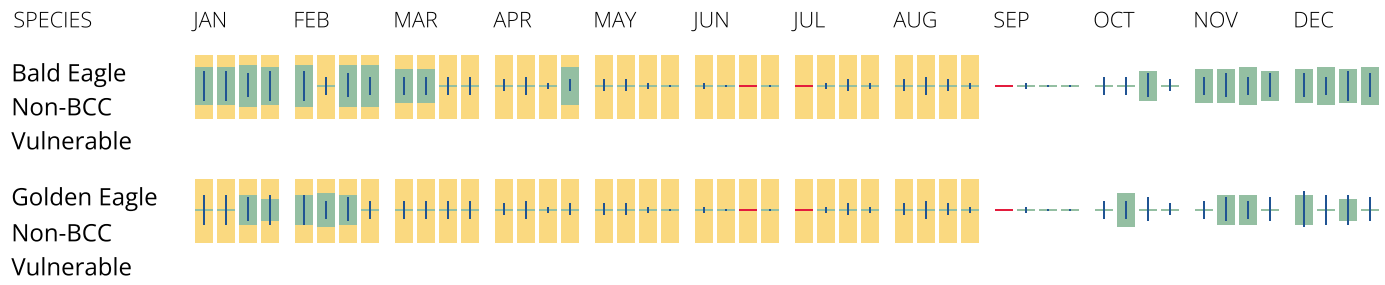
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

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

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

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

▪ probability of presence ▪ breeding season | survey effort – no data



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

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

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

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

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

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

What if I have eagles on my list?

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

Migratory birds

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

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

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

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

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31

Belding's Savannah Sparrow Passerculus sandwichensis beldingi — Breeds Apr 1 to Aug 15

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8

Bullock's Oriole Icterus bullockii — Breeds Mar 21 to Jul 25

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

California Gull Larus californicus — Breeds Mar 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Cassin's Finch Carpodacus cassinii — Breeds May 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9462

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

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

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey

effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

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

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

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

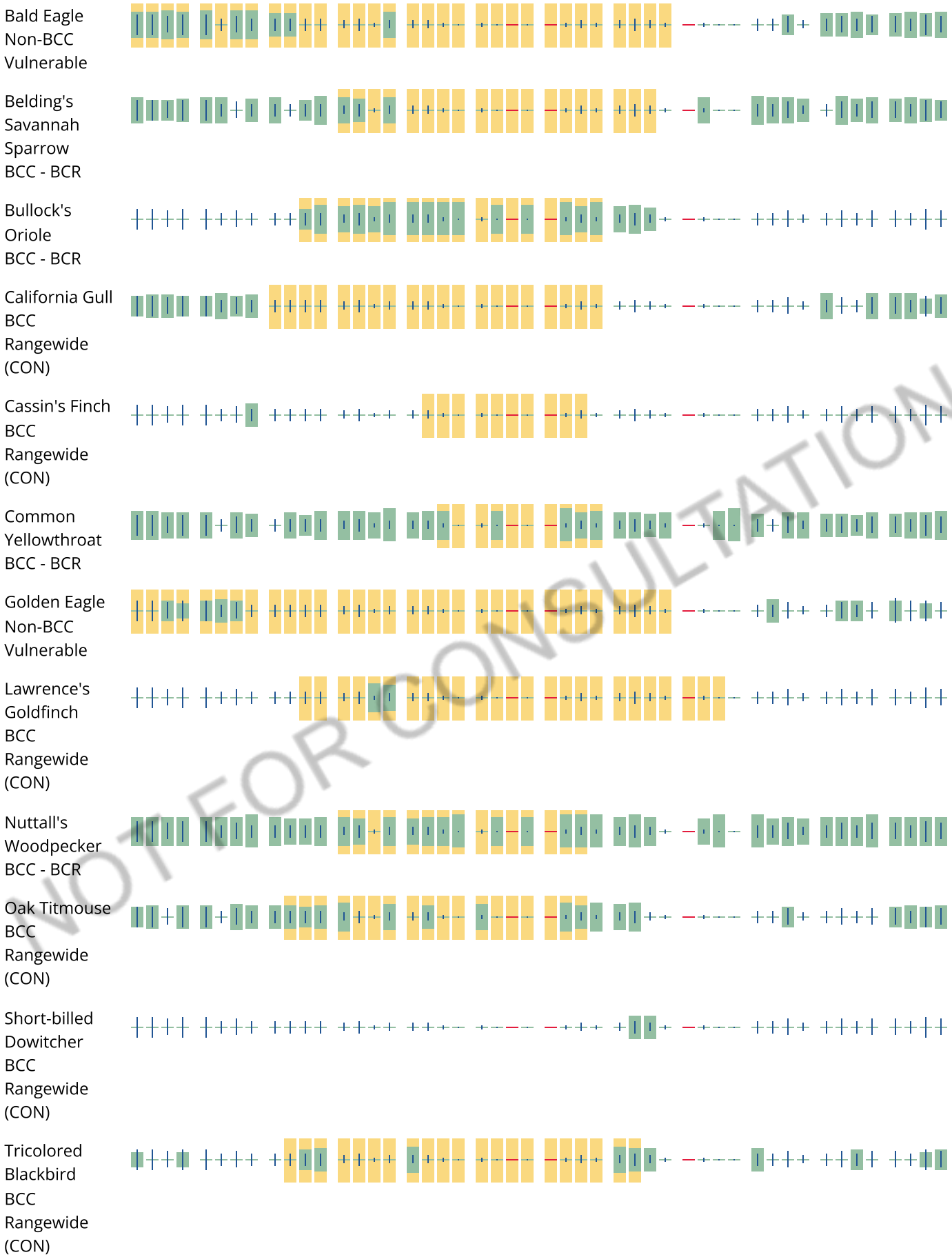
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

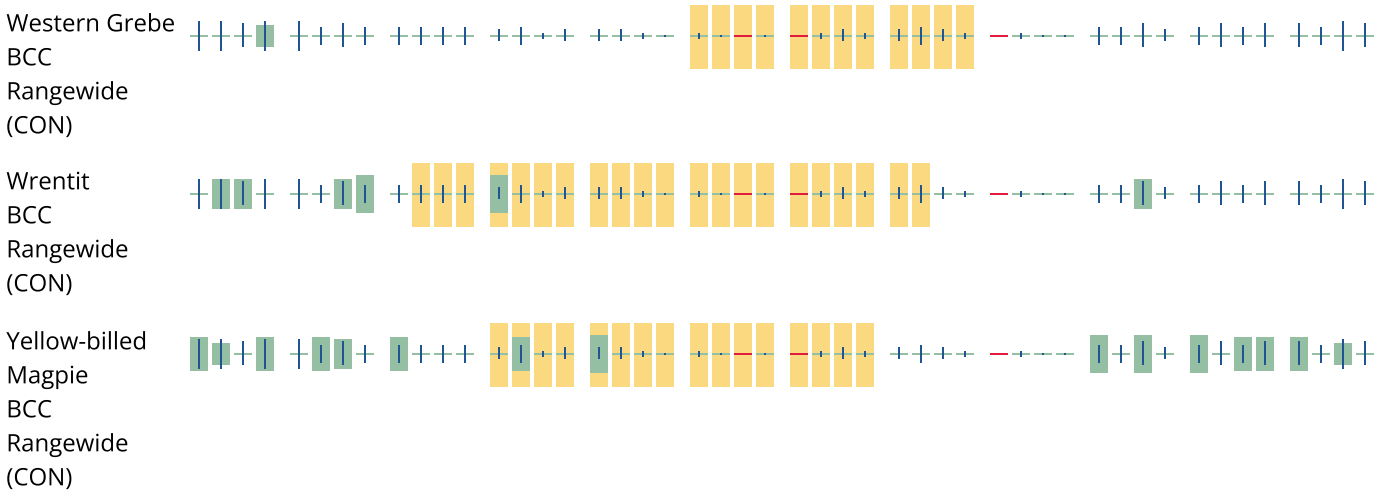
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

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

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

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





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

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

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

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

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

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

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

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

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

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

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

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

Facilities

National Wildlife Refuge lands

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

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory

(NWI)

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

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

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

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1K
- PEM1A

RIVERINE

- R2UBHx
- R4SBCx

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

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

Data limitations

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

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

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

Data exclusions

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

Data precautions

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

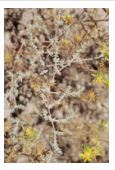
CNPS Rare Plant Inventory

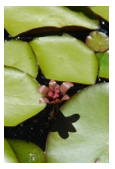
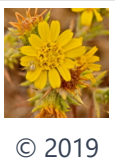
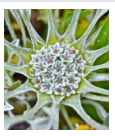
California Native Plant Society

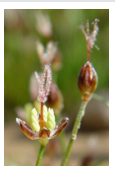
Search Results

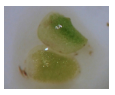
31 matches found. Click on scientific name for details

Search Criteria: 9-Quad include [**3912137:3912136:3912148:3912147:3912146:3912126:3912128:3912138:3912127**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	Mar-Jun	None	None	G3	S3	1B.2	Yes	1974-01-01	 © 2011 Neal Kramer
Astragalus tener var. *ferrisiae*	Ferris' milk-vetch	Fabaceae	annual herb	Apr-May	None	None	G2T1	S1	1B.1	Yes	1994-01-01	No Photo Available
Atriplex cordulata var. *cordulata*	heartscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G3T2	S2	1B.2	Yes	1988-01-01	 © 1994 Robert E. Preston, Ph.D.
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	None	None	G2	S2	1B.1	Yes	1994-01-01	 © 2000 Robert E. Preston, Ph.D.
Atriplex subtilis	subtle orache	Chenopodiaceae	annual herb	(Apr)Jun-Sep(Oct)	None	None	G1	S1	1B.2	Yes	1994-01-01	 © 2000 Robert E. Preston, Ph.D.
Azolla microphylla	Mexican mosquito fern	Azollaceae	annual/perennial herb	Aug	None	None	G5	S4	4.2		1994-01-01	No Photo Available

Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	Jun-Sep	None	None	G5	S3	2B.3		2010-10-27	 ©2014 Kirsten Bovee
Castilleja rubicundula var. *rubicundula*	pink creamsacs	Orobanchaceae	annual herb (hemiparasitic)	Apr-Jun	None	None	G5T2	S2	1B.2	Yes	2001-01-01	 ©2010 Vernon Smith
Centromadia parryi ssp. *parryi*	pappose tarplant	Asteraceae	annual herb	May-Nov	None	None	G3T2	S2	1B.2	Yes	2004-01-01	 © 2016 John Doyen
Centromadia parryi ssp. *rudis*	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	None	None	G3T3	S3	4.2	Yes	2007-05-22	 © 2019 John Doyen
Cryptantha rostellata	red-stemmed cryptantha	Boraginaceae	annual herb	Apr-Jun	None	None	G4	S3	4.2		2018-06-26	No Photo Available
Cuscuta obtusiflora var. *glandulosa*	Peruvian dodder	Convolvulaceae	annual vine (parasitic)	Jul-Oct	None	None	G5T4?	SH	2B.2		2011-08-24	No Photo Available
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	None	None	G2?	S2?	1B.2	Yes	1988-01-01	No Photo Available
Hemizonia congesta ssp. *calyculata*	Mendocino tarplant	Asteraceae	annual herb	Jul-Nov	None	None	G5T4	S4	4.3	Yes	1974-01-01	 © 2015 John Doyen
Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2017 John Doyen
Heteranthera dubia	water star-grass	Pontederiaceae	perennial herb (aquatic)	Jul-Oct	None	None	G5	S2	2B.2		2013-10-10	 ©2010 Louis-M. Landry

Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	Yes	1974-01-01	 © 2020 Steven Perry
Juncus leiospermus var. *ahartii*	Ahart's dwarf rush	Juncaceae	annual herb	Mar-May	None	None	G2T1	S1	1B.2	Yes	1984-01-01	 © 2004 Carol W. Witham
Lasthenia ferrisiae	Ferris' goldfields	Asteraceae	annual herb	Feb-May	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2009 Zoya Akulova
Lathyrus delnorticus	Del Norte pea	Fabaceae	perennial herb	Jun-Jul	None	None	G4	S3	4.3		1974-01-01	 © 2016 Keir Morse
Layia septentrionalis	Colusa layia	Asteraceae	annual herb	Apr-May	None	None	G2	S2	1B.2	Yes	1994-01-01	 © 2013 Jake Ruygt
Limnanthes floccosa ssp. *floccosa*	woolly meadowfoam	Limnanthaceae	annual herb	Mar-May(Jun)	None	None	G4T4	S3	4.2		1980-01-01	 © 2021 Scot Loring
Monardella venosa	veiny monardella	Lamiaceae	annual herb	May-Jul	None	None	G1	S1	1B.1	Yes	1984-01-01	 © 2007 George W. Hartwell
Navarretia leucocephala ssp. *bakeri*	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G4T2	S2	1B.1	Yes	1994-01-01	 © 2018 Barry Rice
Plagiobryoides vinosula	wine-colored tufa moss	Bryaceae	moss		None	None	G3G4	S3S4	4.2		2014-06-10	No Photo Available
Pseudobahia bahiifolia	Hartweg's golden sunburst	Asteraceae	annual herb	Mar-Apr	FE	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	None	None	G2	S2	1B.2		2015-10-15	No Photo Available

Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	Yes	1984-01-01	 ©2013 Debra L. Cook
Smilax jamesii	English Peak greenbrier	Smilacaceae	perennial rhizomatous herb	May-Jul(Aug-Oct)	None	None	G3G4	S3S4	4.2	Yes	1980-01-01	 Sheli Wingo 2004
Tuctoria greenei	Greene's tuctoria	Poaceae	annual herb	May-Jul(Sep)	FE	CR	G1	S1	1B.1	Yes	1974-01-01	 ©2008 F. Gauna
Wolffia brasiliensis	Brazilian watermeal	Araceae	perennial herb (aquatic)	Apr-Dec	None	None	G5	S2	2B.3		2001-01-01	 © 2021 Scot Loring

Showing 1 to 31 of 31 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2023. Rare Plant Inventory (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed 1 September 2023].

National Marine Fisheries Service – West Coast Region – California

December 2016 (Accessed September 1, 2023)

Intersection of USGS 7.5" Quadrangles with NOAA Fisheries ESA Listed Species, Critical Habitat, Essential Fish Habitat, and MMPA Species Data within California

An "X" following a listed feature indicates it may be present. Identified resources may be present throughout the entire quadrangle of only a portion of it.

Quad Name **Pennington**
Quad Number **39121-C7**

ESA Anadromous Fish

SONCC Coho ESU (T) - NONE
CCC Coho ESU (E) - NONE
CC Chinook Salmon ESU (T) - NONE
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) - **X**
NC Steelhead DPS (T) - NONE
CCC Steelhead DPS (T) - NONE
SCCC Steelhead DPS (T) - NONE
SC Steelhead DPS (E) - NONE
CCV Steelhead DPS (T) - **X**
Eulachon (T) - NONE
sDPS Green Sturgeon (T) - NONE

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - NONE
CCC Coho Critical Habitat - NONE
CC Chinook Salmon Critical Habitat - NONE
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat - NONE
CCC Steelhead Critical Habitat - NONE
SCCC Steelhead Critical Habitat - NONE
SC Steelhead Critical Habitat - NONE
CCV Steelhead Critical Habitat - NONE
Eulachon Critical Habitat - NONE
sDPS Green Sturgeon Critical Habitat - NONE

ESA Marine Invertebrates

National Marine Fisheries Service – West Coast Region – California

December 2016 (Accessed September 1, 2023)

Intersection of USGS 7.5" Quadrangles with NOAA Fisheries ESA Listed Species, Critical Habitat, Essential Fish Habitat, and MMPA Species Data within California

An "X" following a listed feature indicates it may be present. Identified resources may be present throughout the entire quadrangle of only a portion of it.

Range Black Abalone (E) - NONE
Range White Abalone (E) - NONE

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat - NONE

ESA Sea Turtles

East Pacific Green Sea Turtle (T) - NONE
Olive Ridley Sea Turtle (T/E) – NONE
Leatherback Sea Turtle (E) - NONE
North Pacific Loggerhead Sea Turtle (E) - NONE

ESA Whales

Blue Whale (E) - NONE
Fin Whale (E) – NONE
Humpback Whale (E) – NONE
Southern Resident Killer Whale (E) – NONE
North Pacific Right Whale (E) – NONE
Sei Whale (E) – NONE
Sperm Whale (E) - NONE

ESA Pinnipeds

Guadalupe Fur Seal (T) - NONE
Steller Sea Lion Critical Habitat - NONE

Essential Fish Habitat

Coho EFH - NONE
Chinook Salmon EFH - **X**
Groundfish EFH - NONE
Coastal Pelagics EFH - NONE
Highly Migratory Species EFH - NONE

National Marine Fisheries Service – West Coast Region – California

December 2016 (Accessed September 1, 2023)

Intersection of USGS 7.5" Quadrangles with NOAA Fisheries ESA Listed Species, Critical Habitat, Essential Fish Habitat, and MMPA Species Data within California

An "X" following a listed feature indicates it may be present. Identified resources may be present throughout the entire quadrangle of only a portion of it.

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans – NONE
MMPA Pinnipeds - NONE

APPENDIX B

Representative Site Photographs

Photo 1. Ditch within the Study Area.
Photo taken April 27, 2023, facing south.

Photo 2. Ditch within the Study Area.
Photo taken February 23, 2021, facing north-northwest.

Photo 3. Outlet and distribution box for the ditch within the Study Area. Photo taken February 23, 2021, facing east-northeast.

Photo 4. Outlet and distribution box for the ditch within the Study Area. Photo taken February 23, 2021, facing south.

Photo 5. Large seasonal wetland within the Study Area. Photo taken April 23, 2023, facing south.

Photo 6. The northernmost seasonal wetland swale within the Study Area. Photo taken April 23, 2023, facing west-northwest.

Photo 7. The southernmost seasonal wetland swale within the Study Area. Photo taken April 23, 2023, facing west.

Photo 8. Grassland and access road within the Study Area. Photo taken April 23, 2023, facing west.

AVAILABLE UPON REQUEST

APPENDIX C

Archaeological and Architectural History Resources Inventory Report for the Gray Lodge Wildlife Area State Fish Hatchery Facility
ECORP Consulting, Inc.
June 2023

THIS REPORT IS NOT PROVIDED IN THIS SUBMITTAL DUE TO CONFIDENTIALITY. IT IS AVAILABLE UPON REQUEST.

APPENDIX D

Energy Assessment for Gray Lodge Area Solar Ground Mount Project
ECORP Consulting, Inc.
March 23, 2023

Proposed Project
Total Construction-Related
Gasoline Usage

Construction

Table 1. Construction Year One			
Action	**Carbon Dioxide Equivalents (CO_2e) in Metric Tons[1]**	**Conversion of Metric Tons to Kilograms[2]**	**Construction Equipment Emission Factor[2]**
Project Construction	61	60,800	10.15
Total Gallons Consumed During Construction Year One:			**5,990**

Table 2. Construction Year Two			
Action	**Carbon Dioxide Equivalents (CO_2e) in Metric Tons[1]**	**Conversion of Metric Tons to Kilograms[2]**	**Construction Equipment Emission Factor[2]**
Project Construction	136	136,000	10.15
Total Gallons Consumed During Construction Year Two:			**13,399**

Sources:

[1]ECORP Consulting. 2023. Air Quality and Greenhouse Gas Emissions Assessment: Gray Lodge

[2]Climate Registry. 2016. General Reporting Protocol for the Voluntary Reporting Program version 2.1. January 2016.
http://www.theclimateregistry.org/wp-content/uploads/2014/11/General-Reporting-Protocol-Version-2.1.pdf

APPENDIX E

Noise Assessment for Gray Lodge Wildlife Area Solar Ground Mount Project
ECORP Consulting, Inc.
March 21, 2023

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/2/2023
Case Description: Site Preparation

Description	**Affected Land Use**
Site Preparation	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Grader	No	40	85		350
Dozer	No	40		81.7	350
Tractor	No	40	84		350

Results

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Grader	68.1	64.1
Dozer	64.8	60.8
Tractor	67.1	63.1
Total	68.1	**67.7**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/2/2023
Case Description: Grading

Description	**Affected Land Use**
Grading	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Grader	No	40	85		350
Dozer	No	40		81.7	350
Tractor	No	40	84		350
Tractor	No	40	84		350

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Grader		68.1	64.1
Dozer		64.8	60.8
Tractor		67.1	63.1
Tractor		67.1	63.1
	Total	68.1	**69**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/2/2023
Case Description: Building Construction

Description	**Affected Land Use**
Building Construction	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Crane	No	16		80.6	350
Gradall	No	40		83.4	350
Generator	No	50		80.6	350
Tractor	No	40	84		350
Welder / Torch	No	40		74	350
Welder / Torch	No	40		74	350
Welder / Torch	No	40		74	350
Slurry Trenching Machine	No	50		80.4	350

Results

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Crane	63.6	55.7
Gradall	66.5	62.5
Generator	63.7	60.7
Tractor	67.1	63.1
Welder / Torch	57.1	53.1
Welder / Torch	57.1	53.1
Welder / Torch	57.1	53.1
Slurry Trenching Machine	63.5	60.4
Total	67.1	**68.5**

*Calculated Lmax is the Loudest value.