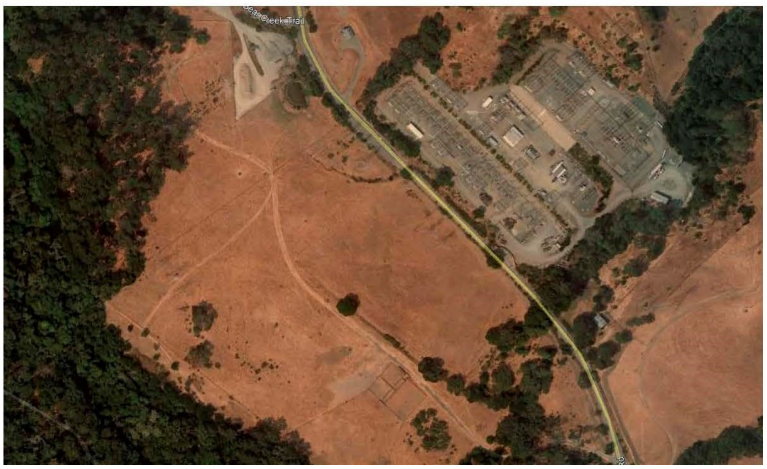








East Bay Municipal Utility District

Duffel Photovoltaic Renewable Energy Project

Draft Initial Study/ Mitigated Negative Declaration

August 2019

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East Bay Municipal Utility District Duffel Photovoltaic Renewable Energy Project

Draft Initial Study/ Mitigated Negative Declaration

August 2019

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Appendix A Mitigation Monitoring and Reporting Plan

Appendix B EBMUD Practices and Procedures Monitoring and Reporting Plan

Appendix C Air Quality Emissions Calculations

Appendix D Land Use Plan Consistency Analysis

ACRONYMS AND ABBREVIATIONS

2017 CAP	2017 Clean Air Plan
AC	alternating current
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
Basin Plan	San Francisco Bay Basin (Region 2) Water Quality Control Plan
BBCS	Bird and Bat Conservation Strategy
BMP	best management practice
CAAQS	California Ambient Air Quality Standards
CCTA	Contra Costa Transportation Authority
CEQA	California Environmental Quality Act
CDFW	California Department of Fish and Wildlife
CGP	Construction General Permit
CMP	Congestion Management Plan
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_{2e}	carbon dioxide equivalent
CRLF	California red-legged frog
CUP	Conditional Use Permit
dBA	A-weighted decibels
DC	direct current

ACRONYMS AND ABBREVIATIONS

District	East Bay Municipal Utility District[1]
EBMUD	East Bay Municipal Utility District
EBWMP	East Bay Watershed Master Plan
GHG	greenhouse gas
I/M	inspection and maintenance
I-80	Interstate 80
Ldn	day-night average sound level
LOS	level of service standard
MBTA	Migratory Bird Treaty Act
MND	Mitigated Negative Declaration
mph	miles per hour
MW	megawatt
MT	metric tons
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NPDES	National Pollutant Discharge Elimination System
NO_x	nitrogen oxide
NTU	nephelometric turbidity unit
OMC	Orinda Municipal Code
PG&E	Pacific Gas & Electric
$PM_{2.5}$	coarse particulate matter
PM_{10}	fine particulate matter
ppv	peak particle velocity

[1] Both "district" and "EBMUD" may be used as an acronym for East Bay Municipal Utility District

ACRONYMS AND ABBREVIATIONS

Project	EBMUD's Duffel Photovoltaic Renewable Energy Project
PV	photovoltaic
RES-BCT	Renewable Energy Self-Generation Bill Credit Transfer
ROGs	reactive organic gases
RWQCB	Regional Water Quality Control Board
SCADA	supervisory control and data acquisition
SFBAAB	San Francisco Bay Area Air Basin
SF_6	sulfur-hexafluoride
SO_2	sulfur dioxide
SR-24	State Route-24
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
U.S.	United States
USFWS	U.S. Fish and Wildlife Service
VMT	vehicles miles traveled

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1 SUMMARY

1.1 PROJECT OBJECTIVE

East Bay Municipal Utility District (EBMUD) is proposing to develop the Duffel Photovoltaic (PV) Renewable Energy Project (Project). The Project includes construction of a 5-megawatt (MW) solar photovoltaic (PV) energy generation facility located off of Bear Creek Road in the City of Orinda on EBMUD watershed property (see Figure 2.2-1). The Project's objectives are to:

1. Assist EBMUD in meeting its Energy Policy goals for increasing the cost-effective use of renewable energy and reducing greenhouse gas (GHG) emissions; and
2. Produce renewable energy that qualifies for the Pacific Gas & Electric (PG&E) Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT) tariff.

EBMUD has an Energy Policy goal to be carbon-free for indirect emissions by 2040. The RES-BCT tariff allows local governments to generate up to 5 MW of electricity from a renewable energy source at an electric account and transfer bill credits to up to 50 benefitting accounts of the same local government entity. The RES-BCT tariff is a cost-effective opportunity to increase EBMUD use of renewable energy and assist EBMUD in meeting its Energy Policy goal.

1.2 PURPOSE OF MITIGATED NEGATIVE DECLARATION

This Initial Study/Mitigated Negative Declaration (MND) assesses the potential environmental impacts of the Project proposed by EBMUD and has been prepared in accordance with the California Environmental Quality Act (CEQA) statutes and guidelines in which EBMUD is the lead agency. EBMUD has incorporated mitigation measures into the Project to mitigate the potentially significant impacts identified in the Initial Study/MND such that no significant impacts will occur. The mitigation measures are summarized in the Mitigation Monitoring and Reporting Plan (MMRP), see Appendix A.

1.3 SUMMARY OF ENVIRONMENTAL CONSIDERATIONS

Based on the results of the Initial Study/MND, Project-related construction work could potentially generate environmental impacts to agricultural and forestry resources, biological resources, and land use and planning. Mitigation measures incorporated into the Project that would reduce impacts to less-than-significant levels are discussed in Chapter 3 of this Initial Study/MND. EBMUD determined that an MND is the appropriate level of CEQA review for this Project. The mitigation measures that have been incorporated in the Project are summarized in the MMRP, see Appendix A.

1.4 LIST OF REFERENCED STUDIES BY ENVIRONMENTAL TOPIC

A list of studies referenced in this Initial Study/MND is summarized in Table 1.4-1.

Table 1.4-1 List of Referenced Studies

Environmental Topic	Study
Biological Resources	Vollmar Natural Lands Consulting, March 2019. Draft Delineation of Potential Jurisdictional Waters EBMUD Photovoltaic Project. Prepared by Vollmar Natural Lands Consulting.
	Vollmar Natural Lands Consulting, April 2019. Draft Botanical Resources Survey Report, EBMUD Photovoltaic Project, Duffel Study Area. Prepared by Vollmar Natural Lands Consulting.
	Pacific Biology, August 2018. EBMUD Photovoltaic System Project, Draft Biological Evaluation Report. Prepared by Pacific Biology.
Cultural Resources	Basin Research Associates, August 2018. Cultural Resources Review – Three Potential Locations – EBMUD Photovoltaic System Project. Prepared by Colin I. Busby, Basin Research Associates.

1.5 CIRCULATION OF MND

In accordance with CEQA, EBMUD made a good-faith effort during the preparation of the Initial Study/MND to contact affected agencies, organizations, and persons who may have an interest in the Project. In reviewing the Initial Study/MND, affected persons and public agencies should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and the ways in which the significant effects of the Project were avoided or mitigated.

Comments on the Initial Study/MND may be made in writing before the end of the comment period. A 30-day review and comment period has been established in accordance with CEQA Guidelines Section 15205(d). Following the close of the public comment period, which ends on September 30th, 2019 at 4:30 pm, EBMUD will consider this Initial Study/MND, and comments thereto, in determining whether to approve the Project.

The Initial Study/MND is available online on EBMUD's webpage (www.ebmud.com/DuffelPV). Written comments should be sent to EBMUD's street address or Project email address as follows:

Duffel PV Renewable Energy Project Comments
c/o Ramona Gonzalez, Associate Civil Engineer
East Bay Municipal Utility District
375 11th Street, MS 205
Oakland, CA 94607

DuffelPVREP@ebmud.com

2 PROJECT DESCRIPTION

2.1 OVERVIEW

The Project includes construction of a 5-MW PV solar system on EBMUD watershed land in order to qualify for the PG&E RES-BCT tariff. The Project would include the following components, which are further described in Section 2.3 below:

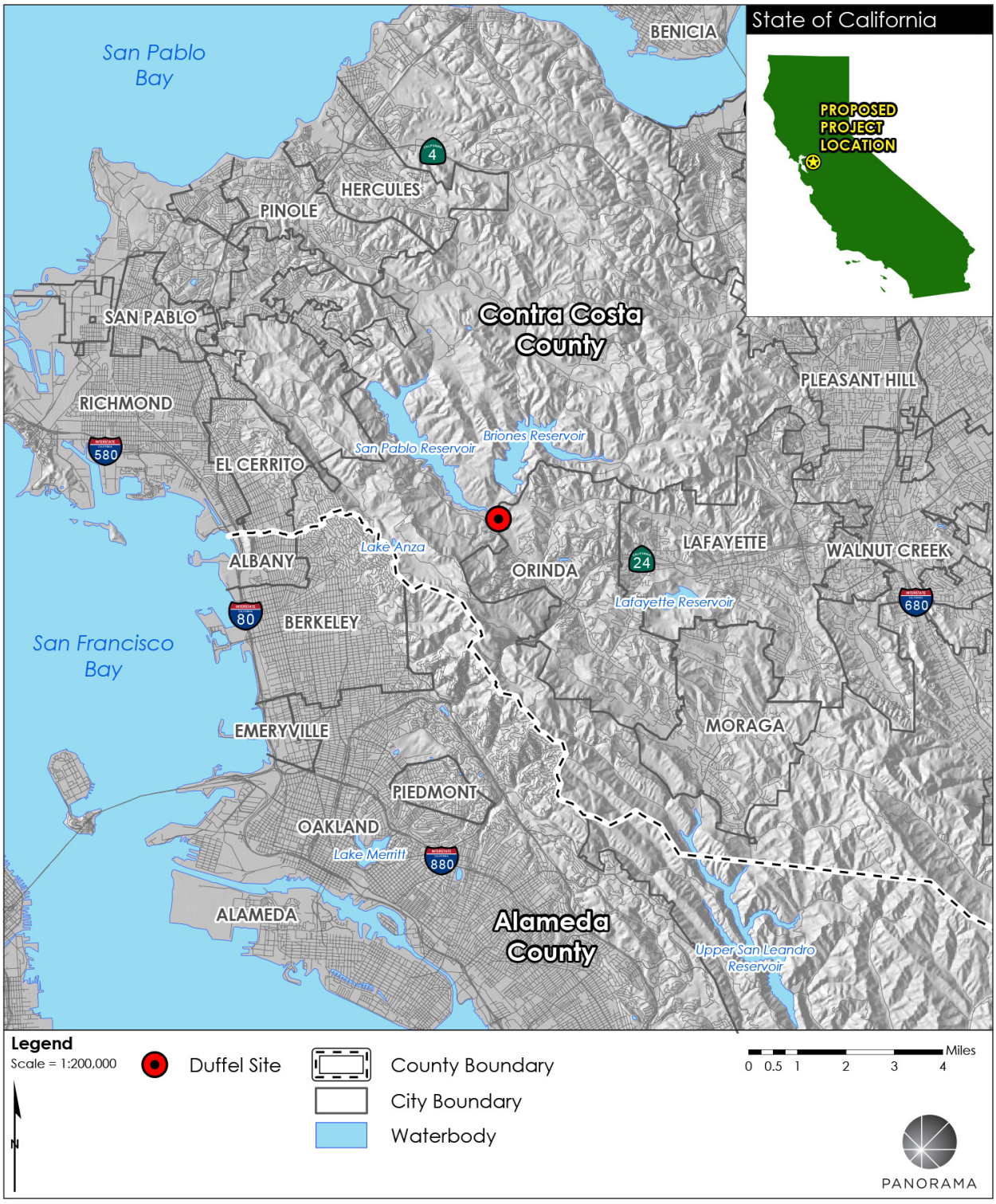
- Solar panels mounted on tracking support structures with controllers and motors
- Equipment pads housing transformers and inverters with underground cabling between equipment
- Electrical control building
- Connection line to PG&E's electrical system, including up to five power poles with overhead power line
- PG&E substation upgrades
- Site security and perimeter fencing
- Access roads
- Stormwater drainage system and detention basin
- Relocated corral

2.2 PROJECT LOCATION

The Project is located on EBMUD watershed land west of 518 Bear Creek Road, approximately 0.5 mile north of the intersection of Bear Creek Road and San Pablo Dam Road in the City of Orinda, Contra Costa County, California (refer to Figure 2.2-1). Temporary Project work areas (i.e., staging and parking areas) are located on adjacent EBMUD property. The Project site location and relative location of Project components within the Project site are shown on Figure 2.2-2.

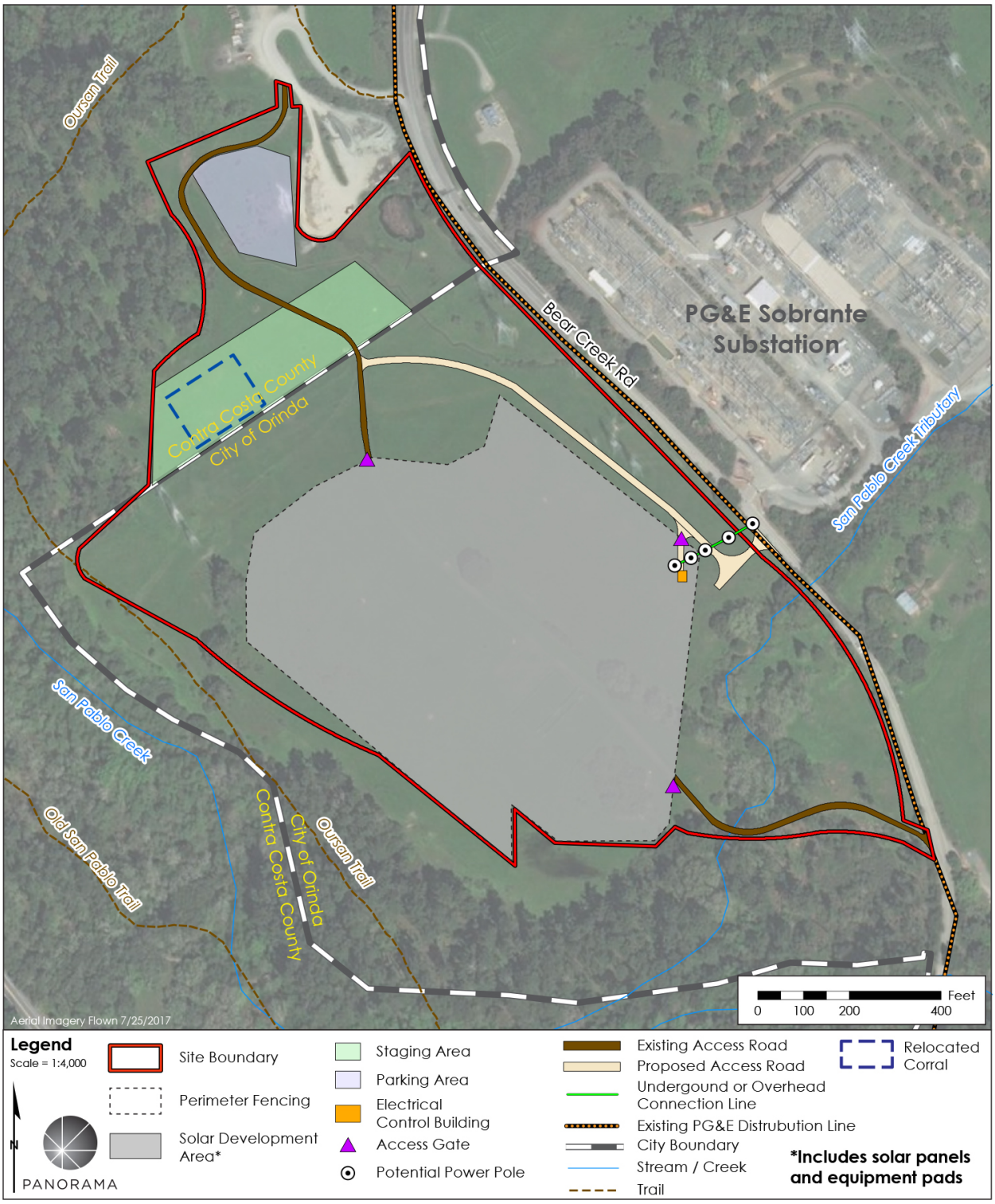
The Project site is located on a relatively flat parcel with an elevation of approximately 340 feet above mean sea level. The Solar Development Area, which consists of the area within the solar facility perimeter fence, is centrally located within the Project site and set back from Bear Creek Road and trails. The Project site is bordered by trees on the southern, western, and northwestern boundaries. The PG&E Sobrante Substation is located directly across Bear Creek Road from the Project site, and PG&E's electrical transmission towers and infrastructure are located within the northern portion of the Project site. The Project site consists of predominantly disturbed grassland with some trees and a small wetland swale within the central portion of the site.

Figure 2.2-1 Project Site Location



Source: (EBMUD, 2018a; USGS, 2013; USGS, 2016; Tele Atlas North America, Inc., 2018; Bay Area Open Space Council, 2011a; Bay Area Open Space Council, 2011b; Bay Area Open Space Council, 2017)

Figure 2.2-2 Project Site Plan



Source: (EBMUD, 2018a; USGS, 2016; Tele Atlas North America, Inc., 2018; California Department of Fish and Wildlife, 2016)

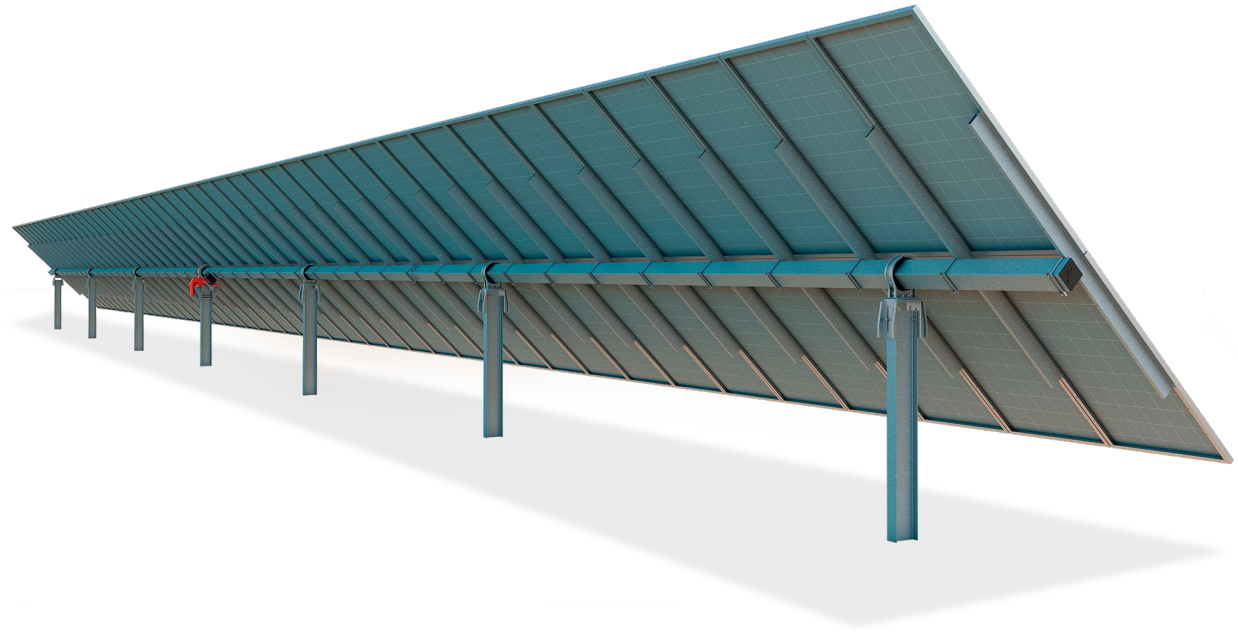
The Project site is currently leased for seasonal grazing, and a corral for cattle is located within the center of the site. The Oursan Trail, used by hikers and horseback riders, is located west of the Project site and is separated from the site by a row of trees. San Pablo Creek drains along the west and south of the Project site.

2.3 PROJECT COMPONENTS

2.3.1 Solar Panels and Support Structures

Solar energy would be captured by solar panels mounted to a single-axis tracking system. The trackers would rotate throughout the day to increase total solar exposure. The top of each tracker row would be approximately 14 feet above grade, when the tracker is at maximum tilt. The trackers would be mounted on a tracker tube approximately 6 to 8 feet above grade, supported by metal piers that would be buried to a depth of approximately 8 to 15 feet. Figure 2.3-1 shows a diagram of typical solar panel support structures.[2]

Figure 2.3-1 Typical Solar Support Structures



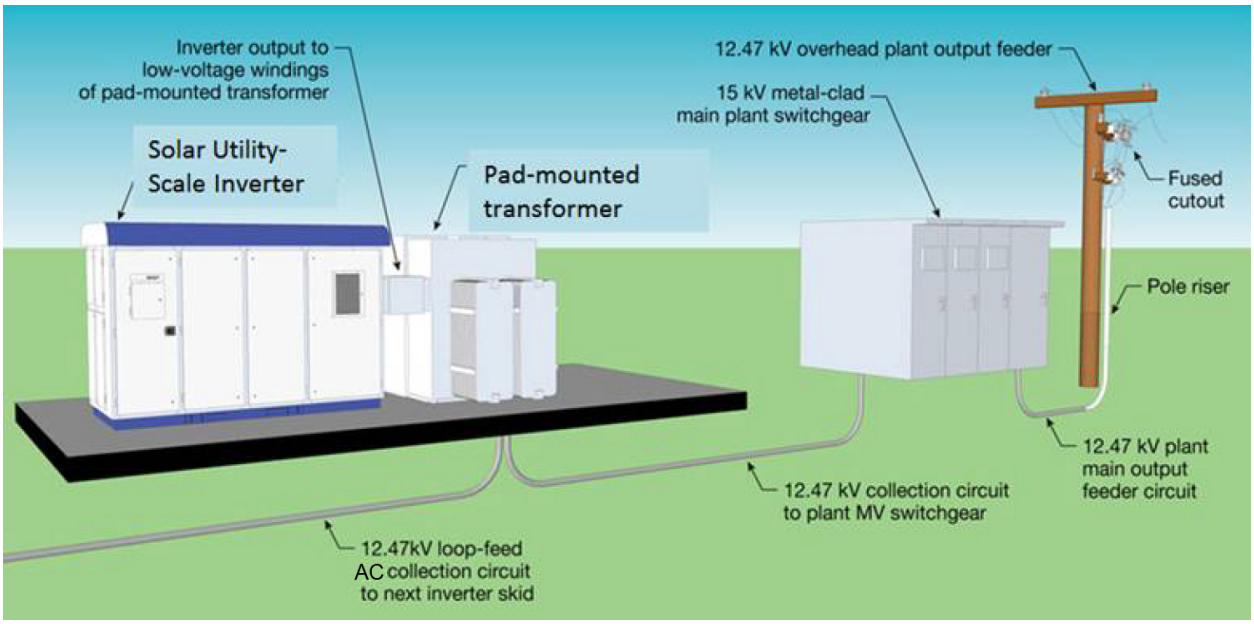
Source: (EBMUD, 2019a)

[2] Note that diagrams of typical Project components are for illustrative purposes only.

2.3.2 Underground Collection System, Transformers, and Inverters

Underground collector cables, installed within trenches, would collect direct current (DC) power from each power block and transport the power to an inverter. The inverter would feed alternating current (AC) to a transformer(s) that would convert the AC power for transmission to the substation. A diagram illustrating the collection system process is provided in Figure 2.3-2.

Figure 2.3-2 Typical Inverters, Transformers, and Underground Collection System



Source: (EBMUD, 2019a)

The 5-MW PV solar system can be developed in varying configurations, and minor modifications to the layout are expected to occur during detailed design. Two to five utility-scale inverters[3] and transformers[4] would be used. The two-inverter system would stand approximately 8 feet tall, with each inverter mounted on an approximate 40-foot by 10-foot concrete equipment pad. The equipment to support a 5-inverter system would stand approximately 8 feet tall, with each inverter mounted on an approximate 30-foot by 8-foot concrete equipment pad. Each inverter and transformer would be positioned together within the concrete pad, as shown in Figure 2.3-2. String inverters instead of pad-mounted utility-scale inverters may optionally be used. String inverters are smaller, supported on equipment racks (similar to the PV panels), and positioned throughout the solar arrays, as shown in Figure 2.3-3.

[3] Inverters convert direct current produced by the solar panels to alternating current.
[4] Transformers are used to step-up the voltage produced by the solar panels to a higher voltage for delivery to PG&E.

Figure 2.3-3 Typical String Inverter



Source: (EBMUD, 2019a)

2.3.3 Electrical Control Building

An approximately 20-foot by 25-foot control building would be constructed on the Project site. The control building would be prefabricated and painted a beige green color to blend in with the Project site surroundings. The control building would collect power from the inverters and transformers via the underground collection cables. Power would then be transferred via overhead or underground power cables from the control building to the PG&E interconnection distribution line on the south side of Bear Creek Road. A control system would be located in the control building to monitor Project operations. The control building would also include a heating, ventilation, and air conditioning system.

2.3.4 Connection Line

Electrical conductor (consisting of 3 sets of wires) would be installed overhead or underground to connect the control building to the PG&E Sobrante Substation. Power would then be delivered across Bear Creek Road to the PG&E Sobrante Substation via an existing distribution circuit. EBMUD would prefer to install the connection line underground rather than overhead. Both

interconnection options are described here because the final interconnection design by PG&E has not been completed and could result in a combination of overhead and underground facilities.

Overhead Option

An overhead connection from the new control building to a PG&E 12-kV distribution line on the south side of Bear Creek Road would require approximately five new approximately 45-foot-tall wooden power poles.

Underground Option

An underground connection to PG&E's distribution line would involve the installation of two wooden power poles on the south side of Bear Creek Road and installation of approximately 145 feet of underground conductor from the control building to the new power poles.

2.3.5 PG&E Substation Upgrades

PG&E would upgrade the existing switchgears[5] and transformer banks at the Sobrante Substation to accommodate the Project. Upgrades would occur within the existing substation footprint. No additional substation infrastructure would be required for the Project.

2.3.6 Site Security and Perimeter Fencing

A perimeter security fence would enclose the Project site as shown on Figure 2.2-2. The security fence would be a chain-link fence approximately 8 feet tall with barbed wire along the top. Gates would be installed at the Project fence ingress/egress points along the Project access roads.

2.3.7 Access Roads

Approximately 1,200 feet of new access road would be constructed within the Project site and would be approximately 12 to 15 feet wide and covered with gravel. The new access road would begin at the northeastern boundary of the Project site, at Bear Creek Road, and would connect to an existing access road at the north end of the Project site. Both the existing access road and the new access road would provide access from Bear Creek Road. The new access road may include turnouts along the length, to allow for maneuverability of construction equipment and operations and maintenance vehicles.

2.3.8 Stormwater Drainage System and Detention Basin

A stormwater detention basin would be constructed if needed to reduce post-Project peak stormwater discharge. A swale would also be constructed, if needed, to collect runoff from the Project site and flow it into the detention basin. Other permanent erosion control features may be constructed to comply with stormwater discharge requirements. The need for a stormwater detention basin and swale would be determined during final design and preparation of the stormwater pollution prevention plan (SWPPP).

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[5] Switchgears may include gas-insulated circuit breakers and/or switches.

2.3.9 Relocated Corral

EBMUD currently leases a corral within the Project site for staging of cattle during the grazing season. The corral area is used as a hub for cattle staging for approximately 4 months of the year (June to September). The corral would be relocated at the end of construction to an area north of the Project site and outside PG&E's transmission line right-of-way. The relocated corral would have the same approximate dimensions and would be constructed similar to the existing corral on the Project site.

2.4 CONSTRUCTION CHARACTERISTICS

2.4.1 Temporary Construction Work Areas

Temporary construction work areas would be required to stage equipment during construction as shown on Figure 2.2-2. The temporary construction work areas would only be used during Project construction and would be restored to preconstruction conditions at the completion of construction. An approximately 1-acre staging area is proposed north of PG&E's transmission right-of-way. The staging area would be enclosed by temporary security fencing and wildlife exclusion fencing. Construction work areas would be used for construction personnel parking, truck loading and unloading, and equipment and material delivery and staging. The existing unpaved parking lot to the north of the proposed staging area would be used for construction personnel parking. Heavy equipment not permitted on public roadways would be refueled on-site; however, fuel would not be stored overnight on the Project site. Maintenance activities would be conducted off-site.

2.4.2 Site Disturbance

The area of temporary and permanent disturbance for each of the Project components is provided in Table 2.4-1. Areas of temporary disturbance include areas that would be allowed to revegetate following construction. The solar array area would be subject to grading during construction, but the majority of the solar array area would be allowed to naturally revegetate with grassland or shrubland vegetation. Temporary disturbance areas include temporary work areas and the portions of the solar array area that are expected to revegetate after construction. The area of permanent disturbance within the solar array area includes the area of the solar posts/foundations, concrete pads, access roads, and the control building where vegetation would not be able to re-establish over the Project life.

Table 2.4-1 Project Site Disturbance

Project Component	Temporary Disturbance (acres)	Permanent Disturbance (acres)
Solar Development Area	16.7[a]	0.04
Solar panels	*13.2* [b]	*0.01*
Underground collection system	*0.15*	*0*
Equipment pad (transformers/inverters)	-	*0.02*
Control building	-	*0.01*
Perimeter fence	1.7[c]	0.009
Access roads	1.61[d]	0.89
Water pipeline relocation and extension [e]	0.20	0
Staging and parking areas	3.4	0
Connection line [f]	0	0.0004
Total	**23.61**	**0.94**

Note:

[a] Defined as the area graded within the perimeter fence line. The temporary disturbance for Project components (solar arrays, detention basin, transformers/inverters, control building, collection line, and portions of the access road and connection line) located within the fence line is included in this value.

[b] Includes areas beneath the solar panels. Vegetation would be removed, and grading would occur within the broader facility footprint as noted above.

[c] Assumes up to 20 feet of temporary impact outside of the Project fence for equipment access.

[d] Assuming a 20-foot buffer around the access road outside the fence line.

[e] Assumes the pipeline extensions would be installed underground

[f] Assuming an aboveground connection line with five power poles. The underground connection line with two power poles would have approximately 0.01 acre of temporary disturbance and 0.0002 acre of permanent disturbance.

2.4.3 Site Preparation

Fence Installation

All areas of temporary disturbance, including staging yards, would be fenced with temporary construction-limit fencing and wildlife fencing prior to site disturbance. Installation of wildlife fencing would require trenching to install the fence below grade and prevent wildlife from burrowing into the construction area. Temporary chain-link security fencing would also be installed around staging yards.

Sediment and Erosion Control Best Management Practices

Sediment and erosion control best management practices (BMPs) specified in the Project SWPPP would be installed prior to vegetation removal and grading. The contractor would install all required temporary BMPs including, but not limited to, silt fencing, straw wattles or hay bales, and track-out control at the start of construction. Temporary BMPs would be maintained throughout the duration of construction.

Water Source

EBMUD would establish a temporary water source on-site for dust control. Water would be obtained from a temporary tap to an existing EBMUD water pipeline located on the Project site. Approximately 1,000 feet of the existing on-site water pipeline may be relocated to minimize potential conflicts with installation of the solar panels, support structures, and underground collector lines. Additionally, an extension to the water pipeline (approximately 1,150 feet) would be installed to the southwestern edge and northeastern edge of the Project site to irrigate the native vegetation proposed along Oursan Trail and Bear Creek Road. The water pipeline extensions would be installed underground and remain after the vegetation establishment phase. The exact realignment of the on-site water pipeline and the location of the water line extensions would be determined during final design of the Project. Approximately 3,000 gallons per day (GPD) of water would be available for use during construction for dust control. Water would be applied to the site as needed to address wind erosion. Factors such as wind speed, precipitation, temperature, and moisture content of fill material could increase or decrease the quantity of water required for construction of the Project.

Vegetation Removal and Grading

Vegetation within the solar facility fence would be removed prior to grading and solar panel installation. Grassland and shrubland vegetation within the solar facility fence would be mowed and approximately 35 mature trees[6] within the footprint of the solar facility would be removed as shown on Figure 2.4-1. The trees include 11 coast live oak, 12 valley oak, 8 arroyo willow, 2 California bay, 1 blue elderberry, and 1 plum tree. Details on the size each species are provided in the arborist report prepared by Tree Associates (Tree Associates, 2019).

Grading would occur within the Project site as needed to create a level surface for solar panel installation, access roads, and equipment pads. Approximately 18 acres would be graded to smooth out surface undulations, provide site access, and create areas sufficient to prevent trackers from hitting the ground. Areas of potential grading include all areas within the solar facility fence and the proposed access road as shown on Figure 2.4-2. The exact extent of grading would be determined during final design.

Approximately 65,000 cubic yards of native soil would be used as cut and fill on the site. Cut and fill of native soil material would be balanced on-site to eliminate export of soil. Soil would be

[6] Defined as having 3 inches or greater diameter at breast height.

imported in areas where existing soil does not contain the characteristics to meet compaction requirements beneath equipment pads, the control building, and/or access roads. Approximately 530 cubic yards of gravel would be imported to construct the access roads.

2.4.4 Solar Array Assembly and Installation

Solar array construction would start with the installation of the tracker support posts, which would be installed by one of the following methods: impact driving, pre-drill and drive, or shallow spread foundations. Once the support structures are in place, the solar panels would be attached. The grouped solar panels on each tracker would be wired together and connected to combiner boxes located throughout the arrays that would deliver power to the inverters. Inverters and transformers would be mounted on concrete pads. Figure 2.4-3 provides a photograph of a typical solar array.

2.4.5 Collection Line Construction

Collection lines would be installed between the solar panels and the concrete pad housing the inverters and transformers and from the concrete pad to the control building. Trenches approximately 2 feet wide and 4 feet deep would be excavated along the collection-line corridors. The collector lines and nonconductive fiber optic cable used for data communication would be installed within the open collector-line trench. Once the cables are buried, the trenches would be backfilled with native soils.

Overhead or underground power cables would be installed from the control building to the PG&E interconnection distribution line on the south side of Bear Creek Road. Two to five new power poles would be installed between the control building and Bear Creek Road to connect to the existing PG&E 12-kV distribution line. The number of required power poles will be determined by PG&E as part of the interconnection application, which is in progress. Power would be delivered to the PG&E Sobrante Substation on the north side of Bear Creek Road via the existing PG&E distribution line.

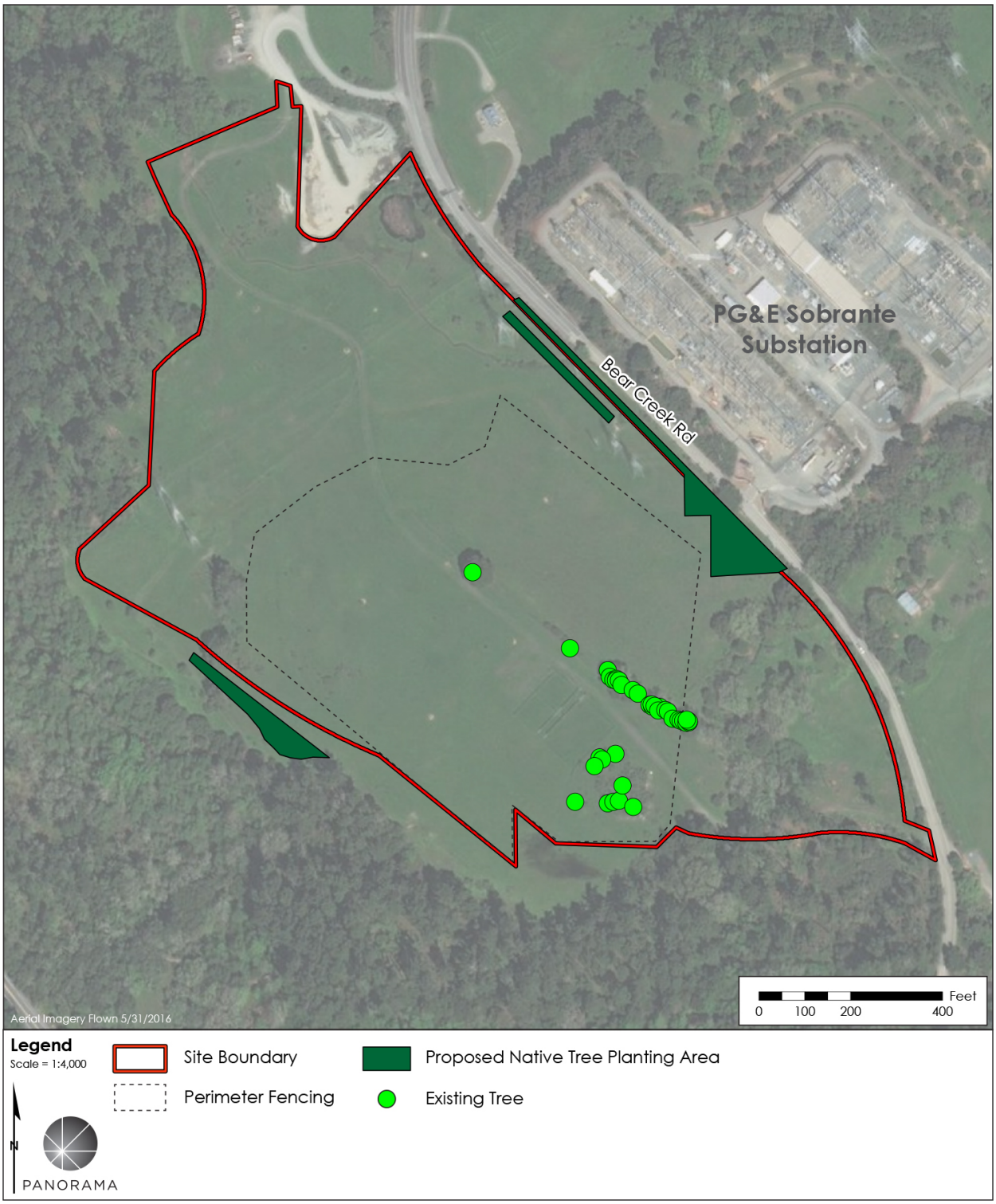
2.4.6 Substation Upgrade Construction

Equipment upgrades would be conducted on existing equipment within the PG&E Sobrante Substation. No grading, excavation, or other ground-disturbing activities would be required for the equipment upgrades within the substation.

2.4.7 Access Road Construction

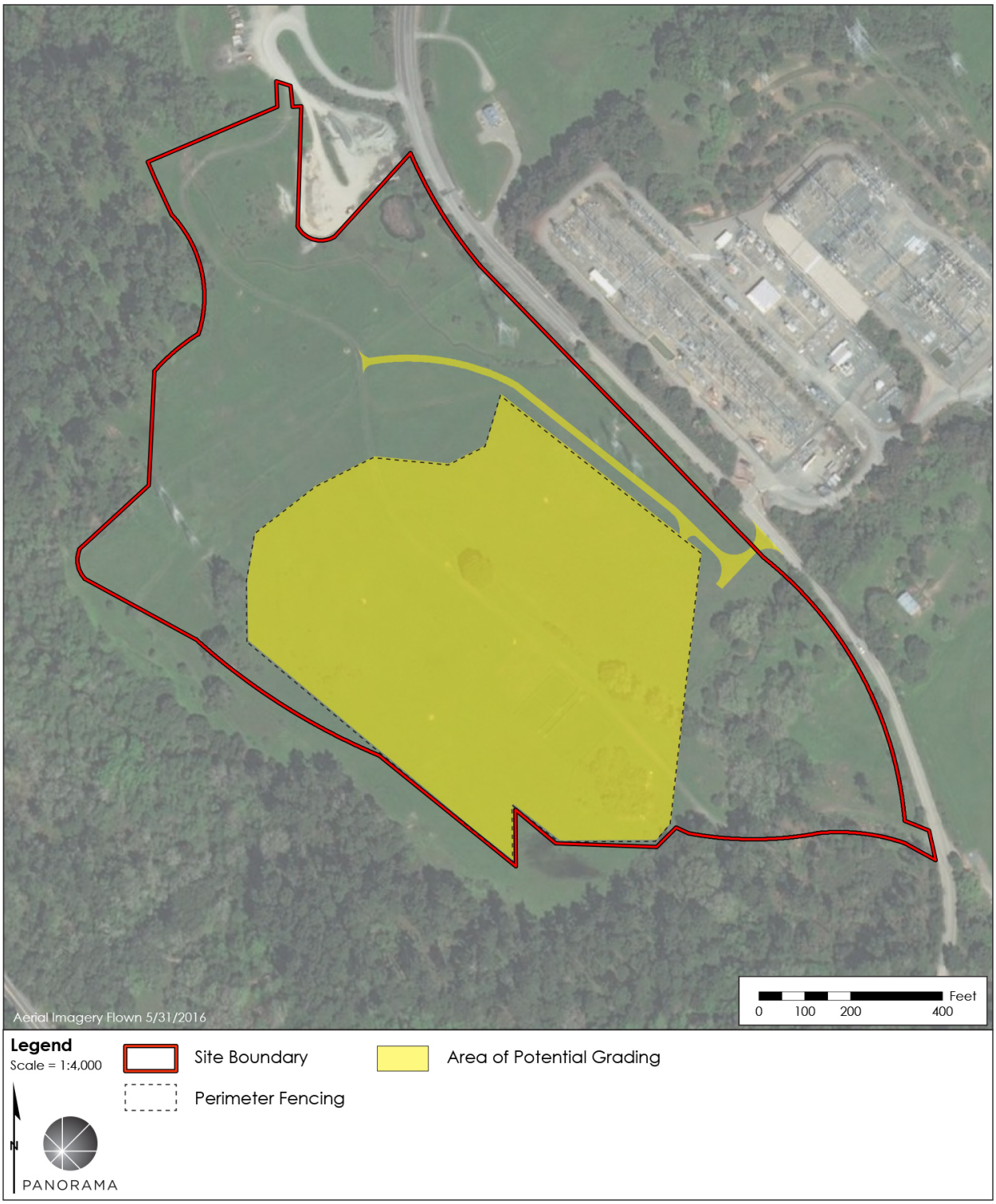
Access road construction would include improvements to the existing access roads, and the construction of a new access road to and through the Project site. Existing access roads, specifically the maintenance road at the northern entrance of the Project site that connects to Bear Creek Road, would be covered with gravel during construction of the Project to allow equipment access. The new access road would be constructed via grading and compaction within the Project site to allow vehicle and heavy equipment access during construction and operation of the Project.

Figure 2.4-1 Proposed Tree Removal and Native Vegetation Planting



Source: (EBMUD, 2018d; USGS, 2016; Tele Atlas North America, Inc., 2018; Vollmar Natural Lands Consulting, 2019)

Figure 2.4-2 Area of Potential Grading



Source: (EBMUD, 2018a; Tele Atlas North America, Inc., 2018; California Department of Fish and Wildlife, 2016)

Figure 2.4-3 Typical Solar Array



Source: (EBMUD, 2019a)

2.4.8 Landscaping

EBMUD would develop a landscape plan, with native shrubs and vegetation planted along Bear Creek Road and along Oursan Trail to screen views of the Project from trail users and motorists. Proposed native vegetation planting locations are shown on Figure 2.4-1. Newly planted vegetation would be irrigated via an existing on-site EBMUD water pipeline for approximately 5 years, until the plants are well established. The native vegetation planted along Bear Creek Road would not exceed approximately 10 feet in height at maturity.

2.4.9 Educational Placards

EBMUD would install educational placards along Oursan Trail, explaining the environmental benefits of the Project, including how the energy generated by the Project would offset operational costs for EBMUD's utility service in the City of Orinda (and throughout EBMUD's service area).

2.4.10 Testing and Commissioning

Inspection, testing, and commissioning of the solar facility would be performed prior to operation of the Project, to establish an as-built baseline for the system, to ensure safe operation of the solar facility, and to confirm that the system is performing as expected.

2.4.11 Construction Waste

Nonhazardous waste generated during construction (e.g., equipment packaging and trash generated by workers) would be temporarily stored in on-site dumpsters and disposed of off-site at an appropriate disposal facility. Any removed vegetation would be chipped on-site and spread on watershed property or composted. Typical construction-related hazardous substances such as lubricants, adhesives, and solvents would be disposed of off-site at an appropriate disposal facility.

2.4.12 Workforce, Schedule, and Equipment

Workforce and Work Hours

The construction workforce would consist of approximately 5 to 30 construction personnel for each construction activity over the construction period as shown in Table 2.4-2. Approximately 44 construction personnel would be on-site daily at the peak construction. Construction would occur between 8 am and 6 pm Monday through Friday, consistent with City of Orinda Municipal Code, Chapter 17.39.3 requirements. Construction would only occur outside of the City of Orinda approved hours in the case of emergencies. Nighttime and weekend work is not anticipated, but may be required to address emergency situations.

Project Schedule

Construction is anticipated to occur over an approximate 7-month period, pending EBMUD obtaining all necessary regulatory permits and approvals. Testing and commissioning would occur for approximately 6 weeks from the end of active construction. The anticipated duration of each construction activity is provided in Table 2.4-2.

Table 2.4-2 Construction Activities, Schedule, and Truck Trips

Activity	Approximate Duration (weeks)	Number of Construction Personnel	Haul/ Material Trucks (per day)	Max Hourly One-Way Trips	
				Worker Vehicles	Haul/Material Trucks
Site preparation (including grading)	5	15	6	3	2
Array installation	10	30	6	4	4
Collector line installation*	5	10	2	2	2
Control building construction*	4	4	4	1	1
PG&E Substation upgrades	2	2	0	1	1
Access road and water line construction	4	5	5	1	1
Testing and commissioning	6	5	0	1	1

Activity	Approximate Duration (weeks)	Number of Construction Personnel	Haul/ Material Trucks	Max Hourly One-Way Trips

Note:

* Collector line installation and control building construction would occur during the array installation period.

Equipment and Materials

Standard construction equipment that would be used during construction is provided in Table 2.4-3. Vehicles, equipment, and construction materials would be stored in the designated staging area. No construction lighting is anticipated because work would be conducted during daylight hours.

Table 2.4-3 Anticipated Construction Equipment

Equipment	Activity
Trenching equipment	Trenching
Pile driving machine	Solar array post installation
Excavator	Grading
Concrete mixer	Pouring equipment pads
Telescopic boom lift	Equipment installation
Bulldozer	Grading
Flat-bed truck	Equipment and prefabricated control building delivery
Pickup trucks and passenger vehicles	Transportation to and from site and small equipment deliveries
Dump truck	Grading and access roads
Generator	Tool operations
Electric and manual tools	General site work
Dumpster	Construction waste
Portable restroom	Restroom

2.5 OPERATION AND MAINTENANCE

2.5.1 Operation and Maintenance Workforce

The solar facility operations would be monitored remotely during the facility operational period. Facility maintenance would be dispatched on an as-needed basis in response to equipment malfunction or decreased facility performance, approximately eight times per year (one visit for panel washing, two visits for vegetation management, and five visits for general maintenance dispatch). Workers would visit the site in response to a maintenance request to investigate and resolve the issue. Operation and maintenance of the facility would not create any new permanent employment positions.

2.5.2 Automated Facility Control and Monitoring System

The Project operations would be monitored by means of a supervisory control and data acquisition (SCADA) system located in the control building. Solar energy production at each inverter/tracker combiner would report operational parameters remotely, through a SCADA system.

2.5.3 Panel Washing

Dirt and dust accumulation on the solar panels would be detected remotely by a reduction in power output. The reduced power output would trigger a maintenance dispatcher to confirm the cause of reduced solar energy production and subsequently schedule panel washing. Manual washing of the solar panels would require approximately 1,500 gallons of water and would take approximately 2 days to complete. No chemicals would be used for panel washing. Water would be applied to the solar panels at a rate that would not result in runoff from the site. Wash water would be absorbed into the soil and vegetation underneath the panels. Panel washing will occur, as needed, typically one time per year.

2.5.4 Vegetation Management

Vegetation would be allowed to regrow under the panels. Vegetation that shades or interferes with the solar panel function or that poses a fire risk would be trimmed or removed, as needed. Vegetation management would be limited to mechanical removal.

2.5.5 Road Maintenance

Project site access roads would be maintained, as needed, to allow maintenance vehicles and workers to access the Project site over the Project life. Vehicular traffic throughout the site would be limited to vehicles required for facility maintenance, panel washing, and vegetation management.

2.5.6 Erosion Repair

The facility will be inspected annually, and any erosion that is observed during the operational period of the facility would be repaired to prevent further erosion and potential impacts on the solar facilities and access road. Erosion inspection and control will include evaluating the drainage of the site and installing drainage improvements (e.g., drainage collection, gravel, riprap, or other measures) as needed to prevent further erosion.

2.6 OTHER PUBLIC AGENCIES WHOSE APPROVAL IS REQUIRED

Table 2.6-1 below lists permits and approvals that could be required for the Project.

Table 2.6-1 Anticipated Permits and Approvals

Agency and Permit	Action that Triggers Permit Requirement
Federal	
U.S. Army Corps of Engineers Clean Water Act Section 404 Permit	Discharge of dredged or fill material to waters of the U.S., including wetlands

Agency and Permit	Action that Triggers Permit Requirement
U.S. Fish and Wildlife Service Biological Opinion or Incidental Take Permit (Section 7 or Section 10 of Endangered Species Act)	Incidental "take" of federally listed species, including Alameda whipsnake and California red-legged frog
State	
California Department of Fish and Wildlife Streambed Alteration Agreement	Discharge of material to waters of the State
California Department of Fish and Wildlife Incidental Take Permit	Incidental "take" of state-listed species including Alameda whipsnake and California red-legged frog
San Francisco Bay Regional Water Quality Control Board Clean Water Act 401 Water Quality Certification	Discharge of dredged or fill material to waters of the U.S., including wetlands
State Water Resources Control Board Construction General Permit (CGP) and Stormwater Pollution Prevention Plan (SWPPP)	Disturbance of more than 1 acre of land
Local	
Contra Costa County Encroachment Permit	Overhead conductor installation over Bear Creek Road
City of Orinda Use Permit	Utility use of the site

2.7 EBMUD PRACTICES AND PROCEDURES

EBMUD has incorporated a number of Standard Construction Specifications and standard practices from EBMUD's Environmental Compliance Manual into the Project (EBMUD, 2010a) (EBMUD, 2019b) (EBMUD, 2014a) (EBMUD, 2018c) (EBMUD, 2015) (EBMUD, 2017a). These standard specifications and standard practices are designed to address typical characteristics of EBMUD construction projects and are not project-specific or tailored to the unique characteristics of the Project. These standard specifications and standard practices, which are applicable to all EBMUD construction projects and reflect generally applicable EBMUD standard operating procedures, are described in more detail below.

EBMUD maintains several Standard Specifications specifically related to environmental conditions, including:

- 01 14 00, "Work Restrictions" — This section sets limits on construction hours and on noise-generating activities.
- 01 35 24, "Project Safety Requirements" — This section includes provisions for the safety of the public and construction workers regarding hazards and hazardous materials.
- 01 35 44, "Environmental Requirements" — This section includes provisions related to water quality, dust and emissions control, noise and vibration control, hazardous materials control, and protection of biological and cultural resources.

- 01 55 26, "Traffic Regulation" — This section includes provisions for the regulation of traffic during construction and compliance with applicable traffic regulation requirements.
- 01 74 05, "Cleaning" — This section requires compliance with local ordinances and anti-pollution laws and that the construction site be kept free of waste materials and rubbish.

Section 3.0, Water Quality Protection of EBMUD's Environmental Compliance Manual includes BMPs that have been incorporated into the Project, including provisions regarding liquid discharges.

EBMUD's Fire Management Plan has also been included in the Project and includes fire management strategies and serves as a guide for the implementation of fire protection and preparedness activities that meet key watershed management objectives (EBMUD, 2000).

Appendix B contains the table EBMUD Practices and Procedures Monitoring and Reporting Plan; this table and discussion in the Initial Study detail these practices and procedures and describe their relationship to Project impacts.

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3 ENVIRONMENTAL ANALYSIS

3.1 PROJECT INFORMATION

1.	Project Title:	Duffel PV Renewable Energy Project
2.	Lead Agency Name and Address	East Bay Municipal Utility District 375 11th Street Oakland, CA 94607
3.	Contact Person and Phone Number	Ramona Gonzalez, Associate Civil Engineer 510-287-1619
4.	Project Location and Setting	The Project is located west of 518 Bear Creek Road, north of the intersection of Bear Creek Road and San Pablo Dam Road in the City of Orinda, Contra Costa County, California (see Figure 2.2-1). Temporary work areas are on adjacent EBMUD property. The Project site is located on a relatively flat parcel with an elevation of approximately 340 feet above mean sea level and is bordered by trees on the southern, western, and northwestern boundaries. The PG&E Sobrante Substation is located across Bear Creek Road from the Project site. PG&E electrical transmission towers and infrastructure are located within a transmission corridor that borders the solar facility on the north. The Project site contains predominantly disturbed grassland vegetation with some trees and a small wetland swale within the central portion of the site. The Project site is currently leased for seasonal grazing, and a corral for cows is located within the center of the site. A recreational trail used by hikers and horseback riders is located west of the Project site and is separated from the site by a row of trees. San Pablo Creek is located west and south of the Project site.
5.	Project Sponsor's Name and Address	East Bay Municipal Utility District Water Treatment and Distribution Division 375 11th Street, MS 205 Oakland, CA 94607
6.	General Plan Designation	The Project site is designated as Utility-W (Protected Watershed) by the City of Orinda General Plan and Watershed by the Contra Costa County General Plan.
7.	Zoning	The Project site is zoned as Public, Semipublic, and Utility District by the City of Orinda and Exclusive Agricultural (A-80) by Contra

		Costa County.
8.	Description of the Project	Please see Chapter 2 of the MND.
9.	Surrounding Land Uses and Setting	Project site is surrounded by undeveloped EBMUD watershed lands in the City of Orinda with no residential development in the vicinity.
10.	Other Public Agencies	Anticipated agency approvals and permits are listed in Table 2.6-1

3.2 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by the Project, but impacts would be mitigated to a less-than-significant level as indicated by the checklist on the following pages.

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

3.3 ENVIRONMENTAL DETERMINATION

On the basis of this evaluation:

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

Clifford C. Chan
Director of Operations and Maintenance
East Bay Municipal Utility District

8/29/19
Date

3.4 EVALUATION OF ENVIRONMENTAL IMPACTS AND INITIAL STUDY CHECKLIST

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4. "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less-than-significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D) (2017 CEQA Guidelines). In this case, a brief discussion should identify the following:
    a. Earlier Analysis Used. Identify and state where they are available for review.
    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
    a. The significance criteria or threshold, if any, used to evaluate each question.
    b. The mitigation measure identified, if any, to reduce the impact to less than significant.

Environmental Impact Checklist

I. Aesthetics

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?	☐	☐	☒	☐
B) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway or designated scenic roadway?	☐	☐	☒	☐
C) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings?	☐	☐	☒	☐
D) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Discussion

A) Less than Significant Impact.

The nearest designated scenic vista to the Project site is Inspiration Point located within Tilden Regional Park approximately 1.75 miles away; the Project site is not visible from Inspiration Point or any designated scenic vista. The Project site would be visible from areas in Tilden Regional Park including portions of the Seaview Trail, which is a designated segment of the Bay Area Ridge Trail; the Project site would be barely discernible in the background from the

Seaview Trail due to the distance (over 2 miles) and intervening trees and topography. The Project would not have a substantial adverse effect on views from any scenic vista because the Project features would be nearly indistinguishable from the background visual conditions at the distance of the Project from potential scenic vistas.

Construction and operation of the Project would not have a substantial adverse effect on views of a scenic vista because the Project is located within a low-lying area, below the elevation of the adjacent roadway, and the panels would be low to the ground (maximum height of approximately 14 feet at full tilt). The panels would not block views of any scenic vistas. The impact on scenic vistas would be less than significant.

B) Less than Significant Impact.

Overview

The City of Orinda classifies visually sensitive areas to include environmental preservation zones, ridgeline areas, scenic corridor routes, trail corridors, and view corridors (City of Orinda, 2017). Contra Costa County identifies major ridges and waterways as scenic resources, as well as isolated hilltops, rock outcroppings, mature stands of trees, lakes, and reservoirs (Contra Costa County, 2000a).

State Route 24 (SR-24) is designated as a state scenic highway (Caltrans, 2011a). The City of Orinda designated Moraga Way and Camino Pablo as scenic corridors (City of Orinda, 1987). Moraga Way and SR-24 are located over 2 miles to the southeast of the Project site and outside of the Project viewshed. The scenic Camino Pablo corridor is located approximately 800 feet to the south of the Project site, and a swath of mature trees and intervening topography obscures any view of the Project site from Camino Pablo.

Bear Creek Road is designated as a Scenic Route in the Contra Costa County General Plan (Contra Costa County, 2000b). The scenic-designated portion of Bear Creek Road starts north of the Project site. Motorists or bicyclists traveling north on the scenic-designated portion of Bear Creek Road would be traveling in the opposite direction of the Project and would not have views of the Project. Views into the Project site from persons traveling south on the scenic-designated portion of Bear Creek Road would be blocked by topography and vegetation until approximately 500 feet north of the Project, at which point the Project would be visible for a distance of approximately 500 feet from the scenic-designated portion of Bear Creek Road. The scenic-designated portion of Bear Creek Road is shown on Figure 3.4-1.

Construction and Operation

The Project would not be visible from any designated State scenic highway or City of Orinda scenic roadway and would not affect scenic resources from any State scenic highway or City of Orinda scenic roadway.

Bear Creek Road is designated by Contra Costa County as a designated scenic route and portions of the Project site would be visible in middle-ground views to motorists and bicyclists traveling south on Bear Creek Road within Contra Costa County. The Project would be substantially screened by vegetation and topography from the scenic-designated segment of

Bear Creek Road; however solar panels would be visible in between the trees and behind PG&E's transmission towers for a distance of approximately 500 feet while traveling south on Bear Creek Road. Views of the Project construction activities and the proposed solar panels would be visible to motorists along the designated scenic roadway for approximately 6 seconds for motorists traveling 50 miles per hour (mph)[7] and approximately 15 seconds for bicyclists traveling with a speed of 20 mph. The Project would not damage any rock outcroppings or historic buildings. The Project includes removal of approximately 35 trees, mostly oak trees, within the solar array field; these trees are located at the southern edge of the Project site and are not visible from the scenic-designated portion of Bear Creek Road due to the presence of other trees and vegetation that screen views from Bear Creek Road into the Project site. Views of the Project facilities from Bear Creek Road would appear consistent within the context of the existing transmission infrastructure and adjacent PG&E Sobrante Substation. The Project would not substantially damage scenic resources within the viewshed of the Contra Costa County scenic-designated roadway due to limited viewer exposure to the Project infrastructure and the compatibility of the facility with the existing transmission and electrical infrastructure visible within and adjacent to the Project site. The impact on scenic resources within a designated scenic roadway would be less than significant.

C) Less than Significant Impact.

Overview

Visibility

Views to the Project site and surrounding hills would be intermittently available from Bear Creek Road. The Project site is visible in the immediate foreground from Bear Creek Road within the City of Orinda for approximately 900 feet and in the middle ground from Contra Costa County for approximately 500 feet. The Project site would also be openly visible for approximately 2,000 feet from the Oursan Trail[8], located along the west and north sides of the Project site. The Project site would also be visible in the middle ground from atop Briones Dam. A brief glimpse of the Project site would be available in the background from Wildcat Canyon Road south of Inspiration Point in Tilden Regional Park. Otherwise, views from Wildcat Canyon Road to the Project site would be blocked by topography and vegetation.

The visibility of the Project site from surrounding areas was evaluated when selecting key observation points (KOPs) to determine any Project impacts on visual quality. Four KOPs were selected to analyze the visual experience and viewer response to the Project. The selected KOPs are shown on Figure 3.4-1.

[7] The speed limit on Bear Creek Road adjacent to the Project site is 50 mph.

[8] Also sometimes referred to as Bear Creek Trail. Bear Creek Trail merges with Oursan Trail just north of the Project site.

Photo simulations depicting the Project were prepared for each of the four KOPs. These KOPs were selected because they provide the most open and close-range views of the Project site that are available from the surrounding area. Views of the Project from greater distances and with greater screening would have less impact than those represented from the KOPs presented in this analysis.

Characteristic Landscape

The Project site is an open grassland managed with periodic grazing activities. Trees grow in the center and along the southeast corner of the Project site. The PG&E Sobrante Substation is located across Bear Creek Road to the northeast of the Project site. Three transmission lines on steel lattice towers traverse the parcel from east to west along the northern border of the Solar Development Area. The temporary parking area would be located within an existing gravel and soil stockpile area, north of the transmission lines. Riparian and woodland vegetation along San Pablo Creek is located along the southern border of the proposed Project. Because of the scale and dominant presence of transmission lines and the Sobrante Substation, the overall visual quality of the Project site is low to moderate.

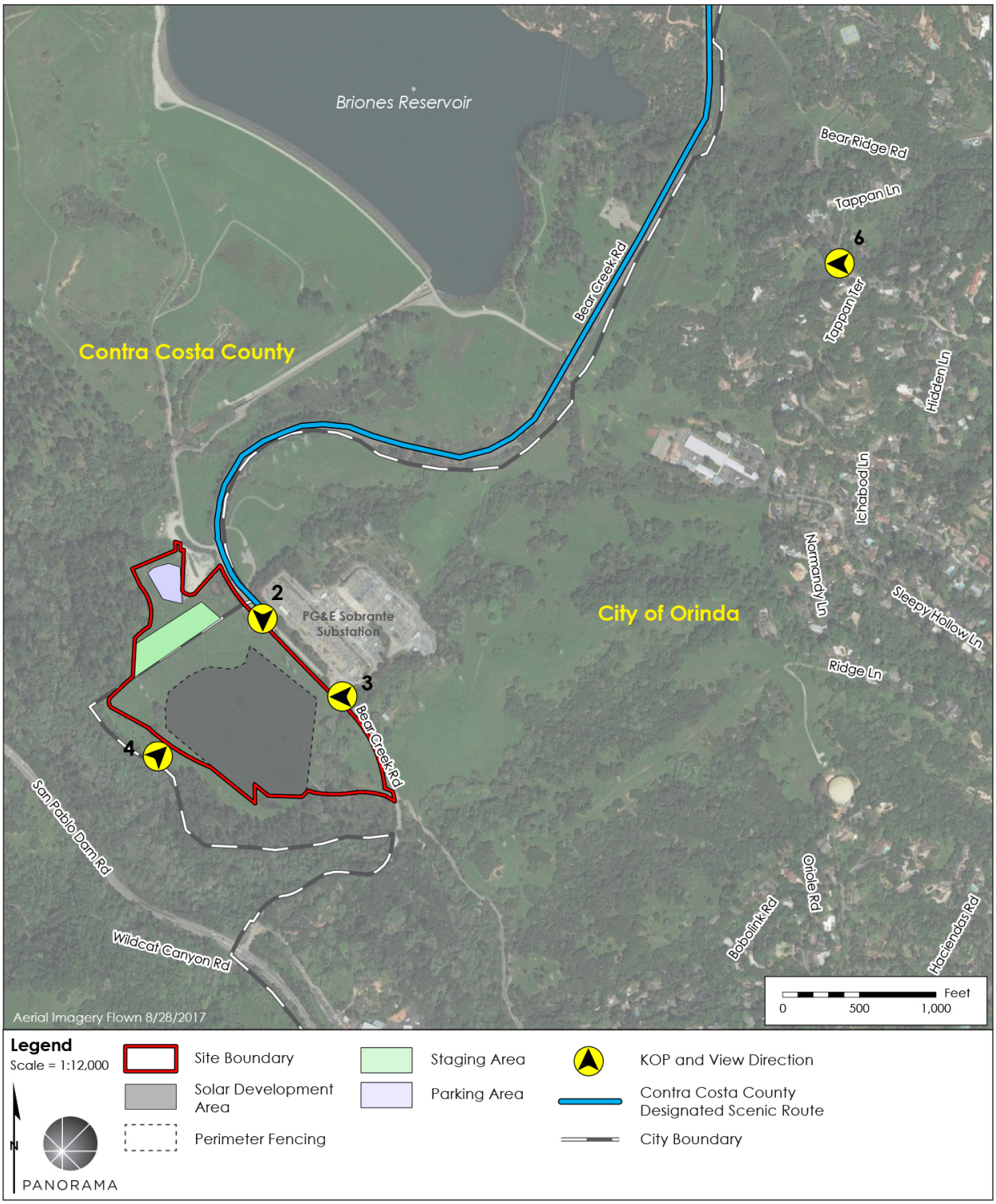
Viewer Sensitivity

Bear Creek Road, a designated scenic route within Contra Costa County, is used by bicyclists and drivers accessing the Briones Regional Park and the trail system with staging areas at Briones Reservoir and Briones Regional Park. Bear Creek Road is also traveled by commuters. Viewer sensitivity of motorists and bicyclists is moderate because motorists and bicyclists would be focused on the road and the viewer exposure from Bear Creek Road is limited to a few hundred feet. Views from Bear Creek Road are also within the context of existing electrical infrastructure including the adjacent PG&E Sobrante Substation. Oursan Trail in proximity to the Project site is used by to hikers and equestrians. Viewer sensitivity within the trail system is high because hikers and equestrians using the trail system in East Bay Parks and EBMUD watershed lands expect to view natural and open space areas, consistent with the purpose of these areas to provide natural resources for the public to enjoy, and would likely be sensitive to changes in land use.

Viewing Distance and Exposure

Views into the Project site from the adjacent Bear Creek Road would be limited by existing topography and dense woodland vegetation. Views of the Project site are available in the immediate foreground for approximately 900 feet and in the middle ground for approximately 500 feet for motorists and bicyclists traveling on Bear Creek Road. The duration of views from Bear Creek Road would be approximately 18 seconds for vehicles traveling at a speed of 50 mph and approximately 45 seconds for bicyclists traveling downhill toward the Project site at a speed of 20 mph.

Figure 3.4-1 Key Observation Points



Source: (2M Assocciates, 2019)

Views into the Project site for hikers and equestrians on the Oursan Trail are in the immediate foreground looking east. Views to the Project site exist intermittently for approximately 2,000 feet along Oursan Trail. The PG&E Sobrante Substation and transmission lines form the backdrop of views into the Project site.

Construction

Construction-related activities would temporarily influence the character of the Project site, as viewed from the nearby road and trail. Graded surfaces, stockpiled soil, construction equipment and material, and trucks accessing the Project site would be visible during various stages of construction. Construction activity would last for approximately 7 months. Upon the completion of construction, the changes to the visual character of the Project site caused by construction activity would cease. Viewers would be less sensitive to the visual change from the presence of construction equipment and vehicles due to the temporary nature of Project construction. Construction of the Project would have a less than significant impact on visual character and quality.

Operation

The Project would include solar panels, transformers, inverters, security fence, a control building, an overhead or underground interconnecting power line, and access roads within the Project site. Approximately 35 trees, mostly oak trees, within the southern portion of the site would be removed. The existing transmission towers on the Project site and PG&E Sobrante Substation would still be visible around the Project site from Oursan Trail and Bear Creek Road. Existing views of the Project site from Bear Creek Road and Oursan Trail are represented in Figure 3.4-2, Figure 3.4-5, and Figure 3.4-8. Figure 3.4-3, Figure 3.4-6, and Figure 3.4-9 depict views of the Project from Oursan Trail and Bear Creek Road, immediately after Project construction. An overhead power line is depicted in Figure 3.4-6 and Figure 3.4-7 to support analysis of a worst-case visual scenario. The impact on visual quality would be reduced if the power line is installed underground. A representative long-distance public view of the Project from Tappan Lane is shown on Figure 3.4-11 and Figure 3.4-12.

The visual character of the Project site, as viewed from adjacent public spaces, would change from pasture to a solar facility. The number of hikers and equestrians who use the adjacent Oursan Trail is estimated at less than ten people per day[9] and, as such, a limited number of viewers would view the changes. Views of the Project would temporarily change the user experience for the segments of Bear Creek Road and the Oursan Trail that are adjacent to the Project. The solar panels and associated electrical infrastructure would have a moderate visual contrast immediately after Project implementation because the solar panels and electrical infrastructure would appear similar to nearby electrical infrastructure within the Sobrante

[9] In January 2018, approximately 8 people used Oursan Trail per day. In February 2018, approximately 6 people utilized the trail per day (EBMUD, 2018b).

Substation but would visually contrast with the woodland areas to the west and south. As detailed in Chapter 2, Project Description, landscaping would be added involving planting of native vegetation (refer to Section 2.4.8 for details on proposed landscaping). The vegetation would be 6 to 8 feet tall and would screen views of the Project from Oursan Trail and Bear Creek Road, as shown Figure 3.4-4, Figure 3.4-7, and Figure 3.4-10. The landscaping would reduce the level of visual contrast from moderate to weak because the vegetation would block views of the solar panels and transformers. Power poles for the connector line would be visible from Bear Creek Road, but the power poles would be viewed within the context of adjacent PG&E power lines and poles, which are larger than the proposed poles. The Project would result in temporary changes to the visual character of the Project site immediately following Project implementation, but impacts would be less than significant because the majority of the Project would be screened from view by the existing vegetation and topography along Bear Creek Road and Oursan Trail such that the maximum view duration along Bear Creek Road would be a few seconds. Views of the Project from areas that currently lack vegetative screening would be temporary while vegetation is establishing (less than 5 years) and the planted trees would immediately provide some screening during the establishment period. The Project would not substantially degrade the existing visual character or quality of public views of the site or surroundings because of the short duration of potential views into the Project facility from adjacent public spaces (few seconds from Bear Creek Road) and the views of the Project facilities would be temporary. The impact would be less than significant.

D) Less than Significant Impact.

Construction

Construction of the Project would primarily occur Monday through Friday from 8:00 am to 6:00 pm, and construction would last approximately 7 months followed by testing, PG&E interconnection, and commissioning. Construction areas would be fenced for security purposes. Lighting of construction work areas may be used during the morning or evening hours of construction for safety and security of personnel, particularly during the winter months when natural light is limited. Watershed lands are open to the public from sunrise to sunset. As such, hikers and equestrians using the adjacent trails system would not be subjected to temporary lighting. No residential or other sensitive uses are located in the area that would be subjected to potential brief use of lighting during construction. Project construction would not involve equipment or materials that would introduce a substantial source of glare. The impact from lighting and glare during construction would be less than significant.

Operation

Lighting

One permanent security light may be installed on the control building. The lighting on the control building would be located across the street from PG&E's Sobrante Substation and near Bear Creek Road. Existing sources of light in the surrounding area include vehicle hood lamps, lighting at the nearby schools and sports fields, and street lighting. The nearest residential area to the Project is approximately 0.5 miles south of the Project site.

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Figure 3.4-2 Existing View of the Project Site from Bear Creek Road, Traveling South (KOP 2)



Source: (2M Assocciates, 2019)

Figure 3.4-3 Visual Simulation of the Project Site from Bear Creek Road, Traveling South (KOP 2)



Source: (2M Assocciates, 2019)

Figure 3.4-4 Visual Simulation of the Project Site from Bear Creek Road, Traveling South – After Approximately Five Years (KOP 2)



Source: (2M Assocciates, 2019)

Figure 3.4-5 Existing View of the Project Site from Bear Creek Road, Traveling North (KOP 3)



Source: (2M Assocciates, 2019)

Figure 3.4-6 Visual Simulation of the Project Site from Bear Creek Road, Traveling North (KOP 3)



Source: (2M Assocciates, 2019)

Figure 3.4-7 Visual Simulation of the Project Site from Bear Creek Road, Traveling North – After Approximately Five Years (KOP 3)



Source: (2M Assocciates, 2019)

Figure 3.4-8 Existing View of the Project Site from Oursan Trail (KOP 4)



Source: (2M Assocciates, 2019)

Figure 3.4-9 Visual Simulation of the Project Site from Oursan Trail (KOP 4)



Source: (2M Assocciates, 2019)

Figure 3.4-10 Visual Simulation of the Project site from Oursan Trail – After Approximately Five Years (KOP 4)



Source: (2M Assocciates, 2019)

Figure 3.4-11 Existing View of the Project Site from Tappan Lane (KOP 6)



Source: (2M Assocciates, 2019)

Figure 3.4-12 Visual Simulation of the Project Site from Tappan Lane (KOP 6)



Source: (2M Assocciates, 2019)

The light at the control building would not affect residences located over 0.5 mile or more from the Project site because the light would be screened by intervening topography and vegetation and would not affect views of the night sky at a distance of over 0.5 mile. The light would also be viewed within the context of similar lighting at PG&E's Sobrante Substation, adjacent to the Project site. The impact would be less than significant.

Glare

Solar panels are designed to be highly absorptive of light that strikes the panel surfaces, generating electricity rather than reflecting light. Solar panels are also designed to track the sun to maximize panel exposure to the sun, which would direct the majority of any reflected light back toward the sun in a skyward direction. Solar panels have a lower index of refraction/reflectivity than common sources of glare in residential environments. Treated solar panels are less reflective than standard window glass and slightly less reflective than smooth water (Shea, 2012).

The glare and reflectance levels of modules are further reduced with the application of anti-reflective coatings. PV suppliers typically use stippled glass for panels as the "texturing" of the glass to allow more light energy to be channeled/transmitted through the glass while weakening the reflected light. With application of anti-reflective coatings and the use of modern glass technology, Project solar panels would display overall low reflectivity.

The solar panels would be angled perpendicular to the general east–west direction of the sun and are designed to track the position of the sun throughout the day to maximize panel exposure. The tracking would generally result in light being reflected back toward the sun. Because panels would be installed on a single-axis tracking system, the greatest potential for light reflection to reach viewer locations would occur east and west of the solar site during sunrise and sunset periods when the panels would be angled toward the horizon. During these periods, the solar panels would be tilted approximately 10 degrees below a horizontal plane in the direction of the sun. Unabsorbed incoming light would reflect off at approximately 20 degrees above the opposite horizon and would be visible to viewers east and west of the solar site in areas located approximately 20 degrees above the solar panels. The solar panels would tilt towards Oursan Trail to track the sun in the late afternoon. Oursan Trail is located below the elevation of the Project site and any glare that could be produced by the panels to the west would be visible above the trail. During the morning, the solar panels would tilt toward Bear Creek Road and have the potential to create glare that could be visible from Bear Creek Road prior to establishment of landscaping. The potential for glare would be limited to a few minutes in the early morning[10], and glare could affect motorists traveling south on Bear Creek Road for approximately 12 seconds while traveling at the posted speed of 50 mph; however, the glare

[10] When the incident angle of the sun (the angle between the sun and the absorbing surface) is low, such as in the early morning, the potential for a receptor being subjected to fugitive glare is higher.

would not be within the direct line of sight because the solar panels are located parallel to the road and not within the direction of travel. Impacts would be less than significant because any glare would not affect motorists since the panels are not within the direction of view. The proposed native vegetation would further reduce any potential for glare to be visible from Bear Creek Road because the vegetation would block any potential glare. The Project would not create a substantial source of glare on Bear Creek Road or Oursan Trail. The impact from glare would be less than significant.

II. Agriculture and Forestry Resources

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 nonagricultural use?	☐	☐	☐	☒
B) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☒	☐
C) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined in Public Resource Code section 4526), or timberland zoned Timberland Production (as defined in Government Code section 51104 (g))?	☐	☐	☐	☒
D) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☒	☐	☐
E) Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion

A) No Impact.

No Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) is designated within the Project site. The Project is located on land zoned as Watershed-Utility with watershed and utility uses. EBMUD currently allows grazing on the Project site. The grazing is conducted in part to control fuel loads for fire prevention. The grazing use is not a designated use. The loss of grazing activity at the site due to the solar installation would have a less than significant impact on agricultural use because the agricultural use is incidental to and

not a designated use of the Project site. The Project would not convert any designated Farmland to nonagricultural use. No impact would occur.

B) Less than Significant.

The Project site is not located within land under a Williamson Act contract. Temporary Project staging would be located on land zoned exclusive agriculture (A-80) by Contra Costa County. Because Project staging would be temporary and land use would revert to preconstruction conditions and could be used for agricultural uses in the future, there would be no conflict with the Contra Costa County zoning for agricultural use, thus resulting in a less than significant impact.

C) No Impact.

The Project site is zoned as Watershed-Utility. No land is zoned for forest land, timberland, or timberland production within the Project site. The Project would not conflict with zoning for forest land. No impact would occur

D) Less than Significant Impact with Mitigation.

Forest land is defined in Public Resources Code as, "land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." The Project site contains 0.36 acre of oak woodland where native oak trees are the dominant tree cover. The Project is located on land that is managed by EBMUD for water quality benefits. The 0.36 acre of oak woodland within the Project site would be converted to a solar facility utility use and would not support forest uses after implementation of the Project. The conversion of 0.36 acre of forest land to a non-forest use is a potentially significant impact. EBMUD would mitigate the impact from removal of oak woodland through implementation of Mitigation Measure BIO-22 which requires EBMUD to compensate for impacts to oak woodlands by planting oak trees in a designated area on-site or protecting off-site oak woodlands in perpetuity through a conservation easement or mitigation bank, thus resulting in a less than significant impact. The Mitigation Monitoring and Reporting Plan (Appendix A) includes the applicable mitigation measures to be implemented by the Project and the timing for implementation.

E) No Impact.

The Project will not involve changes that would result in loss of forest land or conversion of forest land to non-forest use, or conversion of Farmland to nonagricultural use. The Project site does not occur on forest land or Farmland. The exiting corral within the Project site would be rebuilt within the Project staging area at the completion of construction. Use of the corral would be unavailable for one season while the Project is under construction, until the corral is rebuilt. The grazing activity on the site is not a designated Farmland use and relocation of the corral and grazing activities would not convert Farmland to nonagricultural use. No impact would occur.

III. Air Quality

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?	☐	☐	☒	☐
B) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard)?	☐	☐	☒	☐
C) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
D) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Discussion

A) Less than Significant Impact.

Overview

The applicable air quality plans for the Project area are the 2017 Clean Air Plan (2017 CAP) and the San Francisco Bay Area 2001 Ozone Attainment Plan for the 1-Hour National Ozone Standard (2001 Ozone Attainment Plan).

Pursuant to CEQA Guidelines, the Project would conflict with or obstruct the implementation of an applicable air quality plan if (1) the Project was inconsistent with the control measures in the 2001 Ozone Attainment Plan, 2017 CAP, or Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines and/or (2) implementation of the Project were to generate criteria pollutant or toxic air contaminant emissions that exceed the numerical thresholds defined by BAAQMD to attain the goals and objectives of the 2017 CAP.

Construction

2017 Clean Air Plan

Control Measures. The 2017 CAP includes several transportation control measures that pertain to construction activities including heavy equipment use, such as providing incentives to promote ridesharing (TR8) and purchasing new trucks that exceed nitrogen oxide (NOx) emission standards, hybrid trucks, or zero-emission trucks (TR19).

The pertinent transportation control measures are voluntary incentive measures that do not require vehicle upgrades or retrofits. The Project would not require purchase of any vehicles or equipment. The Project use of construction vehicles and equipment would not conflict with these programs and would not conflict with or obstruct implementation of the control measures

identified to achieve the goals of the 2017 CAP. No impact would occur from conflict with the 2017 CAP transportation control measures.

Emissions. Construction emissions for the Project were calculated using CalEEMod version 2016.3.2 based on the estimated construction schedule and anticipated equipment use for Project construction. The air quality model emissions calculations are provided in Appendix C. Project construction emissions would not exceed the numerical significance thresholds for ozone and ozone precursors prepared by BAAQMD, as shown in Table 3.4-1.

Table 3.4-1 Unmitigated Construction Emissions

	Estimated Average Daily Pollutant Emissions (pounds/day)					
Year	Reactive Organic Gases (ROG)	Nitrogen Oxides (NOx)	Carbon Monoxide (CO)	Sulfur Dioxide (SO_2)	Fine Particulate Matter (PM_{10})	Coarse Particulate Matter ($PM_{2.5}$)
Project – 2020 Construction	2.1	22.1	15.6	0.0	1.0	1.0
BAAQMD Emissions Threshold	54	54	-	-	82 (exhaust only)	54 (exhaust only)
Threshold Exceeded?	No	No	-	-	No	No

The Project would not conflict with the 2017 CAP by exceeding the numerical BAAQMD thresholds resulting in a less than significant impact.

BAAQMD CEQA Air Quality Guidelines

BAAQMD CEQA Air Quality Guidelines require control of fugitive dust through BMPs in order to consider impacts from fugitive dust emissions less than significant. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44. This specification includes practices and procedures for dust control that are consistent with BAAQMD BMPs that will be implemented as part of the Project.

Section 1.3E of EBMUD's Standard Construction Specification 01 35 44 requires a Dust Control and Monitoring Plan that details the means and methods for controlling and monitoring dust generated by demolition and other work on the site. The specification requires that the plan shall:

- Comply with all applicable regulations including, but not limited to, the BAAQMD Particulate Matter and Visible Emissions Regulation 1 and Public Nuisance Rule.[11]

[11] BAAQMD Regulation 1-301, Public Nuisance, limits air contaminants which cause a public nuisance to any considerable number of persons or the public.

- Outline BMPs for preventing dust emissions.
- Provide guidelines for training of employees and procedures to be used during operations and maintenance activities.
- Detail the equipment and methods used to monitor compliance with the plan.

Implementation of Section 1.3E, Dust Control and Monitoring Plan, of Standard Construction Specification 01 35 44 ensures that dust generated by short-term construction activities would be monitored and controlled to minimize short-term construction dust emissions.

Section 3.3B, of EBMUD's Standard Construction Specification 01 35 44 includes provisions for dust control and requires implementation of all necessary dust control measures, including, but not limited to:

- Water and/or apply coarse rock to all dust-generating construction areas as directed by Engineer to reduce the potential for airborne dust from leaving the site.
- Cover all haul trucks entering/leaving the site and trim their loads as necessary.
- Use wet power vacuum street sweepers to:
  - Sweep all paved access roads, parking areas, and staging areas at the construction site daily or as often as necessary.
  - Sweep public roads adjacent to the site at least twice daily or as often as necessary.
- The use of dry power sweeping is prohibited.
- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- Gravel or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Water and/or cover soil stockpiles daily.
- Site accesses to a distance of 100 feet from the paved road shall be treated with a 12-inch layer of compacted coarse rock.
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Building pads shall be laid as soon as possible after grading.
- All vehicle speeds shall be limited to 15 miles per hour (mph) or less on the construction site and any adjacent unpaved roads.

Implementation of Section 3.3B, Dust Control, of Standard Construction Specification 01 35 44 ensures specified dust control BMPs will be implemented to minimize short-term construction dust emissions and complies with BAAQMD requirements for fugitive dust control, thus resulting in a less than significant impact.

2001 Ozone Attainment Plan

The control measures in the 2001 Ozone Attainment Plan apply to transportation, mobile, stationary, and area sources. The mobile source control measure, which recommends implementation of an "Enhanced" Inspection and Maintenance (I/M) program for on-road motor vehicles, applies to the Project. On-road motor vehicles used during construction of the Project must be inspected biennially as part of the currently enforced enhanced I/M program, also known as a smog check. The Project would not conflict with any adopted control measure or conflict with the 2001 Ozone Attainment Plan because implementation of the I/M program is a standard requirement for all vehicles that would be used for Project construction. No impact would occur.

Operation

Vehicle traffic would be limited to approximately three vehicles for facility maintenance and panel washing. Maintenance visits are expected to occur as needed, approximately eight times per year (one visit for panel washing, two visits for vegetation management, and five visits for general maintenance dispatch). Additional unanticipated and emergency maintenance activities would be conducted on an as-needed basis and would not result in routine generation of emissions. Vehicle trips associated with these unanticipated activities would be minimal. Regular operation of solar equipment does not generate criteria pollutant emissions. The average daily emissions from vehicle trips (three vehicles, eight times per year) would be significantly lower than the average daily construction emissions, which do not exceed BAAQMD significance thresholds. Operation of the Project would not conflict with applicable air quality plans. No impact would occur during operation.

B) Less than Significant Impact.

Construction

The San Francisco Bay Area Air Basin (SFBAAB) is designated as a nonattainment area for ozone and $PM_{2.5}$ under both National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The SFBAAB is also designated as nonattainment for PM_{10} under CAAQS, but not NAAQS. The Project could have a cumulatively considerable impact on air quality if it either (1) resulted in emissions above the significance thresholds or (2) violated any action in an attainment plan.

BAAQMD prepared the 2001 Ozone Attainment Plan to reduce ozone-forming emissions in the SFBAAB to achieve attainment of NAAQS and CAAQS ozone standards (BAAQMD, 2001). BAAQMD thresholds for ozone precursor pollutants (ROGs and NO_X) and particulate matter (PM_{10} and $PM_{2.5}$) are the thresholds at which a project would be considered to have a cumulatively considerable net increase of any criteria pollutant for which the region is nonattainment.

Operation of vehicles and equipment during Project construction would emit diesel particulate matter and other criteria air pollutants. Construction would occur over approximately 7 months and is assumed to start in mid-2020. Table 3.4-1 shows the estimated unmitigated average daily emissions for construction. The emissions generated during construction of the Project would

not exceed BAAQMD significance thresholds. As analyzed under Impact A) above, the emissions generated during the construction and operation would not exceed the significance thresholds for particulate matter (PM_{10} and $PM_{2.5}$) and ROGs or NO_X or other ozone precursors. The Project would not result in a cumulative considerable net increase for any pollutant that is in nonattainment, thus resulting in a less than significant impact.

Operation
After construction, a negligible quantity of criteria air pollutants would be emitted from trucks accessing the site for general maintenance and operation of equipment on the Project site, as discussed under Impact (A), above. The impact during operation to an existing or projected nonattainment designation would be less than significant.

C) Less than Significant Impact.

BAAQMD defines sensitive receptors as land uses and facilities where sensitive populations are likely to be located (BAAQMD, 2017a). BAAQMD recommends identifying sensitive receptors generally within 1,000 feet of a project site (BAAQMD, 2017b). No sensitive receptors are located within 1,000 feet of the Project site. The nearest sensitive receptor, Wagner Ranch Elementary School, is located over 1,400 feet to the south of the Project site. Emissions would be generated for approximately 7 months during construction of the Project. The Project would not be a long-term source of emissions. Due to the short-term generation of emissions, minimal emissions generated, and distance to the nearest sensitive receptors, the Project would not expose sensitive receptors to substantial pollutant concentrations, thus resulting in a less than significant impact.

D) Less than Significant Impact.

Construction
Construction of the Project would generate some temporary odors from diesel exhaust emissions. The concentration of diesel engines could increase the odors temporarily in the immediate vicinity of the equipment operation. The odors would dissipate rapidly with distance from the odor generating activity. The generation of odors from diesel engines would not be substantial or permanent. Furthermore, Oursan Trail is separated from the Project construction area by a minimum of 50 feet or more and is not heavily used (EBMUD, 2017b). As such, construction-related odors, however minimal, would not adversely affect a substantial number of people, thus resulting in a less than significant impact.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements.

Section 1.3I of EBMUD's Standard Construction Specification 01 35 44 requires tune-up logs that provide records that show construction equipment in use at the Project sites has undergone required maintenance and requires submittal of a log of required tune-ups for all construction equipment, particularly haul and delivery trucks, on a quarterly basis for review.

Section 3.4A of EBMUD's Standard Construction Specification 01 35 44 includes the following provisions for air quality and emissions control:

- The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available.
- The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, ATCM for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards.
- Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with CARB or otherwise permitted by the appropriate local air district, as required.
- Contractor shall implement standard air emission controls such as:
  - Minimize the use of diesel generators where possible.
  - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes as required by the California ATCM, Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points.
  - Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.
  - Locate generators at least 100 feet away from adjacent homes.
  - Perform regular low-emission tune-ups on all construction equipment, particularly haul trucks and earthwork equipment.

Implementation of Section 1.3I, Tuneup Logs, and Section 3.4A, Air Quality and Emissions Control, of EBMUD's Standard Construction Specification 01 14 00 require regular maintenance of construction vehicles and equipment and include provisions for BMPs for air emissions control, which would further reduce the less than significant construction-related air emissions and associated odor impacts. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Operation

Operation of the Project would not generate other emissions, including those leading to odors. No impact would occur.

IV. Biological Resources

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 the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
B) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
C) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
D) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
E) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
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?	☐	☐	☒	☐

Discussion

Vegetation Communities and Habitat on the Project Site

Habitats and vegetation communities within the Project site were mapped during botanical field surveys of the Project site in the spring of 2018 (Vollmar Natural Lands Consulting, 2019). The plant communities and habitats that occur within the Project site are shown on Figure 3.4-13 and include:

- California Annual Grassland
- Mixed Oak Woodland
- Coyote Brush Scrub

California Annual Grassland

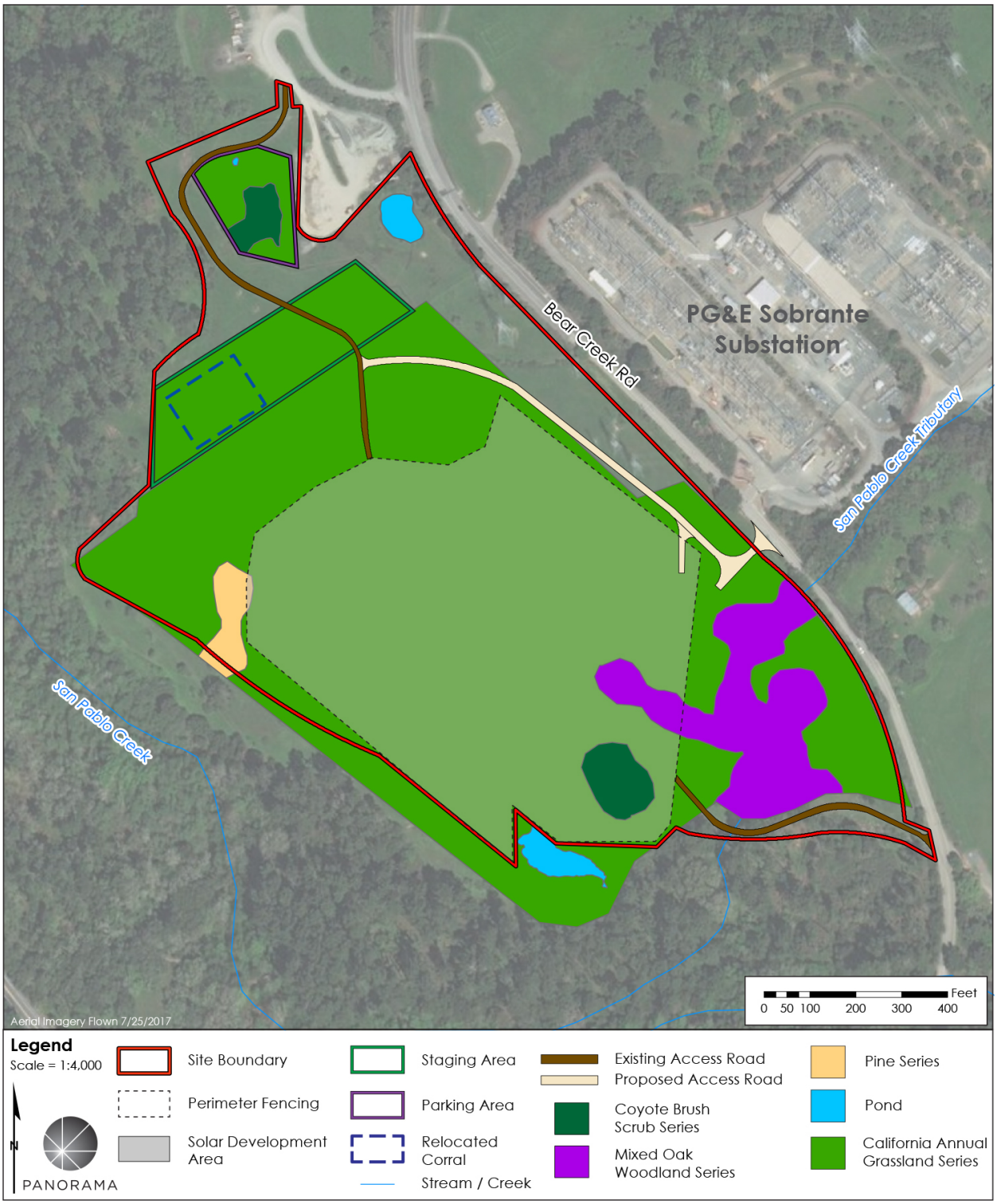
California annual grassland is the most widespread habitat on the site (Figure 3.4-13). The grasslands observed on the site are generally disturbed and consist of introduced, often weedy plant species, a result of historical soil disturbance as well as grazing of the site. Soils investigated at several locations within the site include variously sized chunks of concrete, suggesting the site was historically used as a dumping ground for such materials. A few localized areas at the northeastern portion of the site contained native wildflowers during the 2018 surveys.

The on-site grasslands support plant species typical of clay and/or silty soils. The most common grass species observed within the habitat include Italian ryegrass (*Lolium multiflorum*), brome fescue (*F. bromoides*), and slender wild oat (*Avena barbata*). A few localized stands of the native meadow barley (*Hordeum brachyantherum* ssp. *brachyantherum*) are present as well. Concave grassland areas within the Project site support seasonal wetlands. The annual grasses are intermixed with mostly weedy upland forbs that also thrive in disturbed clay soils within the more flat and convex areas. Portions of the grasslands are being colonized by shrub species such as coyote brush (*Baccharis pilularis*). In addition, there are a few trees scattered within the grassland, some of which have been planted as part of an oak savanna restoration effort being carried out by EBMUD. These include oak species (e.g., Valley Oak; *Quercus lobata*) as well as associates such as California buckeye (*Aesculus californica*).

Mixed Oak Woodland

Mixed oak woodland habitat occurs near the southeastern edge of the Project site, along an un-named stream that is tributary to San Pablo Creek as well as along a broad northwest-trending swale that is connected to the stream (Figure 3.4-13). Oak woodland is also present beyond the Project site boundaries to the south and west of the site. The predominant oak tree species throughout the habitat is coast live oak (*Quercus agrifolia*), with valley oak as a common associate, especially along the stream. Other, less common associated trees include California bay (*Umbellularia californica*), California buckeye, coast redwood (*Sequoia sempervirens*), Northern California black walnut (*Juglans hindsii*), and a few scattered willows (*Salix spp.*). This composition of tree species indicates that the stream is nearly perennial, likely flowing or at least ponding water into mid-summer. The understory along the stream channel margins consists of plant species typically associated with modest to substantial soil moisture, including Himalayan blackberry (*Rubus armeniacus*), California blackberry (*Rubus ursinus*), California mugwort (*Artemisia douglasiana*), and rushes (*Juncus spp.*). Farther from the stream channel are plant species that are only slightly less associated with moisture, such as coyote brush, poison oak (*Toxicodendron diversilobum*), and Italian ryegrass.

Figure 3.4-13 Plant Communities



Sources: (USGS, 2018; Tele Atlas North America, Inc., 2018; Thomas Newcomb, 2013; EBMUD, 2018a)

Coyote Brush Scrub

Coyote brush scrub habitat occurs on the southern edge of the Project site (Figure 3.4-13). Smaller, localized stands and individual shrubs are present throughout the Project site, but do not form mappable stands (i.e., are well below the 0.25-acre minimum mapping unit). The plant community consists primarily of coyote brush, though poison oak is also fairly abundant.

Pine Series

A large number of pine trees occur just west and north of the Project site. The pines are mostly "closed-cone" pine species that are native to California's coast, with Monterey pine (*Pinus radiata*) being the most common, but Bishop pine (*P. muricata*) also being established in some areas. The pine trees have encroached upon grassland habitat adjacent to the Project site. The understory immediately below the pines is notably sparse, as a result of the dense layer of acidic pine needles. Beyond the pine canopy driplines, the habitat remains essentially as annual grassland, with grass and forb species typical of disturbed portions of that habitat in the Project site, as described above, along with a few scattered individual coyote brush shrubs.

Pond

Two seasonal ponds are located within and adjacent to the Project site, yet outside of the Solar Development Area. One seasonal pond/wetland is located adjacent to the southern edge of the Project site as shown on Figure 3.4-13. Based on the pond's topography and vegetation cover, the pond appears to be natural. Dominant plant species observed in the pond include pale spikerush (*Eleocharis macrostachya*), bracted popcornflower (*Plagiobothrys bracteatus*), and clustered dock (*Rumex conglomeratus*). Associated plants observed primarily along the pond margins are meadow barley, common lippia (*Phyla nodiflora*), pennyroyal *(Mentha pulegium*), and Italian ryegrass. Many of these plants are indicative of an extended ponding duration, and/or prolonged saturated soils. A second pond is a perennial pond located adjacent to the northern edge of the Project site and approximately 250 feet east of the staging area. The pond is supported by a spring water source, which provides a year-round water supply.

Special-Status Species Potential to Occur on the Project Site

Special-status species include those listed as endangered, threatened, rare, or proposed for listing by U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Wildlife (CDFW). The following sources were reviewed to determine the potential for special-status plant and wildlife species to occur in the vicinity of the Project site:

- California Natural Diversity Database (CNDDB) occurrence records for Contra Costa County. (CNDDB, 2018)
- Biological Resources Evaluation for the Dos Osos Reservoir Replacement Project, Orinda, California. (EBMUD, 2016)
- Breeding Bird Atlas of Contra Costa County. Mount Diablo Audubon Society. (Glover, 2009)
- EBMUD biological resources GIS database.

Table 3.4-2 lists special-status species for which: a) CNDDB occurrences or EBMUD-managed species database occurrences have been noted within 5 miles of the site and b) have at least a potential to occur at the Project site based on presence of suitable habitat. Species noted as present were observed at the Project site during recent surveys in 2018 (Pacific Biology and Vollmar Natural Lands Consulting, 2018).

Table 3.4-2 Special-Status Species That May Occur at the Project Site

Species Name	Status	Habitat	Occurrence Potential
Plants			
Bent-flowered fiddleneck (*Amsinckia lunaris)*	1B.2	Coastal bluff scrub, Cismontane woodland, Valley and foothill grassland; 3-500 m; March-June	**Absent:** Limited suitable habitat present. Not observed during 2018 botanical surveys.
California androsace (*Androsace elongata* ssp. *Acuta)*	4.2	Chaparral, Cismontane woodland, Coastal scrub, Meadows and seeps, Pinyon and juniper woodland, Valley and foothill grassland;150-1,305 m; March-June	**Absent:** Suitable habitat present. Not observed during 2018 botanical surveys.
Pallid manzanita (*Arctostaphylos pallida*)	FT, CE, 1B.1	Broadleafed upland forest, Closed-cone coniferous forest, Chaparral, Cismontane woodland, Coastal scrub, siliceous shale, sandy or gravelly; 185-465 m; December-March	**Absent:** Suitable habitat present. Not observed during 2018 botanical surveys.
Big-scale balsamroot (*Balsamorhiza macrolepis*)	1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland, sometimes serpentinite; 45-1,555 m; March-June	**Absent:** Suitable habitat present. Not observed during 2018 botanical surveys.
Big tarplant *(Blepharizonia plumose)*	1B.1	Valley and foothill grassland, Usually clay; 30-505 m; July-October	**Absent:** Marginal habitat present. Not observed during 2018 botanical surveys.
Mt. Diablo fairy-lantern (*Calochortus pulchellus)*	1B.2	Chaparral, Cismontane woodland, Riparian woodland, Valley and foothill grassland; 30-840 m; April-June	**Absent:** Suitable habitat present. Not observed during 2018 botanical surveys.
Johnny-nip (*Castilleja ambigua* var. *ambigua)*	4.2	Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Valley and foothill grassland, Vernal pools margins; 0-435 m; March-August	**Absent:** Suitable habitat present. Not observed during 2018 botanical surveys.
Santa Clara red ribbons (*Clarkia concinna* ssp. *Automixa)*	4.3	Chaparral, Cismontane woodland; 90-1,500 m; (April)[a] May-June (July)	**Absent:** Suitable habitat present. Not observed during 2018 botanical surveys.

Species Name	Status	Habitat	Occurrence Potential
Western leatherwood (*Dirca occidentalis)*	1B.2	Broadleafed upland forest, Closed-cone coniferous forest, Chaparral, Cismontane woodland, North Coast coniferous forest, Riparian forest, Riparian woodland, mesic; 25-425 m; January-March (April)	**Absent:** Suitable habitat present. Not observed during 2018 botanical surveys.
Jepson's coyote thistle (*Eryngium jepsonii)*	1B.2	Valley and foothill grassland, Vernal pools, clay; 3-300 m; April-August	**Absent:** Suitable habitat present. Not observed during 2018 botanical surveys.
Diablo Helianthella (*Helianthella castanea)*	1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland, Valley and foothill grassland; 60-1,300 m; March-June	**Absent:** Suitable habitat present. Not observed during 2018 surveys.
Santa Cruz tarplant (*Holocarpha macradenia)*	FT, CE, 1B.1	Coastal prairie, Coastal scrub, Valley and foothill grassland, often clay, sandy; 10-220 m; June-October	**Absent:** Suitable habitat present. Not observed during 2018 botanical surveys.
Bristly leptosiphon (*Leptosiphon acicularis)*	4.2	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland; 55-1,500 m; April-July	**Absent:** Suitable habitat present. Not observed during 2018 botanical surveys.
Oregon meconella (*Meconella oregana*)	1B.1	Coastal prairie, Coastal scrub; 250-620 m; Mar-Apr	**Absent:** Suitable habitat present. Not observed during 2018 botanical surveys.
Lobb's aquatic buttercup (*Ranunculus lobbii)*	4.2	Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland, Vernal pools, mesic; 15-470 m; February-May	**Absent:** Suitable habitat present. Not observed during 2018 botanical surveys.
Chaparral ragwort (*Senecio aphanactis*)	2B.2	Chaparral, Cismontane woodland, Coastal scrub, sometimes alkaline; 15-800 m; Jan-Apr (May)	**Absent:** Suitable habitat present. Not observed during 2018 botanical surveys.
Oval-leaved viburnum (*Viburnum ellipticum)*	2B.3	Chaparral, Cismontane woodland, Lower montane coniferous forest; 215-1,400 m; May-June	**Absent:** Suitable habitat present. Not observed during 2018 botanical surveys.
Amphibians and Reptiles			
Foothill yellow-legged frog (*Rana boylii)*	SC	Ponds, marshes, streams, and ditches with emergent aquatic vegetation and basking areas.	**Low**: The species historically occurred in San Pablo Creek (EBMUD 2016) but has not been documented recently and may be extirpated from the area. The portions

Species Name	Status	Habitat	Occurrence Potential
			of San Pablo Creek near the Project site provide potential habitat.
California red-legged frog (*Rana draytonii)*	FT, SC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation.	**High**: There are documented occurrences of the species on and in proximity to the Project site. There is a known breeding pond approximately 250 feet east of the staging area, and an individual California red-legged frog has been documented on the site. The seasonal pond adjacent to the southern boundary of site, and San Pablo Creek, provide potential aquatic habitat; however, bullfrogs were noted within the adjacent seasonal pond. The species could also disperse or forage on the site.
Western pond turtle (*Emys marmorata)*	SC	Ponds, marshes, streams, and ditches with emergent aquatic vegetation and basking areas.	**Moderate**: The species could occur within San Pablo Creek and also nest within portions of the Project site. Species is known to occur in San Pablo and Briones Reservoirs. Western pond turtles have been documented in the base of the Briones spillway within 0.25 miles of the Project site.
Alameda whipsnake (*Masticophis lateralis euryxanthus)*	FT, FT	Scrub, chaparral, grassland, and woodland habitat mosaics. South-facing slopes and ravines.	**High**: The species is known to occur in the Project region and the Project site may be part of the matrix of habitats used by the species. The Project site is within designated critical habitat for the species.
Birds			
Short-eared owl (*Asio flammeus)*	SC	Breeds in extensive marshes and moist grasslands; forages over wetlands, grasslands, and ruderal habitats.	**Low**: No documented nesting occurrences in the Project region[b] and marginal habitat present.
Yellow warbler (*Setophaga petechia)*	BCC, SC	Nests in dense, shrubby thickets dominated by willows along water courses and wet meadows.	**High**: Known breeder in Project region, and portions of San Pablo Creek provide potential nesting habitat.
Grasshopper sparrow (*Ammodramus savannarum)*	SC	Open grasslands, nests on ground.	**High**: Suitable nesting and foraging habitat present and confirmed breeder in western Contra Costa County (Glover 2009).
Golden eagle (*Aquila chrysaetos)*	BCC, FP	Rolling foothills, mountain areas, sage-juniper flats, desert. Nests are constructed on cliffs or in large trees in open areas.	**High**: Suitable foraging habitat and potential nesting habitat present. A golden eagle nest was observed within 1 mile of the Project site. A pair of golden eagles were observed near the Project site in February 2019 (Price, 2019).

Species Name	Status	Habitat	Occurrence Potential
Long-eared owl (*Asio otus*)	SC	Breeds mainly in dense coniferous or mixed woodland, including riparian woodlands. Nests in large used nests of other bird species or squirrel. Forages over open fields and marshes.	**High**: Possible breeder on the Project site (Glover, 2009) and potential nesting habitat borders the Project site.
Burrowing owl (*Athene cunicularia)*	SC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation.	**Low**: No breeding records from western Contra Costa County (Glover 2009) and the species has not been documented within approximately 4 miles of the Project site (CNDDB). Suitable small mammal burrows not observed on-site.
Ferruginous hawk (*Buteo Regalis)*	BCC	Wintering - open grasslands, sagebrush flats, desert scrub; does not nest in California	**High (Wintering Only)**: This species occurs in the Project region as an infrequent winter migrant but does not nest in California. Could forage on the site during the winter.
Northern harrier (*Circus cyaneus)*	SC	Nests and forages in grasslands and agricultural fields. Nests on ground in shrubby vegetation, dense grass, or crops such as wheat and barley, often at the edge of marshes.	**High**: The species has been observed in the Project vicinity. There are no known nesting sites in the Project region, and suitable nesting and foraging habitat is present on the Project site.
Olive-sided flycatcher (*Contopus cooperi)*	BCC, SC	In Contra Costa County, nesting olive-sided flycatchers favor open coastal oak woodlands with openings for foraging and tall trees, often redwoods, Monterey pine, and other planted conifers.	**Moderate**: Potentially suitable nesting habitat adjacent to the Project site.
White-tailed kite (*Elanus leucurus)*	FP	Typically nests in trees surrounded by open foraging habitat.	**High**: Suitable nesting and foraging habitat present on the Project site.
Bald eagle (*Haliaeetus leucocephalus)*	BCC, CE	Found near ocean shorelines, lakes, reservoirs, river systems, and coastal wetlands. Usually found less than 2 km from water that offers foraging opportunities. Foraging habitat consists of large bodies of water or rivers with abundant fish and adjacent perching sites such as snags or large trees.	**High**: The species has been documented nesting at nearby San Pablo Reservoir since 2006 (Mulchaey, 2019). Given the site's proximity to the reservoir, there is some potential the species could nest on or near the Project site.
Loggerhead shrike (*Lanius ludovicianus)*	BCC, CSC	Habitat consists of open spaces such as grasslands with scattered trees, shrubs, utility lines, and/or fences for perching. Typically nest in	**High**: Suitable nesting and foraging habitat present on the Project site.

Species Name	Status	Habitat	Occurrence Potential
		densely vegetated trees and shrubs	
Mammals			
Pallid bat *(Antrozous pallidus)*	SC	Open and dry habitats with rocky areas for roosting. Roosts in caves, mine tunnels, crevices in rocks, buildings, and trees. Forages in open habitats.	**High**: Mature trees on the Project site may provide suitable roosting habitat. The species is known to occur near the Project site.
Western red bat *(Lasiurus blossevillii)*	SC	Roosts in trees in a wide variety of habitats between the coast western Sierra Nevada mountains. Strongly associated with riparian habitats, particularly mature stands of cottonwood/sycamore (Pierson et a. 2004).	**Moderate**: On-site trees provide potential roosting habitat for this foliage roosting species.
Ring-tailed cat *(Bassariscus astutus)*	FP	Inhabits desert scrub, chaparral, pine-oak, and conifer woodland. Usually within .05 miles of water. Dens in rock shelter, tree hollow, under tree roots, burrows dug by other animals, remote buildings, and beneath brush piles. Secretive, may be common in areas where seldom observed.	**Moderate**: Woodland on and bordering the Project site provides potential habitat.
San Francisco dusky-footed woodrat *(Neotoma fuscipes annectens)*	SC	Evergreen or live oaks and other dense, thick-leaved trees and shrubs are important habitat components for this species. In riparian areas, highest densities of woodrats and their houses are often encountered in willow thickets with an oak overstory. Nests constructed on the ground or in trees.	**Present**: Woodrat nests are present on and bordering the Project site and the site is within the range of the San Francisco dusky-footed woodrat subspecies.
American badger *(Taxidea taxus)*	SC	Most abundant in drier, open stages of shrub, forest, and herbaceous habitats with friable soils where they can dig burrows.	**Moderate**: No potential badger dens were observed on the Project site. However, there is a potential that a badger could dig a den on the site.

Notes:

[a] Months included in paraenesis indicate months when blooming may occasionally occur

[b] Project region for wildlife species is Contra Costa County and for plant species is the non-quad search from California Native Plant Society's (CNPS) online "Inventory of Rare and Endangered Plants." Project site refers to 20-acre site, and Project area refers to the area immediately surrounding the Project site.

FT = Federally Threatened

1B.1 = Plants rare, threatened, or endangered in California and elsewhere; plant seriously threatened in California.

Species Name	Status	Habitat	Occurrence Potential
FE = Federally Endangered CT = California Threatened CE = California Endangered BCC = Bird of Conservation Concern SC = California Species of Special Concern FP = Fully Protected CE = Candidate Endangered CT = Candidate Threatened			1B.2 = Plants rare, threatened, or endangered in California and elsewhere; plant fairly threatened in California. 2B.3 = Plants rare, threatened, or endangered in California, more common elsewhere; plant not very threatened in California. 4.2 = Plants with a limited distribution- a watch list; moderately threatened in California. 4.3 = Plants with a limited distribution- a watch list; not very threatened in California

Source: (Pacific Biology and Vollmar Natural Lands Consulting, 2018) (CNDDB, 2018)

A) Less than Significant with Mitigation Incorporated.

Construction

Special-Status Plants (Less than Significant Impact with Mitigation Incorporated)

The Project site includes suitable habitat for special-status plants, particularly within clay soils. Surveys for special-status plants were conducted during the appropriate blooming periods for each special-status plant that could occur in the area. No rare or special-status plants were observed in the Project site during focused rare plant surveys. The majority of the Project site is covered by fairly disturbed annual grassland habitat, and those areas with the potential to support special-status plants are localized and limited. Soil conditions at the site are generally poor due to disturbances such as historic homesteading and presence of gravel within the soils (Vollmar Natural Lands Consulting, 2019). The site is populated by tall and dense stands of annual grasses, weedy forbs, and generalist shrubs.

Controlled burns were conducted within a portion of the Project site following the 2018 botanical surveys. A botanical reconnaissance survey of burned areas was conducted in March 2019 and indicated a change in vegetation from grasses to forbs in the burned area. The predominant plants within burned areas include members of the pea (*Fabaceae)* family, as well as clovers, vetch, and native lupine species. No rare plants were observed in the burned areas during the survey in March 2019 and the controlled burn did not create new habitat for rare plants.

The Project is not expected to affect any population of rare or special-status plants, due to the absence of special-status plants on the Project site during focused surveys in 2018. Special-status plant species are known to occur on lands surrounding the Project site and could occur in the Project area in the future. If a special-status plant were to occur on the site at the time of vegetation removal and grading, the plant could be affected by grading and vegetation removal activities. The impact on special-status plants is potentially significant. To mitigate impacts on special-status plant species, EBMUD would implement Mitigation Measure BIO-1.

Mitigation Measure BIO-1. Sensitive Plant Species.

A qualified botanist (EBMUD) shall conduct preconstruction special-status plant surveys during the appropriate blooming season (March – May) in all areas where ground disturbance will occur prior to construction. Any observed sensitive plant species shall be mapped and flagged for avoidance where feasible. EBMUD shall notify CDFW or CNPS upon discovery of any sensitive plant species during preconstruction surveys. If sensitive plant species are discovered, the following measures shall be implemented:

- Sensitive plant species shall be avoided or minimized by limiting ground disturbance where sensitive plants occur.
- If plant species that are listed on the federal or California Endangered Species Lists or plants ranked with 1B.1 or 1B.2 CNPS ranking cannot be avoided, EBMUD will salvage the affected plants and transplant them to a similar habitat in the Project vicinity. The re-established population should achieve a 1:1 ratio (transplanted: re-established) after 2 years. If this performance criterion cannot be met, an in-lieu fee shall be paid to the state CNPS program.
- If any additional sensitive plant species are discovered on-site that cannot be avoided, the appropriate agencies shall be consulted by EBMUD to determine the appropriate species-specific mitigation measures.
- Species-specific mitigation may include repairing, rehabilitating, or restoring the impacted area; preserving in-situ populations on-site; or by providing off-site compensation. Off-site compensation may include the permanent protection of an off-site population through a conservation easement or the purchase of mitigation banking credits at a 2:1 ratio (mitigation: impacted population).

Because Mitigation Measure BIO-1 requires EBMUD to conduct preconstruction surveys for sensitive plants and defines approaches for avoidance and transplanting or compensation if special-status species occur on the site and avoidance is infeasible, the potential for significant construction-related impacts on sensitive plants would be reduced to less than significant. The Mitigation Monitoring and Reporting Plan (Appendix A) includes the applicable mitigation measures to be implemented and the timing for implementation.

Special-Status Wildlife Impacts (Less than Significant Impact with Mitigation Incorporated)
A total of 21 special-status wildlife species have moderate to high potential to occur on-site during construction. Impacts to special-status wildlife species and habitats are summarized by Project component in Table 3.4-3.

Table 3.4-3 Summary of Direct and Indirect Impacts on Wildlife Species and Habitat by Project Component

Project Activity	Direct Effects		Indirect Effects	
	Species	Habitat	Species	Habitat
Construction				
Solar Facility [1]	• Mortality • Injury • Construction noise • Trapping in excavations or erosion control material	• 0.94 acre permanent impact • 20.2 acres temporary impact	• Increased predation	• Erosion
Staging and Parking Areas	• Mortality • Injury • Construction noise	• 3.4 acres temporary disturbance	• None	• None
Operation and Maintenance				
Solar Facility	• Mortality • Injury	• 0.94 acre of permanent impact	• None	• None
Corral relocation	• None (same as baseline use)	• None (Same as baseline use)	• None (Same as baseline use)	• None (Same as baseline use)

[1] Solar Facility includes solar panels, underground collection system, equipment pad (transformers/inverters), control building, security fence, access road, water pipelines, and permanent erosion control features.

Construction activities including vegetation removal, grading, excavation, trenching, material storage, fence installation, and vehicle travel through the site have the potential to directly impact special-status wildlife species. Direct impacts could include habitat loss and mortality or injury of special-status wildlife located at the solar facility site, staging area, or parking area. Construction activities including vegetation removal would result in the temporary and permanent loss of suitable breeding or foraging habitat, potential destruction of nests or burrows, and could cause mortality or injury to species located in the Project site at the time of construction. Special-status species located within the immediate vicinity of the Project site may also be directly impacted by noise and dust emissions generated from Project construction vehicles and equipment. Direct impacts to special-status species are described in greater detail for each species below.

Special-status wildlife species may also be indirectly impacted through the introduction and proliferation of invasive non-native plant species and temporary impacts associated with dust, sedimentation, erosion, and increased wildfire hazards during construction.

Construction Personnel Contact with Special-Status Species

Construction workers may encounter special-status species during Project construction activities. Construction workers may lack understanding of special-status species behavior and the protection measures required to protect each species; therefore, construction personnel may inadvertently harm, injure, or kill special-status wildlife species by driving vehicles and equipment at unsafe speeds on area roadways or conducting construction activities outside of authorized work limits in special-status species habitat. Mitigation Measures BIO-2 and BIO-3 would be implemented to reduce the potential for construction workers to encounter special-status species within the Project site and on access roads and ensure that construction personnel understand what to do if a special-status species is encountered. Mitigation Measure BIO-2 requires a worker environmental awareness training to inform Project personnel of special-status wildlife that may be encountered on-site. The training would identify contact information for the Project biologist and methods to avoid impacts to special-status species. Mitigation Measure BIO-3 includes installation of exclusion fencing around the Project site to exclude all terrestrial wildlife from the site during construction and reduce potential for construction personnel to encounter special-status species. Wildlife exclusion fencing would be designed to allow special-status wildlife to exit the site and would prevent re-entry.

Mitigation Measure BIO-2. Worker Environmental Awareness Training.

Prior to construction all contractor construction personnel shall attend an environmental training program provided by EBMUD's biological contractor for up to 1 day for site supervisors, foremen, and Project managers. Non-supervisory contractor personnel are required to attend training for up to 30 minutes. Contractor construction personnel shall receive worker environmental awareness training from a qualified biologist. The training shall discuss all sensitive habitats and sensitive species that may occur within the Project work limits, including the following:

- Foothill yellow-legged frog
- California red-legged frog
- Western pond turtle
- Alameda whipsnake
- Short-eared owl
- Yellow warbler
- Grasshopper sparrow
- Golden eagle
- Long-eared owl
- Burrowing owl
- Ferruginous hawk
- Northern harrier
- Olive-sided flycatcher
- White-tailed kite
- Bald eagle
- Loggerhead shrike
- Pallid bat
- Western red bat
- Ring-tailed cat
- San Francisco dusky-footed woodrat
- American badger

The training shall include the responsibilities of contractor's construction personnel, applicable mitigation measures, and notification requirements. The training shall also address other measures that protect biological resources, such as limiting all vehicle

speeds to fifteen (15) mph or less on the construction site and any adjacent unpaved roads during construction and post construction.

The following information shall also be provided during the training:

- Specific information regarding the special-status species potentially present and their habitat needs
- Any reports of occurrences in the Project area
- An explanation of the status of each listed species and their protection under state and federal laws
- A list of measures being taken to reduce effects to the species during construction and implementation

Fact sheets conveying this information and an educational brochure containing color photographs of all special-status species potentially present shall be prepared for distribution to the above-mentioned people and anyone else who may enter the Project area. Construction personnel shall be instructed to halt construction activities and contact the designated biologist if a wildlife species is observed in an area where it could be harmed by construction activities. A list of employees who attend the training sessions shall be maintained by EBMUD and made available to USFWS and/or CDFW upon request.

Following completion of the Project, maintenance workers would enter the Project site to conduct regular maintenance activities. These maintenance workers shall also be provided with the environmental awareness training described in this measure. Maintenance personnel would be instructed to observe the 15-mph speed limit and to halt maintenance activities and contact the designated EBMUD biologist if a wildlife species is observed in an area where it could be harmed by maintenance activities.

Mitigation Measure BIO-3. Install Exclusion Fencing

Temporary exclusion fencing shall be installed around the limits of work areas and access routes to ensure special-status amphibians, reptiles, and mammals cannot enter the work area. The exclusion fencing shall exclude the seasonal pond at the southern end of the Project site from the Project construction area. Installation of exclusion fencing shall occur under the supervision of the designated biologist and immediately following a clearance survey of the area. The exclusion fencing shall have a minimum aboveground height of 30 inches, and the bottom of the fence should be keyed in at least 4 inches deep and backfilled with soil to prevent wildlife from passing under the fencing. Exclusion fencing shall be installed to prevent species entry into active work areas and to mark the limits of construction disturbance at equipment staging areas, site access routes, construction equipment and personnel parking areas, debris storage areas, and any other areas that may be disturbed.

The exclusion fencing shall be installed in a manner that reduces the potential for trapping migrating wildlife and for wildlife climbing over the fence, such as having the top of the fencing curved over on the outside of the fence. Cover boards shall be installed along the perimeter of the fencing to provide protection from the sun and predators, where necessary and appropriate. Gates shall be installed in the exclusion fencing that allow Project access and adequately exclude wildlife. Gates will be secured at the end of each workday using sandbags or other means to prevent wildlife from entering the exclusion zone. The exclusion fencing shall remain in place and be maintained for the duration of construction activities and shall be removed within 15 days of completion of construction activities.

Prior to entering and beginning work in fenced areas each day, a biological monitor shall inspect the work area and both sides of the fence perimeter for special-status species, any trapped wildlife, and to identify damage to the exclusion fencing. The biological monitor must be trained by the designated biologist (Mitigation Measure BIO-5) on California red-legged frog and Alameda whipsnake identification, the laws protecting the species, and procedures to implement if the species is observed. If California red-legged frog, Alameda whipsnake, or trapped wildlife are observed, the designated biologist shall be notified immediately to determine the appropriate procedures to implement. Any damage to the fencing shall be immediately reported and repaired until the last day that construction equipment is at the Project site.

Because Mitigation Measures BIO-2 and BIO-3 require worker training and installation of exclusion fencing prior to construction commencement, the potential for direct impacts related to construction worker contact with special-status species would be less than significant. The Mitigation Monitoring and Reporting Plan (Appendix A) includes the applicable mitigation measures to be implemented and the timing for implementation.

Foothill Yellow-Legged Frog and Western Pond Turtle (Less than Significant Impact with Mitigation Incorporated).

Foothill yellow-legged frog and western pond turtle have the potential to occur within San Pablo Creek and a stream tributary to San Pablo Creek adjacent to the Project site. Both species could nest or occur in upland burrows within the Project site. Use of mechanized vegetation removal, site grading, and heavy equipment could impact nests or burrows of foothill yellow-legged frog or western pond turtle if they were to occur on the site at the time of construction. Grading and vegetation-removal activities could result in crushing of a nest or individual yellow-legged frog or western pond turtle if one were to occur on the Project site at the time of construction. The potential impacts on foothill yellow-legged frog and western pond turtle could be significant. To mitigate potential significant impacts on foothill yellow-legged frog and western pond turtle, EBMUD would implement Mitigation Measures BIO-2, Mitigation Measure BIO-3, and Mitigation Measure BIO-4. Mitigation Measures BIO-2 and BIO-3 are listed above and require a worker environmental training and exclusion fencing to avoid worker impacts on foothill yellow-legged frog and western pond turtle. Mitigation Measure BIO-4

requires a qualified biologist to conduct a preconstruction survey to identify yellow-legged frog and western pond turtle within the boundary of the site and relocate the species from the site.

Mitigation Measure BIO-4. Yellow-legged Frog and Western Pond Turtle Pre-Construction Surveys.

> No more than twenty-four (24) hours prior to the date of initial ground disturbance, a preconstruction survey for yellow-legged frog (*Rana boylii*) and western pond turtle (*Emys marmorata*) shall be conducted by a designated biologist at the Project site. The survey shall consist of walking the Project limits and within the Project site to ascertain the possible presence of the species. The designated biologist shall investigate all potential areas that could be used by each species for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows, such as for California ground squirrels or gophers.
>
> If foothill yellow-legged frog or western pond turtle are found, the designated biologist will determine if moving the individuals is appropriate (e.g. if the species is at risk of injury). If the biologist determines that relocation of foothill yellow-legged frog or western pond turtle is necessary, EBMUD will ensure the designated biologist is given sufficient time to move the animals from the work site before ground disturbance is initiated. If the biologist determines that relocation of the species is not necessary, the biologist will monitor the species until it leaves the Project vicinity.

Because Mitigation Measure BIO-2, Mitigation Measure BIO-3, and Mitigation Measure BIO-4 require worker training, installation of wildlife exclusion fencing prior to ground disturbance, and a preconstruction survey with relocation of any foothill yellow-legged frog or western pond turtle out of harm's way, the impact on foothill yellow-legged frog and western pond turtle would be less than significant with mitigation. The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented and the timing of measure implementation.

California Red-legged Frog (Less than Significant Impact with Mitigation Incorporated)

Occurrence Near the Site. California red-legged frog has the potential to occur in a pond located at the edge of the northern Project site boundary and an individual California red-legged frog has been documented on the Project site. A seasonal pond located near the southern edge of the Project site and San Pablo Creek also provide suitable habitat for California red-legged frog.

Potential Impacts on Individual California Red-Legged Frog. California red-legged frog could disperse from aquatic habitat areas adjacent to the Project site and move onto the Project site. California red-legged frog could occupy squirrel burrows within the grassland habitat or seasonal wetland swale located within the Project site. In the event that California red-legged frog are present on the Project site at the time of construction, the vegetation removal, grading, and other ground-disturbing construction activities could cause injury or mortality of California red-legged frog individuals. California red-legged frog could also become trapped in erosion control material or open excavations. The Project could also result in increased predation risk of

California red-legged frog if construction trash increased predators on the site. Injury, trapping, increased predation, or crushing of any California red-legged frog would be a significant impact on California red-legged frog. To mitigate impacts on individual California red-legged frog, EBMUD would implement Mitigation Measures BIO-2, Mitigation Measure BIO-3, Mitigation Measure BIO-5, Mitigation Measure BIO-6, Mitigation Measure BIO-7, Mitigation Measure BIO-8, Mitigation Measure BIO-9, Mitigation Measure BIO-10, Mitigation Measure BIO-11, Mitigation Measure BIO-12, Mitigation Measure BIO-13, and Mitigation Measure BIO-14. These mitigation measures would reduce impacts on California red-legged frog by requiring:

- Worker training to include training about California red-legged frog (Mitigation Measure BIO-2);
- Installation of exclusion fencing to prevent California red-legged frog from entering the site (Mitigation Measure BIO-3);
- Designation of an USFWS-approved biologist and granting the designated biologist the authority to halt construction (Mitigation Measure BIO-5 and BIO-6);
- Preconstruction surveys for California red-legged frog (Mitigation Measure BIO-7);
- Time construction to start after California red-legged frog are most likely to be dispersing into uplands (Mitigation Measure BIO-8);
- Biological monitoring by a designated biologist during ground-disturbing activities (Mitigation Measure BIO-9);
- Avoiding construction during rain events (Mitigation Measure BIO-10);
- Covering and inspecting open excavations (Mitigation Measure BIO-11);
- Avoiding use of plastic monofilament netting and loosely woven netting for erosion control (Mitigation Measure BIO-12);
- Management of trash to reduce potential for predation (Mitigation Measure BIO-13); and
- Procedures for disposition of California red-legged frog should they occur in the area at the time of construction (Mitigation Measure BIO-14).

Mitigation Measure BIO-5. Designated Biologist.

EBMUD shall obtain USFWS and California Department of Fish and Wildlife (CDFW) approval for a designated biologist(s) for the Project. The designated biologist(s) shall be on-site during all activities that may result in take of California red-legged frog or Alameda whipsnake. The qualifications of the designated biologist(s) shall be submitted to USFWS and CDFW for review and written approval at least thirty (30) calendar days prior to the date earthmoving is initiated at the Project site. The designated biologist(s) shall keep a copy of any Biological Opinion and Incidental Take Permit issued for the Project in their possession when on-site.

Mitigation Measure BIO-6. Designated Biologist Authority.

The designated biologist(s) shall be given the authority to freely communicate verbally, by telephone, electronic mail, or in writing, at any time with construction personnel, any

other person(s) at the Project site, otherwise associated with the Project, the USFWS, the CDFW, or their designated agents. The designated biologist shall have oversight over implementation of the avoidance and minimization measures and all permit conditions, and, through EBMUD, shall have the authority and responsibility to stop Project activities if they determine any of the associated permit requirements are not being fulfilled. If the designated biologist(s) exercises this authority, the USFWS and CDFW shall be notified by telephone and electronic mail within twenty-four (24) hours.

Mitigation Measure BIO-7. California Red-legged Frog Pre-Construction Survey

No more than twenty-four (24) hours prior to the date of initial ground disturbance, a preconstruction survey for California red-legged frog (*Rana draytonii*) shall be conducted by a designated biologist at the Project site.

The survey shall consist of walking the Project limits and within the Project site to ascertain the possible presence of California red-legged frog. The designated biologist shall investigate all potential areas that could be used by the species for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows, such as for California ground squirrels or gophers.

If any California red-legged frogs are found, the designated biologist shall follow the procedures specified in Mitigation Measure Biology-14.

Mitigation Measure BIO-8. Timing Construction Commencement to Avoid California Red-Legged Frog

Initial ground-disturbing activities shall be avoided between November 1 and March 31 to avoid the time period when California red-legged frogs are most likely to be moving through the Project area.

Mitigation Measure BIO-9. Onsite Construction Monitoring

The designated biologist shall be present at the Project site until all initial habitat disturbances have been completed. After habitat disturbance has been completed and all exclusion fencing has been installed, a biological monitor will monitor daily on-site compliance with all avoidance measures. The biological monitor shall contact the designated biologist for instructions should any snake or frog be observed on the site. The biological monitor and the designated biologist shall have the authority to halt any action that could adversely affect sensitive biological resources. The designated biologist shall continue to conduct compliance checks at least once per week until construction is completed to ensure that the fencing is intact and that all avoidance measures are being implemented.

Mitigation Measure BIO-10. Avoid Construction During Rain Events

To the maximum extent practicable, no construction activities shall occur during rain events or within 24-hours following a rain event. Prior to construction activities resuming, a designated biologist will inspect the Project area and all equipment/ materials for the presence of California red-legged frogs.

Mitigation Measure BIO-11. Cover Trenches

Trenches or pits 1 foot or deeper that are going to be left unfilled overnight shall be securely covered with boards or other material to prevent California red-legged frog or other special-status species from falling into them. If covering of trenches or pits is not feasible, wooden ramps or other structures of suitable surface that provide adequate footing for the California red-legged frog are to be placed in the trench or pit to allow for their unaided escape. Auger holes or fence post holes that are greater than 0.10 inch in diameter shall be immediately filled or securely covered so they do not become pitfall traps for the California red-legged frog or other special-status species. The designated biologist shall inspect the trenches, pits, or holes prior to their being filled to ensure there are no trapped wildlife in them. The trench, pit, or hole shall also be examined by the designated biologist each workday morning prior to initiation of work, and in the late afternoon no more than 1 hour after work has ceased to ascertain whether any individuals have become trapped. If the escape ramps fail to allow the animal to escape, the designated biologist shall remove and transport the animal to a safe location or contact the USFWS for guidance.

Mitigation Measure BIO-12. Erosion Control Material

Plastic monofilament netting (erosion control matting), loosely woven netting, or similar material in any form shall not be used at the Project site because California red-legged frogs can become entangled and trapped in them. Any such material found on-site shall be immediately removed by the designated biologist, construction personnel, or EBMUD. Materials utilizing fixed weaves (strands cannot move), polypropylene, polymer, or other synthetic materials shall not be used.

Mitigation Measure BIO-13. Waste Management

Uneaten human food and trash attracts crows, ravens, coyotes, and other predators of the California red-legged frog and other wildlife. A litter control program shall be instituted at the Project site. All workers shall ensure their food scraps, paper wrappers, food containers, cans, bottles, and other trash are deposited in covered or closed trash containers. The trash containers shall be removed from the Project site at the end of each working day.

Mitigation Measure BIO-14. Procedures for Encounters with California Red-Legged Frog

Each encounter with the California red-legged frog will be treated on a case-by-case basis in coordination with the USFWS, but the general procedure is as follows: (1) the animal will not be disturbed if it is not in danger; or (2) the animal will be moved to a secure location if it is in any danger. These procedures are further described below:

- When a California red-legged frog is encountered in the Project area, all activities which have the potential to result in the harassment, injury, or death of the individual shall be immediately halted. The designated biologist will then assess the situation in order to select a course of action that will avoid or minimize adverse effects to the animal. To the maximum extent possible, contact with the animal will be avoided and the applicant will allow it to move out of the potentially hazardous situation to a secure location on its own volition. This procedure applies to situations where a California red-legged frog is encountered while it is moving to another location and is actively dispersing. It does not apply to animals that are uncovered or otherwise exposed or in areas where the individual is not expected to move on its own and may be in danger (e.g., within the fenced construction perimeter).
- California red-legged frogs that are in danger (e.g. animals that are uncovered or otherwise exposed or in areas within the fences construction perimeter where the individual is not expected to move on its own) shall be relocated and released by the designated biologist outside the construction area within the same habitat. Prior to the initial ground disturbance, the designated biologist will obtain approval of the relocation protocol from the USFWS and CDFW in the event that a California red-legged frog is encountered and needs to be moved away from the Project site. California red-legged frog shall be released in appropriate habitat nearby on the EBMUD watershed. The designated biologist will limit the duration of the handling and captivity of the California red-legged frog to the minimum amount of time necessary to complete the task. The applicant will immediately notify the USFWS and CDFW once the California red-legged frog is relocated and the site is secure.

Because the mitigation measures listed above reduce potential construction impacts on California red-legged frog and relocate any California red-legged frog out of harm's way to minimize impacts, the impact to California red-legged frog individuals would be less than significant. The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented. The impact would be less than significant with mitigation.

Potential Impacts on California Red-legged Frog Habitat. No ponds or other suitable aquatic habitat for California red-legged frog are located within the Solar Development Area. The Solar Development Area is located approximately 250 feet west and downgradient of a pond that is occupied by the California red-legged frog, and breeding has been documented within this

pond in the past. Grading of the Project site would not affect conditions within the pond that is assumed to be occupied by California red-legged frog because the Project area does not drain to the pond. The seasonal pond located south of the Solar Development Area and San Pablo Creek provide suitable habitat for California red-legged frog, and the water resources are located downgradient from the area of proposed grading. Sedimentation from grading at the proposed Project site has the potential to degrade California red-legged frog habitat. EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project. Implementation of Section 1.3A, Stormwater Management of EBMUD's Standard Construction Specification 01 35 44 requires preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) including:

- Contractor shall maintain proper control of the discharge at the discharge point to prevent erosion, scouring of bank, nuisance, contamination, and excess sedimentation in the receiving waters.

Section 1.3A, Storm Water Management, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, and requires implementation of erosion and sediment controls (e.g., silt fencing, straw wattles, hay bales, and track-out control), which would avoid discharge of sediment to California red-legged frog habitat. The impact on California red-legged frog habitat would be less than significant with implementation of EBMUD Construction Specifications.

Alameda Whipsnake (Less than Significant Impact with Mitigation Incorporated)
Species Potential on Project Site. The Project site is located within designated critical habitat (USFWS, n.d.) for Alameda whipsnake. Primary constituent habitat elements for the Alameda whipsnake include: (1) scrub/shrub communities with a mosaic of open and closed canopy, (2) woodland or annual grassland plant communities contiguous to lands containing scrub/shrub communities with a mosaic of open and closed canopy, and (3) lands containing rock outcrops, talus, and small mammal burrows within or adjacent to scrub/woodland/grassland communities. The Project site does not contain any rock outcrops and there are a low number of small mammal burrows present on-site. Soils on the Project site have been disturbed by ongoing cattle grazing and previous use as a material storage area. A controlled burn was conducted on the property in 2018.

While no Alameda whipsnakes were observed during field visits to the site, there have been numerous local occurrences recorded by EBMUD and listed within the CNDDB for the species in the Project vicinity. The Project site contains 0.7 acre of scrub habitat, which is mapped by EBMUD as Alameda whipsnake core habitat. The remainder of the Project site consists of grassland habitat with a small area of mixed oak woodland. The Project site contains a matrix of habitat elements that could be used by Alameda whipsnake, and the grassland areas could be used for dispersal between Alameda whipsnake core habitat areas. Due to the location of the Project on critical habitat for the Alameda whipsnake and the presence of core scrub habitat within the Project site, there is high potential for the whipsnake to occur on this site.

Potential Impacts on Individual Alameda Whipsnake. Construction activities could result in the harm to Alameda whipsnake should they occur within the Project site during construction. As described above, the Project site provides suitable dispersal habitat for Alameda whipsnake and a small area of core habitat. If an Alameda whipsnake occurred on-site at the time of construction, the Alameda whipsnake could be crushed or injured by heavy construction equipment during earthwork and installation of solar panels and associated electrical equipment. Alameda whipsnake could also become trapped in open excavations or erosion control material or subject to increased predation as a result of construction activities. To mitigate potentially significant impacts on individual Alameda whipsnake, EBMUD would implement Mitigation Measure BIO-2, Mitigation Measure BIO-3, Mitigation Measure BIO-5, Mitigation Measure BIO-6, Mitigation Measure BIO-9, Mitigation Measure BIO-11, Mitigation Measure BIO-13, Mitigation Measure BIO-15, Mitigation Measure BIO-16, and Mitigation Measure BIO-17. These mitigation measures would reduce impacts on Alameda whipsnake by requiring:

- Worker training to include training about Alameda whipsnake (Mitigation Measure BIO-2);
- Installation of exclusion fencing to prevent Alameda whipsnake from entering the site (Mitigation Measure BIO-3);
- Designation of an USFWS-approved biologist and granting the designated biologist the authority to halt construction (Mitigation Measure BIO-5 and BIO-6);
- Biological monitoring by a designated biologist during ground-disturbing activities (Mitigation Measure BIO-9);
- Covering and inspecting open excavations (Mitigation Measure BIO-11);
- Management of trash to reduce potential for predation (Mitigation Measure BIO-13);
- Preconstruction surveys for Alameda whipsnake (Mitigation Measure BIO-15);
- Time construction to start during Alameda whipsnake active period, to the extent feasible (Mitigation Measure BIO-16); and
- Procedures for disposition of Alameda whipsnake should they occur in the area at the time of construction (Mitigation Measure BIO-17).

Mitigation Measure BIO-15. Alameda Whipsnake Pre-Construction Survey

> No more than twenty-four (24) hours prior to the date of initial ground disturbance, a preconstruction survey for Alameda whipsnake (*Masticophis lateralis euryxanthus*) shall be conducted by a designated biologist at the Project site.
>
> The survey shall consist of walking the Project limits and within the Project site to ascertain the possible presence of Alameda whipsnake. The designated biologist shall investigate all potential areas that could be used by the species for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows, such as for California ground squirrels or gophers.

If any Alameda whipsnake are found, the designated biologist shall follow the procedures defined in Mitigation Measure Biology-17 for encounters with Alameda whipsnake.

Mitigation Measure BIO-16. Timing Construction Commencement during Alameda Whipsnake Active Period

To the extent feasible, initial ground-disturbing activities would be timed between April 1 and October 31 when Alameda whipsnake are most active. EBMUD will ensure that daily monitoring by the designated biologist is completed for Alameda whipsnake during all initial ground-disturbing activities.

Mitigation Measure BIO-17. Procedures for Encounters with Alameda Whipsnake

Each encounter with the Alameda whipsnake will be treated on a case-by-case basis in coordination with the USFWS, but the general procedure is as follows: (1) the animal will not be disturbed if it is not in danger; or (2) the animal will be moved to a secure location if it is in any danger. These procedures are further described below:

- When an Alameda whipsnake is encountered in the Project area, all activities which have the potential to result in the harassment, injury, or death of the individual shall be immediately halted. The designated biologist will then assess the situation in order to select a course of action that will avoid or minimize adverse effects to the animal. If Alameda whipsnake is encountered within the exclusion fencing, the designated biologist will relocate the individual outside of the fencing. Contact with the animal will be avoided when Alameda whipsnake is moving out of the construction area on its own volition, prior to installation of exclusion fencing.
- Alameda whipsnakes that are in danger (e.g. animals that are uncovered or otherwise exposed or in areas of immediate construction where the individual is not expected to move on its own) shall be relocated and released by the designated biologist outside the construction area within the same habitat. Prior to the initial ground disturbance, EBMUD will obtain approval of the relocation protocol from the USFWS and CDFW in the event that an Alameda whipsnake is encountered and needs to be moved away from the Project site. Alameda whipsnake shall be released in appropriate habitat nearby on the EBMUD watershed. The designated biologist will limit the duration of the handling and captivity of the Alameda whipsnake to the minimum amount of time necessary to complete the task. The applicant will immediately notify the USFWS and CDFW once the Alameda whipsnake is relocated and the site is secure.

Because the mitigation measures listed above either avoid construction impacts on Alameda whipsnake or minimize impacts on Alameda whipsnake by relocating them out of harm's way, the construction impact on Alameda whipsnake individuals would be less than significant.

The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented. The impact would be less than significant with mitigation.

Impacts on Alameda Whipsnake Habitat. Construction of the Project would require clearing of vegetation and minor re-grading of areas of solar panel installation. Construction activities would temporarily disturb approximately 23.6 acres. After construction of the Project is complete, the site would be allowed to revegetate with grassland and shrub vegetation, which would be compatible with the solar facility. Poison oak scrub would re-establish in more shady areas. A study conducted by National Renewable Energy Laboratories on a similar solar facility supporting grassland vegetation in Jefferson County, Colorado, found that grassland vegetation cover was 90 percent within 3 years after solar facility installation (National Renewable Energy Laboratory, 2017). The impacts on grassland and shrub vegetation communities are expected to be temporary due to the documented success of revegetation efforts at comparable solar facilities and the rapid revegetation of the Project site after a controlled burn in 2018. Oak woodland vegetation communities would be expected to be replaced with grassland vegetation. Trees would be removed from the area because the trees would shade the panels and would not be compatible with the solar facility.

Permanent impacts on Alameda whipsnake habitat would occur at the equipment pads, control building, access roads, and solar panel foundations. The Project would result in temporary impacts on approximately 23.6 acres of suitable habitat for Alameda whipsnake and permanent impacts on approximately 1 acre of suitable habitat. Temporary and permanent impacts on Alameda whipsnake habitat would be a significant impact due to the critical habitat designation of the site. EBMUD would implement Mitigation Measure BIO-18 to mitigate impacts on Alameda whipsnake habitat by compensating the loss of habitat through purchasing credits at a conservation or mitigation bank.

Mitigation Measure BIO-18. Habitat Compensation

> To mitigate impacts on Alameda whipsnake-designated critical habitat due to construction and operation of the Project, EBMUD shall obtain habitat credits for habitat suitable for the species from a conservation or mitigation bank at a minimum ratio of 0.5:1 for temporary impacts and 3:1 for permanent impact (habitat developed: habitat credit purchased), or at the ratio required by CDFW and USFWS. The habitat credits shall cover any temporary and permanent loss of habitat that may occur or other habitat disturbances requiring mitigation by CDFW and/or USFWS.

Because Mitigation Measure BIO-18 requires EBMUD to provide compensatory mitigation for all temporary and permanent impacts on Alameda whipsnake habitat, the impact on Alameda whipsnake habitat would be less than significant with mitigation. The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented. EBMUD would also comply with the conditions of any state or federal incidental take permit and/or biological opinion for Alameda whipsnake, including conditions for habitat mitigation.

Special-Status Nesting Birds (Less than Significant Impact)

Impacts on Individuals. Avian species are protected under the Migratory Bird Treaty Act (MBTA) and have a high potential to nest within the Project site. Special-status short-eared owl, yellow warbler, grasshopper sparrow, golden eagle, long-eared owl, olive-sided flycatcher, white-tailed kite, bald eagle, and loggerhead shrike also have a potential to nest within the riparian, oak woodland, or grassland habitats on and near the Project site.

Disruption of nesting birds could occur as a result of increased human activity (e.g., the use of heavy equipment and human traffic) during the breeding season (approximately February through August). Tree and shrub removal, ground disturbance, and equipment movement could cause destruction of eggs or occupied nests, direct mortalities of young, and the abandonment of nests with eggs or young birds prior to fledging. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, of this standard construction specification includes the following provisions:

- Before beginning construction, all Contractor construction personnel are required to attend an environmental training program (provided by EBMUD) of up to 1 day for site supervisors, foremen, and Project managers and up to 30 minutes for non-supervisory Contractor personnel. The training program will be completed in person or by watching a video, at a District designated location, conducted by a qualified biologist. The program will discuss all sensitive habitats and sensitive species that may occur within the Project work limits, including the responsibilities of Contractor's construction personnel, applicable mitigation measures, and notification requirements. The Contractor is responsible for ensuring that all workers requiring training are identified to EBMUD. The training will include a description of the nesting birds of the Migratory Bird Treaty Act (MBTA), including natural history and habitat, the general protection measures to be implemented to protect the MBTA bird species, and a delineation of the limits of the work areas.
- It is unlawful to pursue, hunt, take, capture, or kill any migratory bird without a permit issued by the U.S. Department of the Interior.
- If construction commences between February 1 and August 31, during the nesting season, EBMUD will conduct a preconstruction survey for nesting birds within 7 days prior to construction to ensure that no nest will be disturbed during construction.
- If active nests of migratory bird species (listed in the MBTA) are found within the Project site, or in areas subject to disturbance from construction activities, an avoidance buffer to avoid nest disturbance shall be constructed. The buffer size will be determined by the EBMUD in consultation with California Department of Fish and Wildlife (CDFW) and is based on the nest location, topography, cover, and species' tolerance to disturbance.

- If an avoidance buffer is not achievable, a qualified biologist provided by EBMUD will monitor the nest(s) to document that no take of the nest (nest failure) has occurred. Active nests shall not be taken or destroyed under the MBTA and, for raptors, under the CDFW Code. If it is determined that construction activity is resulting in nest disturbance, work should cease immediately and the Contractor shall notify the Engineer who will consult with the qualified biologist and appropriate regulatory agencies.
- If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by special-status birds or that are located outside the avoidance buffer for active nests may be removed. Nests initiated during construction (while significant disturbance from construction activities persist) may be presumed to be unaffected, and only a minimal buffer, determined by EBMUD's biologist, would be necessary.

Because Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project and includes provisions for preconstruction nesting bird surveys, avoidance of construction during the nesting season, and delineation of avoidance buffer zones, impacts to migratory birds, including destruction of potential nesting habitat, eggs or occupied nests, direct mortalities of young, and the abandonment of nests with eggs or young birds prior to fledging, would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists applicable specification language.

Impacts on Nesting Bird Habitat. Short-eared owl and yellow warbler have the potential to occur in riparian habitat near the Project site and the wetland habitat within the Project site. Neither species has been observed on the site and neither species was observed during surveys. The Project would impact less than 0.05 acre of suitable habitat for short-eared owl and yellow warbler. Impacts on less than 0.05 acre of suitable habitat for short-eared owl and yellow warbler would have a less than significant impact on the species due to the abundance of higher value riparian and wetland habitat along the nearby creek corridors that would be unaffected by the Project.

Grasshopper sparrow, golden eagle, long-eared owl, olive-sided flycatcher, white-tailed kite, bald eagle, and loggerhead shrike have the potential to nest and forage in grassland and oak woodland habitat on the Project site. None of these species have been documented on the site, nor were the species observed on the site during surveys. The impacts on grassland habitat within the Project site would be temporary because grassland vegetation would be allowed to re-establish after construction. Approximately 35 mature trees would be removed to construct the solar facility. The trees would not be allowed to re-establish after construction. The removal of approximately 35 mature trees would not have a significant effect on any special-status bird

species because there are thousands of acres of undeveloped oak woodland habitat available for these species to use in the surrounding watershed.

Roosting Bats (Less than Significant with Mitigation)

Roosting (shelter) habitat is present for bat species at the Project site. Roosting bat species typically use buildings, trees, bridges, and rock crevices for roost habitat. Bats use different roosts for different purposes, but common to all are an appropriate temperature regime and protection from predators and undesirable weather. During the summer when bats are most active and raising their young, they frequently use one roost during the day where they sleep and keep their young, and another roost at night for resting and digesting food. Day roosts tend to be cryptic and concealed; night roosts are more open and exposed. Both day roosts and night roosts can be used by multiple species, and fidelity to both kinds of roosts can be very high.

The pallid bat has a high potential to occur at the Project site, as there is one CNDDB record of this species near the site, and mature oak trees may provide roosting habitat for this species. Western red bat has a moderate potential to occur on the Project site because the mature oak trees provide suitable habitat for the species. Construction activities may result in the removal or disturbance of hibernation or maternal roost sites, if they are present at the Project site. The Project may result in direct mortality and reduction in the reproductive success of roosting bats. Disturbances to roosting habitat of any bat species (not just special-status species bats) are considered potentially significant impacts.

Bats typically forage in and over woodlands, scrub, pasture lands, field margins, and water. Suitable foraging habitat is located directly adjacent to the Project sites. However, bats typically forage 1 to 5 miles from day and night roosts. Because bats are able to travel great distances to forage, potential impacts to bat foraging habitats are considered less than significant.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, of this standard construction specification includes the following provisions:

- Before beginning construction, all Contractor construction personnel are required to attend an environmental training program (provided by EBMUD) of up to 1 day for site supervisors, foremen, and Project managers and up to 30 minutes for non-supervisory Contractor personnel. The training program will be completed in person or by watching a video, at a District designated location, conducted by a qualified biologist. The program will discuss all sensitive habitats and sensitive species that may occur within the Project work limits, including the responsibilities of Contractor's construction personnel, applicable mitigation measures, and notification requirements. The Contractor is responsible for ensuring that all workers requiring training are identified to EBMUD. The training will include a description of roosting bats, including natural history and habitat, the general

protection measures to be implemented to protect the bat species, and a delineation of the limits of the work areas.

- If construction commences between March 1 and July 31, during the bat maternity period, EBMUD will conduct a preconstruction survey for roosting bats within 2 weeks prior to construction to ensure that no roosting bats will be disturbed during construction.
- If roosting surveys indicate potential occupation by a special-status bat species, and/or identify a large day roosting population or maternity roost by any bat species within 200 feet of a construction work area, a qualified biologist provided by EBMUD will conduct focused day- and/or night-emergence surveys, as appropriate.
- If active maternity roosts or day roosts are found within the Project site, or in areas subject to disturbance from construction activities, avoidance buffers shall be constructed. The buffer size will be determined by EBMUD in consultation with CDFW.
- If a non-breeding bat roost is found in a structure scheduled for modification or removal, the bats shall be safety evicted, under the direction of a qualified biologist provided by EBMUD in consultation with CDFW to ensure that the bats are not injured.
- If preconstruction surveys indicate that no roosting is present, or potential roosting habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by roosting bats or that are located outside the avoidance buffer for active roosting sites may be removed. Roosting initiated during construction is presumed to be unaffected, and no buffer would be necessary.

Because Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, will be implemented as part of the Project, which addresses impacts to roosting bats and includes provisions for preconstruction roosting bat surveys, avoidance of construction during bat roosting season, delineation of avoidance buffer zones, and roosting monitoring during construction, the impact related to roosting bats is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

American Badger and Ring-tailed Cat (Less than Significant with Mitigation)

American badger and ring-tailed cat were not documented on the Project site during surveys and there are no records of either species in the Project vicinity; however, the Project site provides suitable habitat and the Project is within the range of both species. American badger and ring-tailed cat have a moderate potential to occur in the grassland and woodland habitat on the Project site. American badgers could potentially occupy dens in open grassland areas and ring-tailed cats have the potential to nest in the trees on the Project site. The Project could result in a significant impact on American badger or ring-tailed cat through loss of a den or nest, if one

were to occur on the Project site at the time of construction. EBMUD would implement Mitigation Measure BIO-2, Mitigation Measure BIO-3, and Mitigation Measure BIO-19 to mitigate impacts on American badger and ring-tailed cat.

Mitigation Measure BIO-19. American Badger and Ring-Tailed Cat.

- A qualified biologist shall conduct a pre-activity survey for active American badger dens and ring-tailed cat nests within 30 days prior to grading or vegetation clearing. The pre-activity survey area shall occur within potentially suitable habitat for American badger and ring-tailed cat (e.g., grasslands and woodlands) located within 250 feet of work areas where grading or land vegetation clearing may occur.
- EBMUD may use cameras to determine if dens are active. If active dens are identified at any time during construction, the dens shall be flagged and avoided. A 250-foot work restriction buffer shall be established around active maternal dens of the American badger or nests of the ring-tailed cat. For non-maternal dens or nests, a 50-foot work restriction buffer shall be established around active dens or nests. Smaller buffers may be established through consultation with CDFW. If an active non-maternal den cannot be avoided, EBMUD would implement passive exclusion techniques, such as sealing the den or tree cavity containing the nest after animals have vacated, or other passive exclusion techniques determined through consultation with CDFW.
- A qualified biologist shall inspect construction activities near active American badger dens or ring-tailed cat nests on a weekly basis to ensure the work restriction buffers are implemented appropriately and active dens and nests are avoided.

Because EBMUD would be required to provide worker training to avoid American badger and ring-tailed cats, install exclusion fencing to prevent American badger from entering the work area, and conduct a preconstruction survey for American badger and ring-tailed cat to identify any potential dens of either species and establish buffers, if appropriate, the impact on American badger and ring-tailed cat would be less than significant. The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented.

San Francisco Dusky-footed Woodrat (Less than Significant with Mitigation)

San Francisco dusky-footed woodrats are assumed to be present on the Project site due to the presence of woodrat nests and the known occurrence of San Francisco dusky-footed woodrat in the region. Project construction could result in disturbance or removal of a woodrat nest or direct mortality of a woodrat during vegetation removal, grading, and heavy equipment activity. The potential impacts on San Francisco dusky-footed woodrat could be significant. EBMUD would implement Mitigation Measure BIO-2 and Mitigation Measure BIO-20 to mitigate impacts on San Francisco dusky-footed woodrat.

Mitigation Measure BIO-20. San Francisco Dusky-Footed Woodrat.

- A preconstruction survey shall be performed by a qualified biologist (EBMUD) within 7 days prior to the start of ground-disturbing activities to identify the locations of active species' nests within the Project boundary. Any nests detected shall be mapped and flagged for avoidance by the qualified biologist (EBMUD).
- If active nests are determined to be present, avoidance measures shall be implemented first. Because San Francisco dusky-footed woodrats are year-round residents, avoidance mitigation is limited to restricting Project activities to avoid direct impacts to San Francisco dusky-footed woodrats and their active nests to the extent feasible. A minimum 10-foot buffer should be maintained between Project construction activities and each nest to avoid disturbance. In some situations, a smaller buffer may be allowed if, in the opinion of a qualified biologist (EBMUD), removing the nest would be a greater impact than that anticipated as a result of Project activities.
- If an unoccupied nest is found within the Project site and it cannot be avoided, the nest should be disassembled by hand by a qualified biologist (EBMUD). The nest materials should be relocated off-site outside of the wildlife exclusion fencing to prevent rebuilding.
- If occupied nests are found within the Project site, and a litter of young is found or suspected, the nest shall be left alone for 2 to 3 weeks before a recheck to verify that young are capable of independent survival before proceeding with nest dismantling. Dismantling shall be done by hand, allowing any animals to escape either along existing woodrat trails or toward other available habitat.
- EBMUD shall notify CDFW of any nests, unoccupied or occupied, before they are dismantled.

Because workers would receive adequate training to avoid unauthorized impacts to San Francisco dusky-footed woodrat and EBMUD would conduct preconstruction survey(s) for San Francisco dusky-footed woodrat to identify any nests for avoidance or dismantling prior to construction, impacts on San Francisco dusky-footed woodrat would be less than significant. The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented.

Operation and Maintenance

Impacts on special-status species are summarized in Table 3.4-3. Special-status wildlife species could be impacted by operation and maintenance activities including inspections, vegetation management, equipment maintenance, accidental spills of hazardous materials, and from trash generated during operation and maintenance activities. These activities could also result in loss of or damage to suitable breeding habitat or foraging habitat, destruction of nests or burrows, and could cause mortality or injury to species located in the Project area or access routes. Potential impacts of operation and maintenance activities are discussed separately below.

Panel Washing and Maintenance Activities (Less than Significant)
The solar facility would be remotely operated. Because vegetation would be allowed to regrow under the solar panels, the Project could result in reintroduction of vegetation and wildlife species to the Project area. Maintenance would occur as needed, approximately eight visits per year (one visit for panel washing, two visits for vegetation management, and five visits for general maintenance dispatch). The level of activity for operation and maintenance of the facility would be similar to the activity level on the site under existing conditions, which includes cattle grazing. Because the activity level on the site would not change during operations and maintenance, the Project would not have a new or increased impact on any special-status species. The operation and maintenance impact would be less than significant.

Bird and Bat Collisions (Less than Significant with Mitigation)
It has been hypothesized that PV solar arrays could be an attractant to birds, who might detect an array of panels as water (i.e., "lake effect hypothesis"), attempt to land there, and collide with or be trapped among panels or other infrastructure at PV solar facilities (Lovich, 2011) (Bureau of Land Management and U.S. Department of Energy, 2012) (Kagan, 2014). When oriented in a horizontal position, reflective solar panels could mimic the "lake effect," in which birds and their insect prey can mistake them for a water body, or "spot water ponds," and collide into the hard panel surfaces resulting in death. However, there is limited data available to determine the rate of mortality of birds at PV solar facilities, and even less to evaluate whether birds killed at those facilities were attracted to the appearance of water there.

Walston et al. (Walston, 2016) reviewed information on the "lake effect hypothesis" and synthesized available information on avian monitoring and mortality at three utility-scale solar energy facilities in the U.S., including one PV solar facility and two concentrating solar power facilities. After adjusting to account for average searcher efficiency and average carcass persistence, Walston et al. (2016) estimated that annual rates of avian mortality attributed to the PV solar facility ranged from 0.5 to 10.7 birds per MW per year. It was noted in the study that this rate of mortality is far lower than other common causes of avian mortality. There is currently insufficient information available on avian mortality at PV solar facilities to quantify the expected rate of avian mortality; however, the risk is relative to the size of the facility, and studies of avian mortality have been primarily focused on large utility-scale (100 MW or larger) solar facilities in the southern California desert.

Aside from the potential "lake effect," avian species may potentially collide with the Project's PV panels. Avian mortality resulting from collision with man-made structures is typically highest when projects are sited in areas of high bird use. The location of a solar energy facility relative to wetlands, riparian areas, migration corridors, and other avian habitat features could influence the rate of avian mortality (Lovich, 2011; Walston, 2016). The Project site is located adjacent to riparian corridors including San Pablo Creek. The Project site is also in proximity to Briones Reservoir and San Pablo Reservoir. Water birds are likely to occur in riparian habitat adjacent to the Project site and migrate over the Project site. The proposed PV panels would be mounted approximately 8 feet off the ground and the top of the panels would extend up to approximately 14 feet at maximum tilt. The low-lying panels would be less likely to cause avian

collisions than taller structures (e.g., buildings); however, the approximately 13 acres of Project solar panels would present a new collision risk to special-status birds that could occur in the area.

A laboratory study of bat response to solar PV panels showed that bats attempted to drink from the panels and, if vertically aligned, occasionally collided with them when attempting to fly through them, with juvenile bats more prone to this behavior (Grief, 2010). It should be noted this experiment relied on bats needing to drink, and therefore the bats had water withheld from them during the day and were released into the flight room in the condition they would be in after roosting for the day. A similar study assessed the ability of bats to tell the difference between water and smooth surfaces in the wild (Russo D, 2012). In the experiment, an existing water trough used by bats was covered with Perspex (commonly referred to as acrylic glass) and another left open. A third water trough was half covered in Perspex, with the other half left open. There was no difference in numbers of bats visiting each trough. However, the authors found that having had a number of failed drinking attempts from the Perspex side of the trough, the bats would either return to drink from the water side of the trough or leave the site in search of water elsewhere. There was no mention of bats colliding with the Perspex. Existing evidence on bat response to solar facilities is not conclusive, and impacts to individual bats from collisions could occur over the life of the Project.

Collision of special-status birds or bats with the PV panels and subsequent mortality of birds or bats would be a significant impact. EBMUD would implement Mitigation Measure BIO-21 to mitigate impacts from bird and bat collisions with the Project.

Mitigation Measure BIO-21. Bird and Bat Conservation Strategy.

> At least 60 days prior to construction, a draft Bird and Bat Conservation Strategy (BBCS) shall be prepared and submitted for review and approval to the CDFW and USFWS. The BBCS shall include, but not be limited to, the following strategies to be implemented before, during, and after Project operations:
>
> - At least one month of preconstruction avian and bat surveys shall be performed, the protocols for which will be detailed in the approved BBCS, to assess baseline avian abundance and activity patterns on-site
> - A statement of the EBMUD's understanding of the importance of bird and bat safety and commitment to remain in compliance with relevant laws
> - Documentation of conservation measures EBMUD would implement through design and operations to avoid and reduce bird and bat fatalities at the solar facility, including consideration of bird height and wingspan requirements and use of flight diverters, perch and nest discouraging material, etc.
> - Consistent, practical, and up-to-date direction to the solar contractor's staff on how to avoid, reduce, and monitor bird and bat fatalities
> - Establishment of accepted processes to monitor and mitigate bird and bat fatalities

- A threshold of 10 non-special-status bird fatalities annually or any special-status bird fatalities, that if surpassed, would trigger adaptive changes to management and mitigation management in coordination with CDFW and USFWS
- An adaptive management framework to be applied, if thresholds are surpassed
- A three-year post-construction monitoring study

The BBCS would be considered a "living document" that articulates EBMUD's commitment to develop and implement a program to increase avian and bat safety and reduce risk. As progress is made through the program or challenges are encountered, the BBCS may be reviewed, modified, and updated.

Because EBMUD would prepare and implement a BBCS that includes monitoring of all bird and bat mortality as well as measures to avoid and reduce mortality risks and compensate for bird or bat fatality, the impact on birds and bats would be less than significant with mitigation. The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented.

B) Less than Significant with Mitigation Incorporated

Construction

A review of the CNDDB and California Natural Community List determined that no state-recognized sensitive natural communities occur within the Project site. No riparian habitats were mapped within the Project site. The Project would not have a substantial adverse effect on riparian habitat because the Project would avoid riparian habitat. Oak woodland habitat occurs at the southeastern end of the Project site and is identified as a sensitive natural community by the City of Orinda (City of Orinda, 1987). The Project would require removal of 23 mature oak trees and would impact approximately 0.36 acre of sensitive oak woodland habitat (Figure 3.4-13). The impact on sensitive oak woodlands would be a significant impact. EBMUD would mitigate impacts on oak woodlands through implementation of Mitigation Measure BIO-22.

Mitigation Measure BIO-22. Mitigation for Oak Woodland Habitat

> The loss of oak woodland habitat shall be mitigated on EBMUD watershed through planting of oak woodland vegetation and establishment of new oak woodland habitat. Oak trees shall be replaced at a 5:1 ratio with five oak trees planted for each oak tree removed. Prior to on-site habitat replacement, EBMUD restoration consultant shall prepare an oak mitigation plan that defines the species that shall be planted and the methods for planting, monitoring, and maintenance to ensure effectiveness of the oak replacement efforts. Alternatively, EBMUD may mitigate through off-site compensation of oak woodland habitats. Off-site compensation may include the permanent protection of an off-site population of oak woodland habitat through a conservation easement or the purchase of mitigation banking credits at a 2:1 ratio (2 acres preserved for each acre impacted).

Because EBMUD would compensate for impacts on oak woodlands by planting oak trees in a designated area on-site or protecting off-site oak woodlands in perpetuity through a

conservation easement or mitigation bank, impacts on sensitive vegetation communities would be less than significant. The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented.

Operation

All operation and maintenance activities would be conducted within the solar facility fenced area and by utilizing Project access roads. No riparian habitat or other sensitive habitat would occur in the Project area after the Project is constructed. Operation and maintenance would not impact riparian habitat or other sensitive natural communities. No impact would occur.

C) Less than Significant with Mitigation.

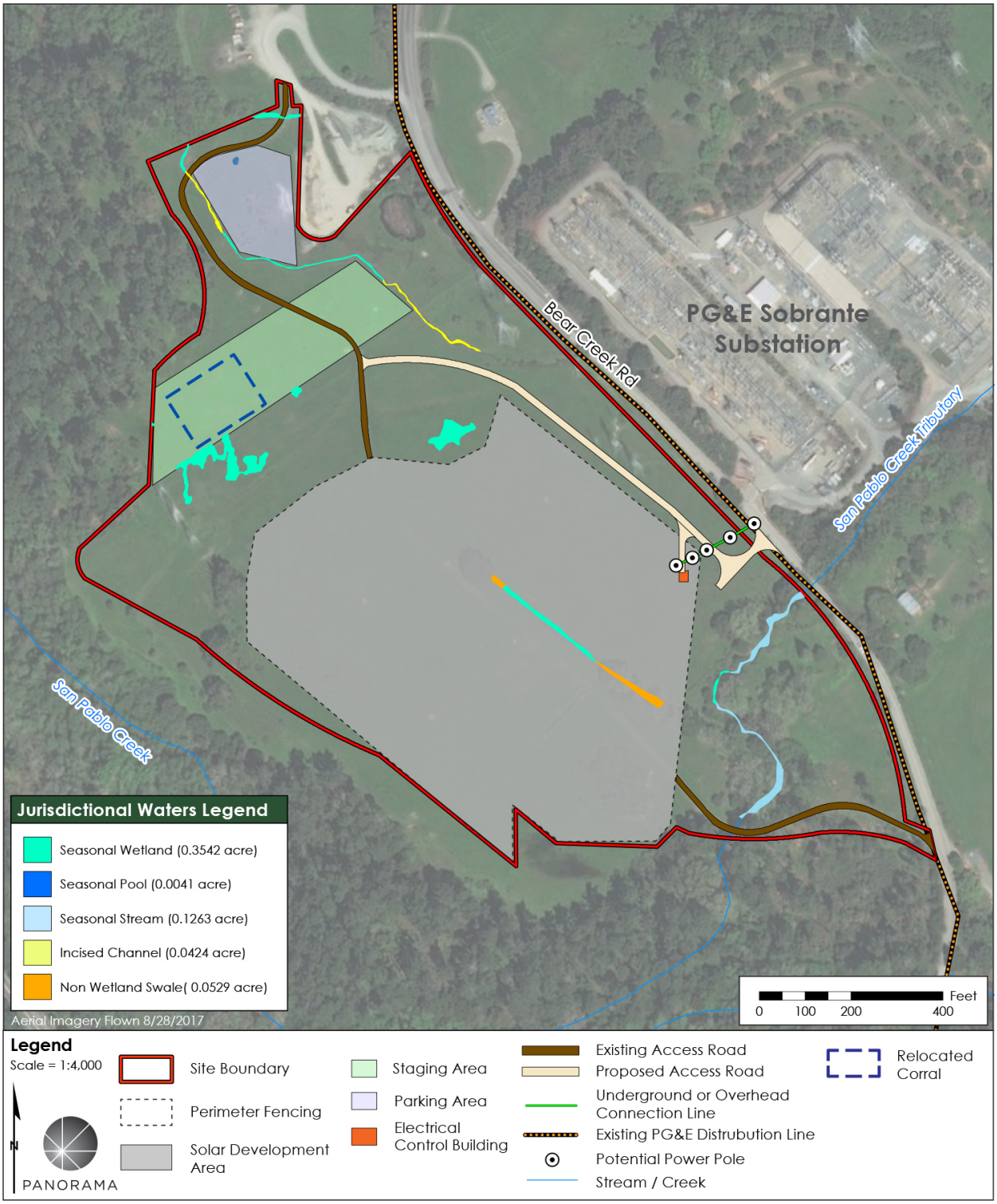
Direct Impacts

Potentially jurisdictional wetland and water resources within and adjacent to the Project site are shown on Figure 3.4-14. Seasonal wetlands occur within the Project site. Vegetation removal and site grading activities would fill wetland habitats within the Project site and convert the habitat to non-wetlands. EBMUD is required to obtain permits pursuant to Section 401 and 404 of the Clean Water Act prior to any discharge of fill to jurisdictional wetlands. EBMUD will adopt a Project-specific specification that will allow the contractor to fill no more than 50 percent of the seasonal wetlands within the Solar Development Area. The Project would impact less than 0.5 acre of wetlands, which is the threshold to be eligible for Nationwide Permit 51 under Section 404. U.S. Army Corps of Engineers Nationwide Permit General Condition 23(c) states:

> Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 0.1 acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 0.1 acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

EBMUD would submit a Preconstruction Notification for the Project. EBMUD would comply with all Nationwide Permit conditions. EBMUD would also submit a permit application to the San Francisco Bay Regional Water Quality Control Board for a Water Quality Certification under Section 401. The San Francisco Bay Regional Water Quality Control Board has indicated that any impact to wetlands would be considered a significant impact by the Water Board. EBMUD would implement Mitigation Measure BIO-23, which requires compensation for all wetland impacts.

Figure 3.4-14 Potentially Jurisdictional Wetlands and Waters



Source: (USGS, 2018; Tele Atlas North America, Inc., 2018; EBMUD, 2018a; Vollmar Natural Land Consulting, 2018)

Mitigation Measure BIO-23. Compensation of Wetland Impacts

The permanent loss of wetlands shall be compensated through on-site enhancement or establishment of wetlands. Permanent impacts to wetlands shall be compensated through enhancement of wetlands at a minimum 2:1 ratio (enhancement:impact) or creation of wetlands at a minimum 1:1 ratio. All areas of temporary impact will be restored to preconstruction contours and habitat conditions. EBMUD will prepare a habitat mitigation plan that includes:

- Baseline conditions within the mitigation site
- Proposed mitigation site conditions
- Mitigation methods (e.g., habitat creation or enhancement)
- Performance standards/success criteria including a minimum of 70% vegetated cover with native wetland vegetation that are the target of the wetland creation and enhancement efforts and less than 3% invasive species cover
- Habitat maintenance including trash removal, invasive weed removal, and repair of any damage to the mitigation site
- Monitoring requirements including annual monitoring during the establishment period. The annual monitoring will include surveys for native vegetation cover, photo documentation at defined photo-monitoring locations, and monitoring for invasive species and any other habitat stressors. Monitoring will be conducted for the first five years or until success criteria are met.
- Reporting requirements, including an annual report to be submitted by January 31st following the reporting year. The annual report will need to provide the results of annual habitat monitoring, recommendations for any corrective actions needed to meet success criteria, and a description of any corrective actions taken in the previous reporting year.

Because Mitigation Measure BIO-23 requires compensatory mitigation for wetland impacts, the impact would be less than significant. In addition, EBMUD would comply with all requirement of any permit issued by the U.S. Army Corps of Engineers or San Francisco Bay Regional Water Quality Control Board for the Project.

Indirect Impacts

Indirect impacts to federally protected wetlands/waters may occur as a result of construction-related activities. Grading activities could potentially cause sedimentation and erosion and lead to discharge of earthen material to nearby wetlands or San Pablo Creek. Degradation of federally protected wetlands/waters would be a significant impact. EBMUD's Standard Construction Specification 01 35 44 requires submittal of a Stormwater Pollution Prevention Plan (SWPPP) and requires that the SWPPP shall conform to all State Water Resource Control Board requirements for a CGP SWPPP. The SWPPP requires:

- Contractor shall maintain proper control of the discharge at the discharge point to prevent erosion, scouring of bank, nuisance, contamination, and excess sedimentation in the receiving waters.

Because the EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, include preparation of and adherence to an SWPPP, which would require installation of erosion control BMPs to reduce off-site sedimentation and erosion, the indirect impacts to federally protected wetlands/waters would be less than significant. No mitigation is required.

D) Less than Significant Impact.

The Project avoids the riparian corridor along San Pablo Creek and tributary to San Pablo Creek. Construction of the Project would involve installation of temporary wildlife exclusion fencing during construction. Wildlife exclusion fencing could temporarily interfere with species' movement patterns by blocking species' entry into the Project site during construction; however, wildlife would be able to move around the site to reach adjacent habitat areas, and wildlife exclusion fencing would be removed following construction. Chain-link, or similar fencing, would be installed around the perimeter of the solar facility and would remain in place for the life of the Project. Chain-link fencing would not exclude birds or bats from traveling over the site and small wildlife, such as frogs and snakes, could easily move through the fencing and onto the site. Perimeter fencing would block large wildlife from entering the facility; however, mammals that occur in the Project area would be more likely to use woodland areas to the south and east of the Project to move around the site. The Project is not located in a wildlife corridor and would not block use of a wildlife corridor. No native wildlife nursery is located in the area. Impacts to wildlife movement and migratory corridors would be less than significant.

E) Less than Significant Impact.

City of Orinda General Plan

The Project would involve the removal of approximately 35 trees. The City of Orinda General Plan Environmental Resources Chapter sets forth policies for wildlife and wildlife habitats, which seek to maintain the variety of wildlife in the city's planning area through habitat preservation. These policies are achieved through the City's environmental review process and by the general plan designation of open space and parks. Conservation goals within the General Plan include maintaining wildlife by preserving habitats and minimizing impacts to creeks and reservoirs. Applicable guiding policies for biological resources listed within the plan include: 1) preservation of rare and endangered species; 2) preservation of valuable wildlife habitats and connecting open space to retain wildlife corridors; 3) preservation of oak woodlands and heritage trees; 4) protection of creeks and riparian areas from pollution, erosion, and siltation; and 5) support the preservation of EBMUD watershed lands and retain existing recreational open space.

Impacts A), B), C) and D) above detail how EBMUD impacts would preserve and protect sensitive habitats consistent with the General Plan policies for biological resources. The impact from conflict with the City of Orinda General Plan would be less than significant.

Orinda Municipal Code

Chapter 17.21 of the Orinda Municipal Code (OMC) requires a tree permit for removing or destroying a protected tree. The City of Orinda defines a protected tree as a live tree located on public or private property meeting one or more of the following standards:

1. A tree located on an assessor's parcel upon which there is an existing structure, which is of the following species and which has a trunk diameter equal to or greater than twelve (12) inches at 4.5 feet above its existing grade: valley oak (*Quercus lobata*), live oak (*Quercus agrifolia*), black oak (*Quercus kelloggii*), white oak (*Quercus garryana*), canyon oak (*Quercus chrysolepis*), blue oak (*Quercus douglasii*), interior live oak (*Quercus wislizenii*);
2. A tree of any size designated to be protected and preserved on an approved development plan or as a condition of approval of a tentative map, a tentative parcel map, or other development approval or land use entitlement or permit issued by the city;
3. A native riparian tree with a trunk diameter of four inches at 4.5 feet above its existing grade or a multitrunk native riparian tree with a cross-sectional area of all trunks equal to a cross-section area of a single stem of four inches at 4.5 feet above its existing grade. "Riparian tree" is a tree within thirty (30) feet of the edge of a creek bank or a tree beyond thirty (30) feet but in such proximity to a creek bank that it requires or tolerates soil moisture levels in excess of that available in adjacent uplands;
4. A tree with a trunk diameter equal to or greater than six inches in diameter at 4.5 feet above its existing grade on a vacant or undeveloped assessor's parcel, unless it is a tree identified on the Disallowed Plant List maintained by the Planning Department in conformance with OMC Section 8.20.070;
5. A replacement tree planted as restitution for an act in violation of the City of Orinda's tree ordinance (Chapter 17.21 of the OMC).

Construction of the Project would require the removal of approximately 35 mature trees. The trees that would be impacted by the Project are protected under the fourth standard listed above. In order to comply with OMC Chapter 17.21, EBMUD would obtain a tree removal permit from the City of Orinda and implement replacement planting in accordance with permit requirements, which are anticipated to include the following standards from Chapter 17.21.5 (F) of the OMC:

1. For each 6 inches or fraction thereof of the aggregate diameter of trees approved for removal, the applicant shall plant 1 native tree with a diameter no less than 0.75 inches. One-third of the replacement tree requirement may be fulfilled by planting native shrubs that mature at a height no less than five feet. The applicant may substitute a larger number of smaller trees or a smaller number of larger trees if approved by the Director based on a finding that tree replacement will be more beneficial to the health and vigor of all trees on the property.

2. If the development site cannot accommodate the replacement trees, with the written approval of the Director and the property owner, the applicant may plant the replacement trees on public or private property located in Orinda. Alternatively, the applicant may make an in lieu payment of one hundred twenty-five dollars ($125.00) for each replacement tree otherwise required. All in lieu payments shall be used for city landscape-related projects.

EBMUD would comply with all requirements of the City of Orinda tree removal permit. A portion of the replacement trees may include trees that are planned to be planted on-site in accordance with planned landscaping (refer to Section 2.4.7 Landscaping). EBMUD would consult with the City of Orinda Planning Director regarding the requirements for replacement trees, in accordance with Chapter 17.21.5 (F). Because EBMUD would comply with all City of Orinda tree replacement requirements, impacts from conflicts with the OMC would be less than significant.

F) Less than Significant.

The Project site is within the boundaries of the EBMUD Low-Effect Habitat Conservation Plan (HCP), which covers 28,200[12] acres of watershed lands in the San Francisco East Bay Area owned by EBMUD. The EBMUD Low-Effect HCP covers watershed maintenance activities that EBMUD must undertake to meet its various obligations as a public entity to provide water service to its customers in the East Bay. The EBMUD Low-Effect HCP does not provide coverage for the construction phase of new, permanent construction projects; therefore, Project construction activities would not qualify for coverage under the EBMUD Low-Effect HCP.

USFWS has indicated that operation and maintenance activities of the Project would not be covered by the EBMUD Low-Effect HCP; however, conflict with the EBMUD Low-Effect HCP would be a potentially significant impact. The EBMUD Low-Effect HCP covers impacts to special-status species from watershed land management activities such as stock pond management, access road and trail maintenance, cattle grazing, and vehicle strikes on EBMUD watershed roadways. The EBMUD Low-Effect HCP covers impacts to two plant and five animal species: pallid manzanita, Santa Cruz tarplant, rainbow trout, California red-legged frog, western pond turtle, pallid bat, and the Alameda whipsnake.

Pallid manzanita, Santa Cruz tarplant, and rainbow trout are absent from or have a low potential to occur on the Project site due to the absence of suitable habitat. Aquatic habitat for the California red-legged frog and western pond turtle occurs within San Pablo Creek and ponds adjacent to the Project site. There is possibility for dispersal of either species through the Project site. Measures to avoid and mitigate for construction impacts on the species are listed under Impact A), above. EBMUD would implement all applicable avoidance and minimization measures identified in the Low-Effect HCP during operation and maintenance activities that

[12] The size of the watershed at the time the HCP was prepared.

may impact California red-legged frog and western pond turtle. Pallid bats may be present within mature trees on the Project site; however, the EBMUD Low-Effect HCP's protection measures solely target the preservation of the nursery colony located in Pinole Valley. Approximately 0.7 acre of scrub habitat out of the 3,737 acres identified as core habitat for the Alameda whipsnake under the HCP is located within the Project site (EBMUD, 2010b). The EBMUD Low-Effect HCP identifies avoidance and minimization measures for site maintenance activities and mandates that no more than one percent of core habitat may be lost over the 30-year term of the HCP. The core scrub habitat area impacts would be 0.7 acre, and impacts would be mitigated through habitat compensation as detailed in Impact A) above. EBMUD would implement all applicable Low-Effect HCP avoidance and minimization measures for Alameda whipsnake. The Project would not conflict with the EBMUD Low-Effect HCP requirements for protection of HCP-covered species or habitat because EBMUD would comply with all applicable HCP avoidance and minimization measures; compensatory habitat mitigation defined under Impact A), above; and all compensatory mitigation as required by the HCP or as part of any state or federal incidental take permit. The impact would be less than significant.

No other HCP, Natural Communities Conservation Plan, or other approved local, regional, or state HCP has been adopted for the Project site. The Project would not conflict with the provisions of any other adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state HCP.

V. Cultural Resources

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?	☐	☐	☐	☒
B) Cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5?	☐	☐	☒	☐
C) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

Discussion

A) No Impact.

No historical resource as defined in Section 15064.5 occurs within the Project site. The Project site consists of EBMUD watershed land. A small corral used for cattle grazing is located on the site. The only structures present within the Project site include a corral and steel trough, which are both modern and not historical structures. Two historical buildings, the Orinda Park School Site (the location of the current Wagner School) and Rowland Ranch building, are located approximately 0.25 mile from the Project site, and the Project site would not be visible from

these resources due to topography and the presence of dense trees and vegetation between the Project site and the historical resources, thus resulting in no impact on historical resources.

B) and C) Less than Significant Impact.

EBMUD maintains an Archaeological Resources Geographic Information System (GIS) database that is updated annually with the results of a records search of the Northwest Information Center (NWIC) of the California Historical Resources Information System. A GIS survey of the Project site found no recorded occurrences of archaeological resources within the immediate vicinity (0.5 mile) of the Project. An archaeological resources survey was also conducted on the Project site on May 21 to 22 and July 27, 2018 (Basin Research Associates, 2018). No archaeological resources were documented within the Project site during pedestrian field surveys. No human remains have been encountered previously at the Project site and no burial sites are known to occur in the Project site based on a review of the Sacred Lands File (Basin Research Associates, 2018). While the potential is low, vegetation-removal activities and grading during construction may unearth previously undiscovered significant archaeological resources or human remains, thus resulting in a potentially significant impact.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.9, Protection of Cultural and Paleontological Resources, of the standard specification, which includes appropriate cultural resources management practices and complies with statutory requirements, outlines the following procedures:

- Preconstruction cultural resources training is required for all construction personnel.
- In the event that a cultural or paleontological resource is identified during preconstruction activities or during excavation for construction activities, all work within 100 feet of the resource shall be halted until a qualified archaeologist can review, identify, and evaluate the resource for its significance. Should the archaeologist determine that an archaeological resource has the potential to be a tribal cultural resource, a Native American monitor shall be retained by EBMUD to monitor work in the area where the tribal cultural resource was discovered.
- Discovery of human remains requires that all construction activities shall immediately cease at the location of discovery and within 100 feet of the discovery. EBMUD shall contact the County Coroner to determine whether or not the remains are Native American. If the remains are determined to be Native American, the Coroner shall contact the Native American Heritage Commission (NAHC). The NAHC shall then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to EBMUD for the appropriate means of treating the human remains and any associated funerary objects.

Because Section 3.9, Protection of Cultural and Paleontological Resources, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, and it requires implementation of archaeological resources procedures that address the inadvertent discovery of cultural resources and follows statutory law, the Project's impact related to cultural resources is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

VI. Energy Use

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 construction or operation?	☐	☐	☒	☐
B) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Discussion

A) Less than Significant Impact.

Construction

Equipment and vehicles used during construction of the Project would require energy, including gas, diesel, and motor oil. Construction worker vehicles would consume energy via combustion of petroleum products, including gas, diesel, and motor oil. Consumption of energy during construction would be temporary, lasting approximately 7 months, and would cease after the Project is completed. In addition to direct construction-related energy consumption, indirect energy use would be required to fabricate the materials and components installed during construction, including the control building and solar panels. Indirect energy use includes energy used for extraction of raw materials, manufacturing, and transportation associated with manufacturing. Fuel use would be consistent with typical construction and manufacturing practices and would not require excessive or wasteful use of energy that could lead to potentially significant environmental impacts. The impact would be less than significant due to the temporary consumption of energy during construction.

Operation

The solar array would require minimal maintenance, including panel washing and manual vegetation removal. The facility would be monitored remotely, and maintenance activities would only be conducted when needed. Maintenance activities would not require excessive or wasteful use of energy that could lead to potentially significant environmental impacts. Consumption of energy during operation would be far less than the amount of renewable energy generated by the solar facility. The operational impact would be less than significant because energy use during operation would be minimal.

B) No Impact.

Renewables Portfolio Standard Program
In 2011, Governor Brown codified Senate Bill (SB) X1-2, which revised renewable energy goals in the Renewables Portfolio Standard Program and increased the percentage of renewable energy in the state's electricity mix to 33 percent by 2020. In 2018, Governor Brown signed SB 100, which requires that all retail electricity be carbon-free by 2045. The Project would comply with the State's goal of increasing the use of renewable energy. No impact would occur.

California Energy Efficiency Strategic Plan
The California Energy Efficiency Strategy Plan was developed to provide a roadmap for energy efficiency in California through the year 2020 and beyond. The four programmatic goals identified in the plan are outside the purview of the Project. No impact would occur.

EBMUD Policy 7.07
The purpose of EBMUD's Policy 7.07 is to "encourage and promote energy management and energy efficient practices within EBMUD's water and wastewater system operations, service area, and watersheds, reduce GHG emissions, minimize reliance on fossil fuels, provide reliable energy sources, reduce energy costs, and support EBMUD's goal to be carbon free for indirect emissions and achieve a 50 percent reduction in direct emissions compared to 2000 levels by 2040, in accordance with EBMUD's environmental principles and sustainability policy." The Project is a solar facility that would offset EBMUD's use of energy and would be a source of renewable energy. The Project would help EBMUD comply with its energy efficiency and renewable energy goals. No impact would occur.

VII. Geology and Soils

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

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
B) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
C) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
D) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒
E) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
F) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature	☐	☐	☒	☐

Discussion

A) (i, ii, and iii) No Impact.

No known earthquake faults are located within the Project site. The closest earthquake fault to the Project site is the Hayward Fault, located approximately 3 miles to the west. The Project is located in an area that is subject to earthquakes, but the Project site is at low risk for liquefaction or seismic-related ground failure (USGS, 2006). The Project does not involve construction of habitable structures that could cause adverse effects involving earthquakes and strong seismic ground shaking. The nearest structure to the Project is a school located approximately 1,400 feet from the Project site. The Project would not cause risk of loss, injury, or death associated with seismic-related hazards, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, or seismic-related ground failure, because no people or structures would be located adjacent to the solar panels or interconnecting power line. No impact would occur.

A) (iv) No Impact.

The Project site has not historically been affected by landslides, nor has the area directly surrounding the Project. The Project site is located within an area of low landslide susceptibility (California Geological Survey, 2015). The Project area is relatively flat, and the Project would not cause a landslide because of the low landslide susceptibility of the site and because the minimal re-grading and smoothing of the ground surface would not result in slope failure or disturbance of a previous landslide. No impact would occur.

B) Less than Significant Impact.

Construction

Site preparation for construction of the Project would involve removal of existing vegetation and grading to smooth out surface undulations. Trenching would be required for the DC collection system beneath the solar panels and AC cabling from transformer to the control building for the interconnection to exiting PG&E facilities. Trench soils generated from construction would be temporarily stockpiled adjacent to the Project site for reuse to backfill trenches. Erosion could occur at graded areas, open trenches, and stockpiled spoils creating a potentially significant impact.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. This specification includes provisions for preventing soil erosion. Section 1.1B of EBMUD's Standard Construction Specification 01 35 44 requires the construction personnel to:

- Dispose of excess material in locations approved by EBMUD consistent with all applicable legal requirements and disposal facility permits.
- Divert or otherwise control surface water and waters flowing from existing projects, structures, or surrounding areas from coming onto work areas. The methods of diversions or control must be adequate to ensure the safety of stored materials and personnel in the work area. At the completion of work, ditches, dikes, and other ground alterations made by the construction crew must be removed, and ground conditions must be returned to their former condition.
- Maintain construction sites to ensure that drainage from the site will minimize erosion of stockpiled or stored materials and the adjacent native soil material.

Implementation of Section 1.1B, Site Activities, of Standard Construction Specification 01 35 44 ensures that spoils generated by short-term construction activities will be monitored and controlled to minimize soil erosion.

Section 1.3A of Standard Construction Specification 01 35 44 includes submittal of an SWPPP. The SWPPP shall include:

- Contractor shall maintain proper control of the discharge at the discharge point to prevent erosion, scouring of bank, nuisance, contamination, and excess sedimentation in the receiving waters.

Implementation of Section 1.3A, Storm Water Management, of Standard Construction Specification 01 35 44, includes submittal of an SWPPP and requires that the SWPPP shall conform to all State Water Resources Control Board (SWRCB) requirements for a CGP SWPPP. The SWPPP requires implementation of measures to prevent the discharge from the Project site of stormwater contaminated with many potential pollutants, including sediments. The SWPPP requirements are discussed in more detail in Section X, Hydrology and Water Quality.

Because Section 1.1B, Site Activities, and Section 1.3A, Storm Water Management, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project and include erosion control measures that would reduce the potential for short-term soil erosion and loss of topsoil by including provisions for the control of runoff, including diversion and drainage of surface waters from construction sites, the Project impact related to soil erosion or loss of topsoil is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Operation

Operation does not involve ground-disturbing activities such as grading or trenching that could result in erosion. The Project site would naturally revegetate with grassland vegetation around and underneath the solar panels. Vegetation would only be trimmed to address shading of the solar panels, to the extent needed. Project access roads would be designed to minimize erosion during operation. Over time, stormwater flows could result in erosion along access roads or around new infrastructure. EBMUD would conduct regular maintenance inspections of the facility to evaluate the erosion. If erosion is observed on the site, EBMUD would repair the erosion and correct the drainage site to avoid further erosion, which could potentially damage the Project infrastructure.

C) No Impact.

As discussed in sections A(iii) and A(iv) above, the Project site is not located in area that is susceptible to liquefaction or landslides. Geologic units in the Project area consist of sedimentary rock. Soil units in the Project area consist primarily of sands with some clay soils. Clay soils may be subject to lateral spreading; however, the Project would not cause any lateral spreading, subsidence, or liquefaction because it located on a relatively flat site and would not involve substantial grading that could result in loss of stability of the geologic unit. No impact would occur.

D) No Impact.

Expansive soils generally occur when clay minerals expand when saturated and shrink in volume when dry. The Project site is comprised of cropley clay, a moderately well-drained soil, and zamora silty clay loam, a well-drained soil, which have high and moderate potential for expansion. The Project is not located near any habitable or occupied structures. The Project would not create a direct or indirect risk to life or property due to the absence of adjacent properties or structures in proximity to the Project. No impact would occur.

E) No Impact.

The Project is an unmanned solar facility and would not require a wastewater disposal system. No impact would occur.

F) Less than Significant Impact.

No unique geologic features occur on the Project site. No impact would occur on a unique geologic feature.

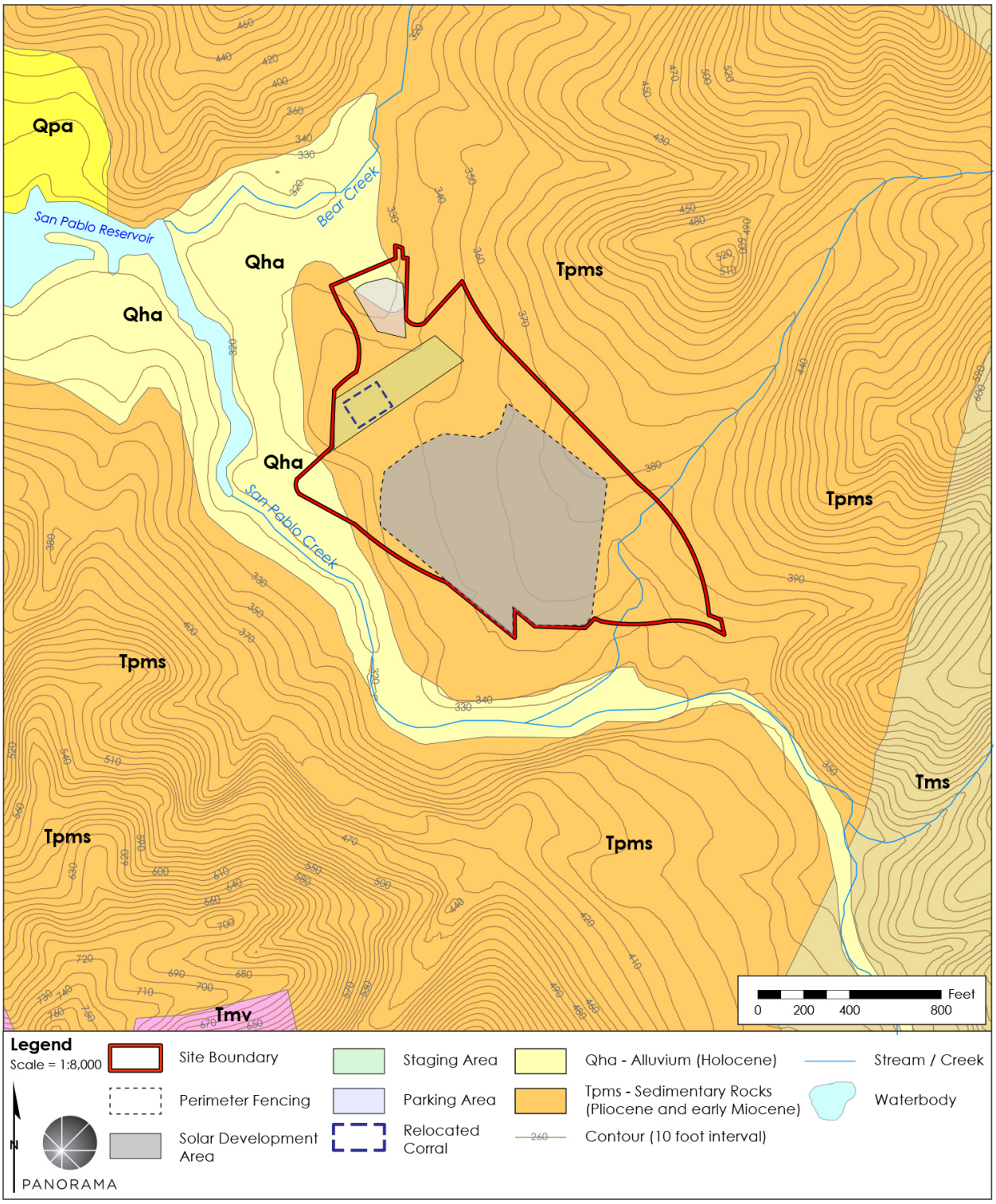
The Project is located within alluvium, or stream deposits, of the current Holocene epoch and marine sedimentary rock of the Pliocene and early Miocene epochs as shown in Figure 3.4-15 (R.W. Graymer, 2006). Holocene (<10,000 B.P.) marine sediment seldom yield fossil vertebrate remains and are therefore considered low sensitivity for paleontological resources. Project grading is also expected to disturb the surficial soils and not underlying soil units. While the impact on paleontological resources is very unlikely due to the underlying geology and limited depth of grading, destruction of a unique paleontological resource, if encountered, would be significant.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.9, Protection of Cultural and Paleontological Resources, of this standard specification, which includes appropriate paleontological resources management practices and complies with statutory requirements, outlines the following procedure:

- In the event that a cultural or paleontological resource is identified during preconstruction activities or during excavation for construction activities, all work within 100 feet of the resource shall be halted until a qualified paleontologist can review, identify, and evaluate the resource for its significance.

Because Section 3.9, Protection of Cultural and Paleontological Resources, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project and specifies procedures for avoidance and evaluation of any paleontological resource encountered during construction, the potential impact on paleontological resources would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Figure 3.4-15 Geology Map



Source: (EBMUD, 2018a; R.W. Graymer, B.C. Moring, G.J. Saucedo, C.M. Wentworth, E.E. Brabb, and K.L. Knudsen, 2006; USGS, 2012)

VIII. Greenhouse Gas Emissions

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?	☐	☐	☒	☐
B) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of greenhouse gases?	☐	☐	☒	☐

Discussion

A) Less than Significant Impact.

Overview

GHG emissions and global climate change are cumulative impacts by nature. GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change. Climate change impacts may include an increase in extreme heat days, higher concentrations of air pollutants, sea level rise, impacts on water supply and water quality, public health impacts, impacts on ecosystems, impacts on agriculture, and other environmental impacts. No single project could generate enough GHG emissions to noticeably change the global average temperature. However, the combination of GHG emissions from past, present, and future projects contributes substantially to the phenomenon of global climate change and its associated environmental impacts.

The GHG emissions analysis considers both long-term operational and short-term construction impacts associated with the Project. BAAQMD has adopted thresholds of significance, to assist in the review of projects subject to CEQA, that were designed to establish the level at which GHG emissions would cause significant environmental impacts under CEQA. The thresholds are included in the 2017 CEQA Air Quality Guidelines (updated May 2017) (BAAQMD, 2017a). EBMUD considers the 2017 BAAQMD significance thresholds adequate to provide a conservative evaluation of a project's potential GHG impacts.

Construction

Greenhouse gas emissions for Project construction and operation were calculated using CalEEMod 2016.3.2 based on the estimated construction schedule and anticipated equipment use for Project construction. Project construction would generate GHG emissions from use of construction equipment, haul trucks, and vehicles used for construction worker transportation. Construction activities would generate a total of 245 metric tons (MT) carbon dioxide equivalent (CO_2e) during 2020. BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, BAAQMD encourages lead agencies to incorporate BMPs to reduce GHG emissions during construction, as feasible and applicable. The BMPs recommended by BAAQMD include using alternative-fueled construction equipment, using local building materials, and recycling or reusing a portion of construction waste or demolition materials.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.4A, Air Quality and Emissions Control, of Standard Construction Specification 01 35 44 requires construction crews to use alternative-fueled construction equipment and to recycle or reuse construction waste or demolition materials to the extent feasible and includes the following:

- The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available.
- The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards.
- Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with the California Air Resources Board or otherwise permitted by the appropriate local air district, as required.
- Contractor shall implement standard air emissions controls such as:
  - Minimize the use of diesel generators where possible.
  - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes as required by the California Airborne Toxics Control Measure Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points.
  - Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.
  - Locate generators at least 100 feet away from adjacent homes and ball fields.
  - Perform regular low-emission tune-ups on all construction equipment, particularly haul trucks and earthwork equipment.
- Contractor shall implement the following measures to reduce GHG emissions from fuel combustion:
  - On-road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals.
  - Construction equipment engines shall be maintained to manufacturer specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
  - Demolition debris shall be recycled for reuse to the extent feasible (excluding wood treated with preservatives).

Because Section 3.4A, Air Quality and Emissions Control, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project and includes specified air emission control BMPs to minimize short-term construction diesel exhaust emissions and includes GHG emission controls which would reduce GHG emissions from fuel combustion, the Project construction impacts related to GHG emissions would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Operation

The 30-year amortized construction GHG emissions would be 8 MT CO_2e. After construction, a negligible quantity of GHG pollutants would be emitted from vehicles accessing the site for infrequent maintenance of equipment and from leakage of sulfur-hexafluoride (SF_6) from upgraded gas-insulated switchgears or transformers at the substation. Leakage rates of SF_6, a GHG with a high global warming potential, are required to be 1 percent or less by 2020 in accordance with Assembly Bill 32. Any upgraded gas-insulated equipment at the substation would emit fewer SF_6 emissions than existing equipment, due to Assembly Bill 32 requirements. The operational GHG emissions would be less than the BAAQMD operational threshold of 1,100 MT CO_2e per year. The impact from GHG emissions generated during operation of the Project would be less than significant. Furthermore, the Project would generate renewable energy for use by EBMUD, which would offset GHGs emitted from nonrenewable energy sources. The Project would offset 2,200 metric tons of carbon dioxide emissions from nonrenewable generation sources annually (Beyer, 2019; The Climate Registry, 2019).

B) Less than Significant Impact.

Climate Change Scoping Plan

The vehicles used during construction are required to comply with the applicable GHG reduction programs for mobile sources in accordance with the Climate Change Scoping Plan to achieve the State's GHG reduction targets. The contractor who owns the equipment and vehicles is required to provide verification of compliance to the California Air Resources Board or the U.S. Environmental Protection Agency under state and federal law. The Project would conform with relevant programs and recommended actions detailed in the Climate Change Scoping Plan and Mobile Source Strategy. The Project would not conflict with regulations adopted to achieve the goals of the Climate Scoping Plan. No impact would occur.

2017 Clean Air Plan

GHG emissions would not exceed the BAAQMD significance threshold for GHGs during construction and operation of the solar array as discussed in Impact A) above. Construction and operation of the Project would comply with BAAQMD GHG thresholds, which were identified by BAAQMD to achieve the goals of the 2017 CAP. The impact would be less than significant.

Contra Costa County Climate Action Plan

The Contra Costa County Climate Action Plan was adopted by the County Board of Supervisors in December 2015. The Climate Action Plan identifies specific measures on how the county can achieve a GHG reduction target of 15 percent below baseline levels by the year 2020. In addition

to reducing GHG emissions, the Climate Action Plan includes policies and actions to improve public health and provide additional community benefits, and it lays the groundwork for achieving long-term greenhouse reduction goals for 2020 and 2035. These practices and procedures identified in the Action Plan are outside the purview of the proposed Project, because they entail global GHG reduction strategies such as promoting county-wide goals of energy efficiency, renewable energy, reducing transportation emissions, and reducing solid waste.

EBMUD Action Plan

In 2008, EBMUD adopted a climate change objective in EBMUD's Strategic Plan focusing on using resources (economic, environmental, and human) in a responsible manner that meets current needs without compromising the ability to meet future needs. In response to the climate change objective, EBMUD prepared the Climate Change Monitoring and Response Plan and an Action Plan that provides guidance to inform EBMUD of decisions regarding water supply, water quality, and infrastructure planning (EBMUD, 2014b). EBMUD's goal is to reduce GHG emissions 50 percent by 2040 (as compared to baseline GHG emissions in year 2000). In 2013, GHG emissions generated by EBMUD were 31,244 $MTCO_{2e}$, which were 31 percent below 2000 GHG emission levels. EBMUD tracks GHG emissions per the California Climate Action Registry protocols.

The EBMUD Action Plan requires certain practices and procedures to help EBMUD achieve the GHG reduction goal. These practices and procedures identified in the Action Plan are outside the purview of the proposed Project, because they provide guidance on EBMUD long-term decisions regarding water supply, water quality, and infrastructure planning. The Project will not conflict with a plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs.

IX. Hazards and Hazardous Materials

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?	☐	☐	☒	☐
B) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
C) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
D) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, create a significant hazard to the public or the environment?	☐	☐	☐	☒
E) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the Project corridor?	☐	☐	☐	☒
F) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
G) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐

Discussion

As used in this section, the term "hazardous material" is defined as 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. As used in this section, the term "hazardous waste" generally refers to a hazardous material that has been used for its original purpose and is about to be discarded or recycled. In California, a hazardous waste is defined as a waste or combination of wastes that, due to its quantity, concentration, or physical, chemical, or infectious characteristics, may either:

- Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or
- Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

A) and B) Less than Significant Impact.

No hazardous substances as defined by the Hazardous Materials Transportation Uniform Safety Act would be used, transported, or disposed of as a part of the Project. Project construction would involve the use and transport of typical construction-related hazardous materials such as fuels, lubricants, adhesives, and solvents. Heavy equipment not permitted on public roads would be refueled on-site, but no overnight fuel storage or maintenance of heavy equipment would occur on the Project site. Hazardous fluids have the potential to leak from vehicles and equipment during vehicle operation, in the case of an equipment accident, or

overnight storage. The transformers that would be used on the site would also contain transformer oil. Transformer oil could potentially leak from the transformers or be spilled during filling. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 1.3D of EBMUD's Standard Construction Specification 01 35 44 requires submittal of a Spill Prevention and Response Plan which includes methods for preventing and controlling the accidental release of hazardous materials used during Project construction. The plan shall include:

- A list of the hazardous substances proposed for use or generated by the Contractor on-site, including petroleum products
- Measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate responses to spills
- Phone numbers for notifying appropriate regulatory agencies and EBMUD
- Identification of spill-related worker and public health and safety issues for each known hazardous substance used on the jobsite
- Spill control and cleanup procedures

Because Section 1.3D, Spill Prevention and Response Plan, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, and the Standard Construction Specification defines procedures to prevent the accidental release of hazardous materials during Project construction, the impact from transport, use, disposal, or accidental spill of hazardous materials would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Operation

Operation of the Project would not involve the routine transport of hazardous materials to or from the Project site. Solar facility equipment, including transformers and inverters, require use of oils and lubricants in small quantities. Any leaks of transformer oil or solvents would be very limited, contained in a drip pan, and would be repaired to maintain proper functioning equipment. Solvents, cleaners, or other chemicals may be used during maintenance of the Project for cleaning equipment or to prevent corrosion would be used in very small quantities. The use, storage, and transport of hazardous materials throughout the operational life of the Project would be carried out in accordance with federal, state, and county regulations for transport, storage, and disposal of hazardous materials. Impacts from hazardous materials during operation would be less than significant.

C) Less than Significant Impact.

Construction

Wagner Ranch Elementary School is located approximately 0.25 mile southeast of the Project site. The Project does not involve handling of hazardous or acutely hazardous substances. Project construction equipment would emit air pollutants including diesel particulate matter

from vehicle exhaust and particulate matter from dust emissions. As discussed under Impact C) in Air Quality, the construction emissions would be limited in quantity over the approximate 7-month construction duration. Because of the low level of emissions from Project construction and separation from the school by approximately 0.25 mile, construction of the Project would not expose the school to substantial pollutant concentrations. The impact would be less than significant.

Operation

Maintenance of the facility would be conducted on an as-needed basis to maintain solar efficiency. Solar facility operation would not generate hazardous emissions that could transport to any school because the solar facility does not generate any hazardous emissions and the facility would be operated remotely. Facility maintenance would be conducted as needed and would involve an estimated eight trips to the Project per year. The limited maintenance activities would not expose a school to hazardous emissions. The impact from hazardous emissions during Project operation and maintenance would be less than significant.

D) No Impact.

The Project site is not located on a site that is included on a list of hazardous materials sites (DTSC, 2018) (SWRCB, 2015). The Project would not create a significant hazard to the public or environment. No impact would occur.

E) No Impact.

No public airports or public use airports are located within 2 miles of the Project site. No impact would occur.

F) Less than Significant Impact.

Construction of the Project would not impair an adopted emergency response or emergency evacuation plan. During construction, short-term traffic delays may be required on Bear Creek Road while construction equipment moves across Bear Creek Road or large construction equipment enters or exits the Project site from Bear Creek Road. Vehicles and equipment would be parked and staged adjacent to the Project site and off public roads within the designated parking and staging areas. Access would always be granted to emergency responders and road closures would be halted in the event of an emergency to allow safe access. Construction equipment and materials would be parked and staged off public roads.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 55 26, Traffic Regulation. Section 1.2, Submittals, of EBMUD's Standard Construction Specification 01 55 26 requires a Traffic Control Plan that conforms to the most current version of the Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones and requires that the Traffic Control Plan include a description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.

Because EBMUD's Standard Construction Specifications 01 55 26, Traffic Regulation, has been incorporated into the Project and requires implementation of a Traffic Control Plan that requires emergency response vehicle access, Project impacts on emergency response and evacuation would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

G) Less than Significant Impact.

The Project is located on a disturbed grassland area and is surrounded by woodland and grassland except where the Bear Creek Road and the PG&E Sobrante Substation are located to the northeast. The Project site and surrounding area are within a Very High Fire Hazard Severity Zone, as defined by CAL FIRE.

Construction

Construction activities within and adjacent to vegetated areas pose a risk of igniting wildfires. The risk level for igniting wildfires depends on environmental factors, such as weather, wind, fuel sources, and fuel characteristics, and the management of potential ignition sources. Brush and vegetation within the Project site would be cleared at the start of construction to minimize the risk of igniting a wildfire; however, the Project construction includes a number of potential ignition sources that produce extreme heat, sparks, or flame by design, incident, or failure, such as but not limited to the following:

- Hot-work (i.e., grinding and welding)
- Operating motorized equipment and tools in dry vegetation
- Grading in rocky areas
- Equipment malfunctions or failures, contact with electrified equipment, or other accidents
- Use and storage of combustible materials

If construction activities ignited a wildfire and it could not be contained, people or structures in the region could be exposed to a significant risk of loss, injury, or death. Wildfire risk during construction would be managed through appropriate work practices, fire risk preparation procedures, and compliance with all federal, state, and local laws and regulations.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 24, Project Safety Requirements. Section 1.6, Fire Prevention and Protection, of the Standard Construction Specification mandates that the site will be supplied and maintained with adequate firefighting equipment capable of extinguishing incipient fires. All work would comply with applicable federal, local, and state fire-prevention regulations, including Moraga-Orinda Fire District (MOFD) Ordinance 16-02. MOFD Ordinance 16-02 adopts the 2016 California Fire Code and, by reference, the International Fire Code, 2015 edition, published by the International Code Council. Chapter 49 of the 2016 California Fire Code, Requirements for Wildland-Urban Interface Fire Areas, includes provisions for wildfire protection building construction, hazardous vegetation and fuel management and defensible

space. Chapter 33, Fire Safety during Construction and Demolition, includes requirements for fire reporting, access for firefighting, and portable fire extinguishers.

Because Section 1.6, Fire Prevention and Protection, of EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements, has been incorporated into the Project and mandates that the site will be supplied and maintained with adequate firefighting equipment capable of extinguishing incipient fires and complies with applicable fire code regulations that include provisions for wildfire protection building construction, hazardous vegetation and fuel management, defensible space, fire reporting, access for firefighting, and portable fire extinguishers, the Project impact related to hazards resulting from wildland fires is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Operation

Installing solar panels and associated electrical facilities in an undeveloped area would increase the potential for igniting wildfires at the Project site. If Project facilities or operations and maintenance activities ignited a wildfire and it could not be contained, people or structures in the region could be exposed to a significant risk of loss, injury, or death.

Once constructed, the new facilities would be built to meet all relevant California building standards, including building code, electrical code, and fire code requirements, thereby minimizing the potential for ignition to occur at the facility. In addition, EBMUD provides routine maintenance of its sites which includes routine vegetation management to ensure a defensible space is maintained consistent with the requirements of local fire agencies. The nearest fire station is within approximately 2.1 miles from the Project site and there is a hydrant located approximately 480 feet southeast of the Project site. Fire protection services for the Project site are provided by the MOFD. Because the Project would be built to modern code requirements, would be maintained by EBMUD to maintain defensible space around the facility, and fire protection services and fire hydrants are located adjacent to the Project site, the Project operational impacts related to hazards resulting from wildland fires are less than significant.

Like construction, any operation and maintenance activities that produce extreme heat, sparks, or flame could ignite a wildfire. In addition, failure of electrical equipment at the site, such as a fault on the power line, or contact between the power line and a foreign object, could result in the ignition of a wildfire. The potential for solar panel failure that results in fires is low because the electrical and mechanical parts associated with the solar panels and the larger array are contained and not exposed to nearby vegetation. Similarly, equipment installed underground poses a very low risk of fire ignition because it is not exposed to fire risk factors such as wind or vegetation. Underground installation of electrical conductor is also sometimes used to mitigate fire risk. Most utility-caused fires in Northern California involve overhead distribution lines with bare (uncovered) conductor; approximately half are attributed to vegetation contacts or strikes, and the other half is attributed to equipment failure, third party and animal contacts (i.e., cars, agricultural machinery, mylar balloons, birds, squirrels), sparks from fuse operation,

and other unknown factors (PG&E, 2019). Therefore, the ignition potential for any exposed overhead lines installed for the Project is considered moderate to high, depending on design specifications and the presence of tall vegetation.

The only potentially exposed overhead conductor for the Project would be installed between the control building and the 12-kV PG&E distribution line along Bear Creek Road (approximately 205 feet), unless the line is installed underground. The proposed route is located away from existing trees and tall vegetation. If installed overhead, the conductor would be positioned on wood poles (in accordance with PG&E requirements for interconnection) with a maximum height of approximately 45 feet. Numerous overhead PG&E power lines are currently installed in the vicinity of the Project site that feed into the Sobrante Substation. Installation of the Project overhead conductor would not increase the risk of wildfire because there would be substantial clearance between the overhead power line and vegetation.

Short grassland vegetation occurs within the proposed segment of overhead power line, and the planned landscaping involves planting of vegetation that would grow to no more than 8 feet in height to avoid conflict with overhead power lines. If overhead conductors are installed, EBMUD would conduct inspections of the line and vegetation for clearance. When necessary, potentially hazardous vegetation would be removed. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Fire Management Plan, which involves conducting fuel inventories and mechanical fuel treatments on EBMUD-managed lands to reduce the risk of wildfires. Implementation of EBMUD's Watershed Fire Management Plan, which includes fire-prevention direction, vehicle equipment and maintenance requirements, and response procedures would further minimize the fire risk of Project infrastructure. Impacts on wildfire hazards during operation of the facility would be less than significant.

X. Hydrology and Water Quality

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?	☐	☐	☒	☐
B) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
C) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the additional of impervious surfaces, in a manner that would:				
i) result in substantial erosion or siltation on or off site;	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☒	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv) impede or redirect flood flows	☐	☐	☐	☒
D) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
E) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Discussion

A) Less than Significant Impact.

Overview

San Pablo Reservoir and San Pablo Creek are listed as impaired on the SWRCB Section 303(d) list. San Pablo Reservoir is impaired by several types of pesticides, mercury, and polychlorinated biphenyl. San Pablo Creek is impaired by an insecticide and trash (SWRCB, 2017).

Construction

Discharge of Runoff

Vegetation removal, site grading, staging, parking, access roads, and installation of solar facilities would temporarily disturb approximately 23.6 acres of the Project site. Project construction activities would disturb soils and result in areas of bare, unvegetated soil. Stormwater runoff could cause erosion and contribute sediment to San Pablo Creek and San Pablo Reservoir. EBMUD would obtain coverage under the CGP (NPDES No. CAS000002) because the Project would disturb more than 1 acre.

In addition, as detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements. Section 1.3A of EBMUD's Standard Construction Specification 01 35 44 requires submittal of an SWPPP and compliance with the state Construction General Permit. The Construction General Permit requires that the SWPPP define best management practices for stormwater quality management. Best management practices may include, but not be limited to, silt fencing, straw wattles, hay bales, and track-out control.

Because Section 1.3A, Storm Water Management, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, which requires compliance with the Construction General Permit including source and treatment BMPs to prevent the discharge of contaminated stormwater runoff from the Project site, impacts from contaminated stormwater runoff would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Discharge of Dewatering Waste

Excavation would be required to install underground collector cables to collect DC power from each power block to an inverter and to install collection cables from the inverters to the control building. The trenches would be approximately 2 feet wide and 4 feet deep. During trenching activities, groundwater could be encountered due to proximity to the nearby creeks and subsequent likelihood of shallow groundwater. The pumped water would be stored, tested, and treated to meet required standards, then discharged to a nearby sanitary sewer, creek, or overland. Any dewatering of shallow groundwater encountered during construction would comply with the CGP (NPDES [National Pollutant Discharge Elimination System] No. CAS000002) for uncontaminated groundwater from dewatering. Potential impacts on nearby waterbodies due to discharge of dewatering waste would be minimized by complying with the permit requirements.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, which includes submittal of a Water Control and Disposal Plan (Section 1.3B) that includes the following provisions to achieve controls for all liquid discharges:

- The Contractor shall maintain proper control of the discharge at the discharge point to prevent erosion, scouring of bank, nuisance, contamination, and excess sedimentation in the receiving waters.
- The Water Control and Disposal Plan shall include the estimated flow rate and volume of all proposed discharges to surface waters, including discharges to storm drains. All receiving waters shall be clearly identified.
- Effective erosion and sediment controls (e.g., straw wattles, pea gravel filter bags) shall be used to achieve a visual turbidity concentration of ≤ 100 nephelometric turbidity units (NTU) by implementing BMPs which meet EBMUD's minimum standards or better.
- The pH level of any discharges shall not be below 6.5 nor elevated above 8.5. If there is potential for discharges to be below 6.5 or above 8.5, the Contractor shall employ pH adjustment BMPs to ensure discharges are within the range of 6.5 and 8.5. The Contractor shall conduct on-site field measurements for pH per quality assurance and quality control protocols that conform to USEPA guidelines or procedures approved by the American Water Works Association.

- Describe measures that will be used for containment, handling, treatment (as necessary), and disposal of discharges such as groundwater (if encountered), runoff of water used for dust control, stockpile leachate, tank heel water, wash water, sawcut slurry, test water, and construction water or other liquid that has been in contact with any interior surfaces of EBMUD facilities.
- The Contractor shall provide the Engineer with containment, handling, treatment, and disposal designs and a sampling and analysis plan for approval before the start of construction.

Because EBMUD has incorporated Section 1.3B, Water Control and Disposal Plan, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, into the Project, which requires controls for the discharge of groundwater so that no violation of water quality standards or violation of waste discharge requirements would occur, impacts related to water quality and waste discharge requirements would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Operation

Grassland and shrubland vegetation would be allowed to regrow under the solar panels. The potential for increased sedimentation would be minimized due to vegetation regrowth on the Project site. Sedimentation to San Pablo Creek would not increase in excess of water quality standards due to the presence of vegetation to provide soil stabilization. Operation of the Project would not introduce any new pollutants into the area. Over time, stormwater flows could result in erosion along access roads or around new infrastructure, and sedimentation of waterways. EBMUD would inspect the facility for erosion and repair any erosion as described in the Project Description, Section 2.5.6. The impact would be less than significant.

B) Less than Significant.

The Project site is not underlain by a groundwater basin. The nearest groundwater basin, the East Bay Plains subbasin, is downstream from San Pablo Reservoir (California DWR, 2017). Any potential dewatering during trenching for the underground collector cables would be very limited in amount due to the short duration of underground trenching (a few weeks) and limited depth of the trench (4 feet). Impervious surfaces would increase by approximately 0.05 acre following construction of the Project. Stormwater flows and infiltration into the groundwater would not change substantially with the small area of additional impervious surface and limited potential for temporary dewatering. Any groundwater removed during construction would recharge at the end of the construction period when the potential for temporary dewatering would cease. The impact on groundwater recharge and groundwater supplies would be less than significant.

C) (i) through (iv)

Overview

The Project would involve grading as needed to smooth surface undulations and create a flatter surface for solar panel installation. No streams or active waterways occur within the Project site

and the Project would not change the course of any waterway. The overall slope and drainage patterns (i.e., direction of drainage) from the site would not change as a result of grading. The solar panels rows would be broken up with infiltration areas in between each row of trackers and breaks in between the panels to allow rainfall to infiltrate in the soil. The solar panels would not redirect water or concentrate flows in any area, because each panel segment is small, and water would runoff of the panel as it rains due to the constant tilt of the solar panels. A small swale in the central portion of the site would be partially filled to create a smooth surface for the solar facility; however, the swale is a man-made feature that is dry and is not a primary collection of drainage from the site. A replacement swale feature would be constructed as needed adjacent to the access road to maintain site drainage patterns and prevent an increase in peak discharge from the site. The exact location and need for the vegetated swale and detention basin would be determined during detailed design and preparation of the Project-specific SWPPP.

(i) Less than Significant Impact.

Construction

Project vegetation removal and grading activities associated with the solar facility and the proposed access road could result in increased erosion from stormwater and potential siltation of waterways. As analyzed under Impact A) above, the Project would be required to develop and implement an SWPPP. Implementation of temporary sediment and erosion control BMPs specified in the SWPPP would minimize erosion and siltation on- and off-site.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements. Implementation of Section 1.3A of EBMUD's Standard Construction Specification 01 35 44 requires submittal of an SWPPP and requires that the SWPPP shall conform to all SWRCB requirements for a CGP SWPPP. The SWPPP requires:

- Contractor shall maintain proper control of the discharge at the discharge point to prevent erosion, scouring of bank, nuisance, contamination, and excess sedimentation in the receiving waters.

Because Section 1.3A, Storm Water Management, of EBMUD's Standard Construction Specification 01 35 44, has been incorporated into the Project and requires implementation of measures to prevent the discharge of stormwater contaminated with soil or sediment, impacts from erosion or siltation would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Operation

Grassland and shrubland vegetation would be allowed to grow back beneath the proposed solar panels. Vegetation would also be planted along Bear Creek Road and along Oursan Trail. There would be separation between the solar panels and between each row of solar panels to

allow for rainfall to run off of the solar panels and infiltrate into the soil during rain events. Additionally, panels would be tracking against the sun and runoff would not be concentrated into a single spot. The majority of the Project site would remain vegetated and the vegetation would maintain runoff and potential for erosion consistent with the current rate. As analyzed under Impact A), over time stormwater flows could result in erosion along access roads or around new infrastructure. EBMUD would inspect the site annually for erosion and make any necessary modifications to the site drainage to avoid erosion and protect Project infrastructure. The impact from erosion and siltation of waterways would be less than significant.

C) (ii) Less than Significant Impact.

Construction

The removal of vegetation and compaction of soils within the Project site could cause runoff to temporarily flow off the site at a faster rate due to the bare soil. As analyzed under Impact A) above, the Project would be required to develop and implement an SWPPP. Implementation of temporary sediment and erosion control BMPs specified in the SWPPP, such as straw wattles, would slow runoff rates from the Project site. In addition, the Project potentially includes a detention basin and swale to slow runoff, if needed. The need for a detention basin will be determined after solar facility design is complete. Construction would be temporary and areas of temporary disturbance within the Project site would naturally revegetate following construction. The potential increased runoff from vegetation removal would not result in on- or off-site flooding due to proper implementation of temporary and permanent sediment and erosion control BMPs. The Project would use potable water for dust suppression. Water would be applied at a rate that would moisten the ground surface to prevent dust but would not generate runoff. The impact on flooding would be less than significant.

Operation

The Project would introduce approximately 0.05 acre of impervious surface, which would increase runoff compared to undeveloped site conditions. The CGP requires that post-construction peak runoff not exceed preconstruction peak runoff volumes. A detention basin and swale would be constructed on the Project site, if needed, to ensure that post-Project runoff remains the same as existing conditions. The need for a detention basin and swale will be assessed during final design and any permanent BMPs, including a potential detention basin and swale, would be designed so that runoff would not flood the Project site or travel off-site to cause flooding elsewhere consistent with SWRCB requirements in the Construction General Permit. The impact on flooding would be less than significant.

C) (iii) Less than Significant Impact.

Construction

Project construction activities would require the use of construction vehicles and heavy equipment containing fuels, hydraulic fluids, oil, grease, and other hazardous materials. No storage of fuel or maintenance of heavy equipment would occur on the Project site. Hazardous fluids have the potential to leak from vehicles and equipment during operation or overnight storage, as discussed in Section IX, Hazards and Hazardous Materials. Hazardous materials

could also accidentally spill from containment vessels (e.g., during transformer oil filling) if improperly transported or stored. If hazardous material leaks or spills were not properly contained and cleaned up, the hazardous materials could become a source of polluted runoff.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 1.3D of the EBMUD Standard Construction Specification 01 35 44. Section 1.3D of EBMUD's Standard Construction Specification 01 35 44 requires submittal of a Spill Prevention and Response Plan which includes methods for preventing and controlling the accidental release of hazardous materials used during Project construction. The Spill Prevention and Response Plan shall include:

- A list of the hazardous substances proposed for use or generated by the Contractor on-site, including petroleum products
- Measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate responses to spills
- Phone numbers for notifying appropriate regulatory agencies and EBMUD
- Identification of spill-related worker and public health and safety issues for each known hazardous substance used on the jobsite
- Spill control and cleanup procedures

Because Section 1.3D, Spill Prevention and Response Plan, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, and the Standard Construction Specification defines procedures to respond to spills of hazardous materials during Project construction so that the hazardous materials would not pollute stormwater runoff, the impact from additional sources of polluted runoff would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Operation

Polluted Runoff

Solar facility equipment, including transformers and inverters, require use of hazardous materials, as discussed in Section IX, Hazards and Hazardous Materials. Proper maintenance of equipment would limit the potential for leaks that could pollute runoff. The use, storage, and transport of hazardous substances would be carried out in accordance with federal, state, and county regulations, minimizing potential for leaks or release that could be carried into runoff. The Project would not result in an increase in pollutants in runoff or contribute additional sources of polluted runoff because EBMUD would comply with all regulations to prevent pollution to downstream waters. EBMUD manages the Project site and surrounding area for water quality protection consistent with the goals and objectives in the East Bay Watershed Master Plan. EBMUD would continue to maintain the site to protect water quality in downstream San Pablo Creek and Reservoir. The potential impact from additional sources of polluted runoff would be less than significant.

Stormwater Drainage Systems

No stormwater facilities are located or proposed within the Project site or downstream of the site. The Project would not contribute runoff to a stormwater drainage system. No impact on stormwater drainage systems would occur.

C) (iv) Less than Significant Impact.

The Project has been designed to avoid the 100-year flood zone, as shown in Figure 3.4-16. No Project structures would be installed within the 100-year flood zone. Access to the Project site from Bear Creek Road would be provided by the Project access road that connects to Bear Creek Road, north of the Project parking lot, and south of the Project site via an existing EBMUD maintenance road. EBMUD's existing maintenance road south of the Project site crosses San Pablo Creek and the 100-year flood zone. No changes to the existing southern access road would occur outside the Project site and no construction is proposed within the 100-year flood zone. The Project would not impede or redirect flood flows.

D) No Impact.

The Project site is not located in a tsunami or seiche zone and has been designed to avoid the 100-year flood zone as shown on Figure 3.4-16. The Project would not result in risk of release of pollutants due to Project site inundation by a seiche, tsunami, or mudflow. No impact would occur.

E) Less than Significant Impact.

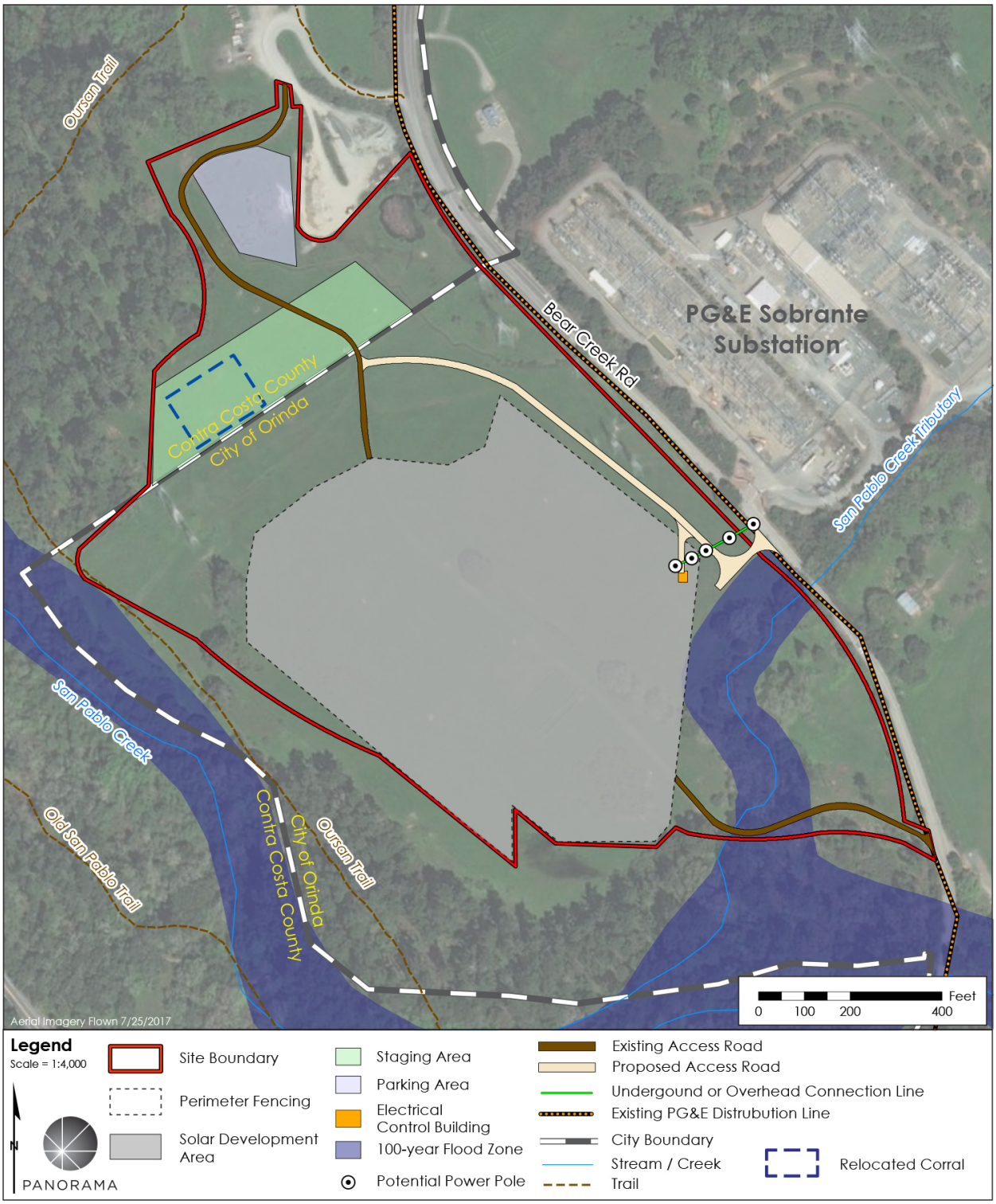
Basin Plan

The San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan) identifies beneficial water uses that the San Francisco Regional Water Quality Control Board protects, water quality objectives to protect the designated beneficial water uses, and strategies and time schedules to achieve the water quality objectives. The Basin Plan identifies 19 beneficial uses that apply to key waterbodies. Water quality objectives for surface waters encompass features such as bacteria levels, sediment, pH, and temperature. Strategies include Total Maximum Daily Loads required by the Clean Water Act for waterbodies where water quality standards are not currently met (SFBRWQCB, 2007).

A project could interfere with the Basin Plan by degrading water quality in such a way that identified water quality objectives or strategies are not met and beneficial uses are impacted or not achieved. The Basin Plan identifies beneficial uses for the San Pablo Creek, adjacent to the Project site, and San Pablo Reservoir, downstream from the Project site.

The Project would involve grading, vegetation removal, and use of hazardous materials in construction equipment and transformers, which have the potential to impact water quality as described in Impact A) above. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 1.3A, Stormwater Management, and Section 1.3D, Spill Prevention and Response, of EBMUD Standard Construction Specification 01 35 44, Environmental Requirements.

Figure 3.4-16 100-Year Flood Zone in Proximity to the Project Site



Source: (EBMUD, 2018a; USGS, 2016; Tele Atlas North America, Inc., 2018; California Department of Fish and Wildlife, 2016; Federal Emergency Management Agency, 2014; California Office of Emergency Services, 2018)

Section 1.3A of EBMUD's Standard Construction Specification 01 35 44 includes:

- Contractor shall maintain proper control of the discharge at the discharge point to prevent erosion, scouring of bank, nuisance, contamination, and excess sedimentation in the receiving waters.

Section 1.3D of EBMUD's Standard Construction Specification 01 35 44 requires submittal of a Spill Prevention and Response Plan which includes methods for preventing and controlling the accidental release of hazardous materials used during Project construction. The Spill Prevention and Response Plan shall include:

- A list of the hazardous substances proposed for use or generated by the Contractor on-site, including petroleum products
- Measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate responses to spills
- Phone numbers for notifying appropriate regulatory agencies and EBMUD
- Identification of spill-related worker and public health and safety issues for each known hazardous substance used on the jobsite
- Spill control and cleanup procedures

Because Section 1.3A, Storm Water Management, and Section 1.3D, Spill Prevention and Response Plan, of EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project and require EBMUD to implement source and treatment BMPs to prevent discharge of sediment, and spill prevention and control measures to prevent water quality impacts to downstream waterbodies, impacts from conflict with the Basin Plan would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Sustainable Groundwater Management Plan

No sustainable groundwater management plan has been prepared that encompasses the Project area. As discussed in Impact B), the Project is not underlain by any groundwater basin. The Project would not conflict with or obstruct implementation of a sustainable groundwater management plan. No impact would occur from conflict with a sustainable groundwater management plan.

XI. Land Use and Planning

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

Discussion

A) No Impact.

The Project would not physically divide an established community. The Project site is located on undeveloped EBMUD watershed lands in the City of Orinda with no residential development in the vicinity. No impact would occur.

B) Less than Significant Impact with Mitigation.

Contra Costa County Zoning

Temporary Project staging would be located on land zoned exclusive agriculture (A-80) by Contra Costa County. Because Project staging would be temporary and land use would revert to preconstruction conditions after Project implementation, there would be no conflict with the land use designation of the site or adjacent uses in the area. Impacts would be less than significant.

City of Orinda General Plan

The Project site is located on land designated as Utility-W (Protected Watershed) in the City of Orinda General Plan (City of Orinda, 2010). EBMUD maintains high water quality in tributaries leading to its reservoirs which necessitates careful management of these watershed lands to protect source water quality. The designated land use for the Project site land is Utility-W to reduce the intensity of potential uses of the Project site and protect downstream water quality.

The Utility-W land use designation is defined by the City of Orinda as follows:

> **Utility:** EBMUD and PG&E facilities and lands are mapped where they are of sufficient size to warrant differentiation from adjoining uses. In addition to primary utility purposes, watershed, open space, and public recreational uses are appropriate to this designation…Areas designated "Protected Watershed" (W) on the General Plan Map are limited to watershed management activities, including development of off-channel wetlands. Areas designated "W" on the General Plan map shall not include Parks and Recreation uses.

This designation is intended to protect land from the potential negative effects of active recreation on downstream water quality, such as removal of native vegetation, creation of hardscape, increased runoff and traffic, and generation of trash. The Project involves installation

of a passive solar facility with maintenance dispatched as needed, approximately eight times per year. The level of human activity and associated potential for water quality impacts would be similar to or less than the current grazing use of the site and the activity level would be substantially less than recreational use.

The Project site's "Utility-W" land use designation contains two components, each of which is discussed below.

Utility Designation

Consistency with Utility Designation. The utility designation is used for areas that have a primary utility purpose. Operation of the Project would provide EBMUD with 5 MW of renewable energy to offset energy used by EBMUD facilities. Electrical power lines and a substation currently exist within areas designated as Utility adjacent to the site and large transmission towers are on the Project site itself. The generation of electricity would serve a utility purpose consistent with the utility land use designation. A detailed consistency analysis of applicable land use plans, policies, and regulations is provided in Appendix D.

Consistency with Guiding Policies for Utilities. The City of Orinda has developed two guiding policies for utilities, and the Project is consistent with both, as detailed below:

- Work with PG&E to prepare and implement a long-term program for reducing the impact of power transmission towers and distribution poles on Orinda's landscape.

The Project site is located adjacent to PG&E's Sobrante Substation (directly across Bear Creek Road), existing transmission towers, and overhead power lines. PG&E's minimum requirement for this Project includes up to five new service poles leading from the west side of Bear Creek Road into the Project site directly across from the PG&E substation entrance. Per PG&E, this is the minimum number of poles permitted for this service request. In keeping with the guiding policy of the City of Orinda, EBMUD has prioritized its preferred site options to reduce the impact of distribution poles and is working with PG&E to eliminate any unnecessary overhead equipment, thereby minimizing effects on the City of Orinda's landscape.

- Seek cooperation of PG&E and EBMUD in managing landholding to maximize community benefit and visual attractiveness consistent with utility needs.

EBMUD is coordinating with the City of Orinda to maximize the community benefit and visual attractiveness of the facility. To reduce the overall footprint of the solar panel area, EBMUD is proposing the use of solar trackers, which follow the sun and can be placed closer together than stationary panels, minimizing the Project footprint. At maximum tilt the tops of the panels are about 14 feet above grade, and when flat, the tops of the panels are about 8 feet, supported only by posts driven into native ground for a slim profile appearance and minimal ground disturbance. Native vegetation will remain, and regrowth will be trimmed to avoid shading the panels. A landscape plan will be development in collaboration with the City of Orinda to maximize the visual attractiveness.

As described in the Aesthetics impact analysis of this IS/MND, the solar facility would be visible from Oursan Trail within EBMUD watershed property and along segments of Bear Creek Road within the City of Orinda. The Project site may be visible from approximately seven to ten private residences in the Sleepy Hollow and El Toyonal neighborhoods, approximately 1 mile from the Project site. Views from these residences are predominantly filtered and include the adjacent substation and transmission towers. In keeping with the guiding policy of the City of Orinda, EBMUD has proposed landscaping along Oursan Trail and Bear Creek Road to visually screen the facility and maximize the visual attractiveness of the facility.

A community benefit from the Project is assumed because of the increased renewable energy generation and education opportunities the Project would provide within the City of Orinda. Educational opportunities include educational placards accessible from the trail explaining the environmental benefits of the Project. Energy generated by the Project would offset operational costs for EBMUD's utility service in the City of Orinda (and throughout EBMUD's service area).

Watershed Subcategory Designation

Overview. As explained above, the "W" subcategory designation was added to the City of Orinda General Plan to ensure that land designated Utility-W would be (1) used for watershed management activities (2) with a lower intensity of use than active recreation land uses. Thus, to be consistent with the "W" subcategory designation, the Project site must meet both of those requirements. To further its watershed management goals of protecting biodiversity and water quality, EBMUD's East Bay Watershed Master Plan (EBWMP) defines the types of activities allowed of EBMUD-owned watershed lands and places limits on the way allowed activities may be implemented. Given that the EBWMP guides watershed management, any activity allowed under the plan which also has a lower intensity of use than would active recreation is consistent with the "W" subcategory designation. EBWMP consistency and intensity of use for the Project is discussed below.

Consistency with EBMUD East Bay Watershed Master Plan. EBMUD prepared the EBWMP to provide guidance for management of its 29,000 acres of East Bay watershed lands. EBMUD determined that management of watershed lands should focus on protecting water quality and important, high-quality biological resources. The EBWMP considers a range of activities that could be conducted on EBMUD watershed land and closely managed to protect water quality, including grazing, prescribed burns, biking, hiking, and horseback riding, and potential development of renewable energy facilities consistent with EBMUD's goals and objectives.

EBWMP Guideline VR.10 allows EBMUD to "consider installation of renewable energy facilities that are consistent with EBMUD's Strategic Plan and with the overall management direction of the East Bay Watershed Master Plan." This guideline was included in the plan to recognize the potential for development of renewable energy facilities on EBMUD watershed lands, while also recognizing that renewable energy facilities would only be considered if they are consistent with EBMUD's Strategic Plan and the overall management direction of the EBWMP. Guideline VR.10 requires EBWMP consistency to be assessed in the CEQA document prepared for any

proposed renewable energy facility. Consistency with (1) the overall management direction of the EBWMP and (2) EBMUD's Strategic Plan is described below and provided in Appendix D.

Consistency with EBWMP Overall Management Direction. The EBWMP provides goals, objectives, and guidelines governing use of watershed lands as guidance for overall management direction. Included are three main programs: 1) Natural Resource Management, 2) Community Use Management, and 3) Property Management, that generates 11 program components with respective goals, objectives, and guidelines. A detailed EBWMP consistency analysis was performed and each goal, objective, and guideline reviewed.

The results are summarized in Table 3.4-4 below, which indicates Project consistency with all eleven EBMUD program components. For four of the eleven program components, implementation of BMPs or additional Project features is necessary to achieve consistency. Each of those four program components is discussed in more detail below.

EBWMP Water Quality objectives include maintaining high quality of water stored in EBMUD surface water reservoirs and the creeks that supply them for a variety of beneficial uses. The Project would protect watershed water quality by maintaining a low level of activity on the Project site throughout the operational period. The Project would be remotely operated with on-site maintenance activities occurring as needed, approximately eight times per year (one visit for panel washing, two visits for vegetation management, and five visits for general maintenance dispatch). Panel washing does not create runoff into the creek as the little water used is infiltrated into the soil, evaporated, or utilized by the vegetation below it. Operation of the Project would not generate trash and would not bring heavy traffic to the area. Water quality in the adjacent San Pablo Creek and downstream San Pablo Reservoir would be preserved due to the low-intensity use of the Project site. From the perspective of water quality, the Project meets the General Plan's goal of only allowing lower intensity uses under the "W" subcategory designation.

The Project would eliminate prescribed burns and grazing activities from the Project site and replace these activities with trimming and mowing of vegetation below the solar panels. The change in management activities could potentially reduce the types and possible sources of runoff, improving the quality of use of the site, as studies of sediment yields following prescribed burns have found minimal increases to fine sediment volumes in creeks within prescribed burn areas. Low-severity fires were found to have a minimal impact on stream water chemistry (J. G. Cawson, 2012; Bêche, Stephens, & Resh, 2005). Livestock grazing may also affect water quality by increasing sediment, nutrient, and pathogen runoff (Hubbard, Newton, & Hill, 2004). Although prescribed burns and grazing are already implemented to minimize potential water quality impacts, removing these activities from the site would further reduce potential water quality impacts.

Table 3.4-4 Summary of EBMWP Consistency Analysis

EBWMP Program	Consistency
Natural Resource Management	
Water Quality	Consistent after implementation of BMPs
Biodiversity	Consistent after 5:1 oak tree replacement
Forestry	Consistent
Livestock Grazing	Consistent
Fire and Fuels	Consistent
Community Use Management	
Developed Rec & Trails	Consistent
Environmental Education	Consistent
Cultural Resources	Consistent after implementation of BMPs
Visual Resources	Consistent after adding vegetative screening
Property Management	
Land Ownership	Consistent
Entitlements	Consistent

EBMUD would also prepare an SWPPP before construction and implement erosion and sediment control BMPs during construction and operation of the Project consistent with this guideline and EBMUD standard practices and procedures. EBMUD's Standard Construction Specification 01 35 44 requires that the SWPPP shall conform to all State Water Resource Control Board requirements for a CGP SWPPP. The SWPPP requires:

- Contractor shall maintain proper control of the discharge at the discharge point to prevent erosion, scouring of bank, nuisance, contamination, and excess sedimentation in the receiving waters.

Because the EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, include preparation of and adherence to an SWPPP, which would require installation of erosion control BMPs to reduce off-site sedimentation and erosion, the Project would be consistent with the EBWMP Water Quality program component.

EBWMP Biodiversity objectives include protecting, and where possible, restoring plant and animal communities, populations, and species. The Project would reduce grazing lands that presently provide relatively low-value biological habitat. Impacts on the habitat of special-status species would be generally avoided by conducting preconstruction surveys to ensure special-status species are not present on the work site; installation of exclusion fencing, where necessary, to keep special-status species out of the work area; worker training; and timing of construction start to avoid special-status species. Impacts on wetland areas may be mitigated through purchase of mitigation credits or wetland creation. The Project would allow vegetation to regrow beneath the panels after construction. Approximately 35 trees are in the Project area.

Because impacts on wetlands would be mitigated per Mitigation Measure BIO-22 and oak trees would be replaced at a 5:1 ratio as required under Mitigation Measure BIO-23, the impact from consistency with this objective would be less than significant with mitigation.

EBWMP Biodiversity program component includes effective pest management and receipt of appropriate permits prior to disturbance of wetland or waters of the U.S. Noxious weed and pest management in the Project site would comply with District management guidelines including application of Integrated Pest Management strategies and no pesticide use. All applicable permits for impacts on wetlands and waters in compliance with Section 404 of the Clean Water Act would be obtained. The Project would thus adhere to the EBWMP Biodiversity program component.

EBWMP Cultural Resource program component ensures the protection of cultural resources. The approach to protection of cultural resources is described in the Cultural Resources analysis of this IS/MND and includes adherence to EBMUD standard construction specifications, which require:

- Communication and negotiation, as needed, with local Native American groups regarding the disposition of Native American artifacts and remains, should any be discovered;
- Avoiding disturbance to cultural resource sites and sites of unknown significance, where feasible;
- Fire management and other watershed personnel to protect known cultural resource sites during management activities; and
- Documentation of the procedures to be used if potentially significant cultural resources or human remains are discovered accidentally.

EBWMP Visual Resource program component calls for limiting the negative visual effects of EBMUD activities on watershed lands. The Project site is partially screened by topography and vegetation from Bear Creek Road and partially by vegetation from Oursan Trail (Bear Creek Trail). With implementation of vegetative screening from Bear Creek Road and Oursan Trail as detailed in the Project Description, the Project site would maintain the visual quality of the area.

Other guidelines for the Visual Resource program component call for clustering of development to reduce visual intrusion. This Project site would reduce visual impacts by clustering a renewable energy project near other utility assets (PG&E substation) on adjacent parcels and minimizing the number of additional PG&E assets required to support the Project. The Project as planned is consistent with the Visual Resource program component.

The Project is consistent with the overall management direction of the EBWMP.

EBMUD Strategic Plan Consistency. Since 2004, EBMUD has maintained a Strategic Plan to guide staff in management and allocation of resources and assets. EBMUD's 2018 Strategic Plan contains six main goals, three of which are related to this Project, including 1) Water Quality

and Environmental Protection, 2) Long-Term Financial Stability, and 3) Customer and Community Services[13].

Strategic planning for Water Quality and Environmental Protection includes both protection of water quality and the environment by minimizing air emissions and conserving natural resources. This watershed property will be managed for low-intensity use of the Project area, and will continue to protect downstream water quality, as it will not be an active site with the potential to generate debris that could run into the adjacent San Pablo Creek. Development of this renewable solar facility is critical to meeting EBMUD's emissions goals as specified in its Energy Policy and will offset the use of fossil fuels to generate electricity, thereby conserving natural resources.

Strategic planning for Long-Term Financial Stability includes creating long-term financial plans that include implementation of cost-effective and technologically driven efficiencies. This Project supports this goal as it will introduce renewable energy technology to reduce and stabilize long-term costs for EBMUD operations.

Strategic Planning for Customer and Community Services includes building stakeholder trust and long-term relationships through proactive communication and education, and service excellence. This Project supports this goal, as it will provide EBMUD the opportunity to proactively engage the public on EBMUD's renewable energy priorities. EBMUD intends to work closely with local land use agencies to develop partnerships in areas of shared interest, which will also further this goal. Finally, EBMUD views Emergency Preparedness as a component of excellent service. This Project creates an asset that could potentially increase local energy independence and be of use in post-emergency recovery if connected directly to District electrical load.

The Project is consistent with goals of the 2018 Strategic Plan.

Intensity of Use

The Project would be a low-intensity use. The solar facility will not generate trash or cause regular traffic on the site. The solar facility operation would be unmanned, with maintenance occurring as needed, approximately eight times per year (one visit for panel washing, two visits for vegetation management, and five visits for general maintenance dispatch).The Project would require 0.05 acre of new impervious surfaces which would be distributed over the Project site. The remainder of the Project site disturbance area would revegetate. The Project would be considered a low-intensity use from the perspective of water quality due to the limited traffic generated during operation of the facility and limited area of impervious surface required for

[13] The other three relate to long-term water supply, infrastructure investment and workforce development.

the solar facility. As such, it meets the general plan's goal of only allowing lower intensity uses under the "W" subcategory designation.

The Project would have the same low-intensity use as the current activity on the Project site. The Project would have a lower intensity of use than recreational use, which would include use of the site by recreationalists on a regular basis and regular trips to the site.

City of Orinda Zoning

The Project site is zoned as Public, Semipublic, and Utility, which permits development of major and minor utilities with acquisition of a Conditional Use Permit (CUP). The Project is within the scope of uses that are allowed within the Public, Semipublic, and Utility zoning designation with a CUP. The City of Orinda will need to make findings in order to issue the CUP. The findings and the Project's consistency with those CUP findings are provided below.

1. **The use is consistent with the Orinda General Plan, any applicable specific plan, and the purposes of the zoning district in which it is located**. The Project is zoned Public, Semipublic, and Utility District, which permits development of major and minor utilities with acquisition of a CUP. The Project is within the scope of uses that are allowed within this the Public, Semipublic, and Utility zoning designation with a CUP. The Project site is located on land designated as Utility (Protected Watershed) by the Orinda General Plan. The solar facility is a primary utility use that would provide power to offset energy used by EBMUD's facilities. The solar facility would be an unmanned facility and grassland vegetation would be allowed to re-establish beneath the solar panels. The activity level and development within the Project area would be low intensity, consistent with the Protected Watershed designation. Because the use is also consistent with the EBWMP as an acceptable watershed management activity, it is consistent with the General Plan designation for the project site. As such, the Project would not conflict with any applicable general plan policies or uses allowable in the zoning district, with acquisition of a CUP.
2. **The use is of benefit to Orinda residents.** The Project would involve installation of a solar facility to offset the cost of energy used during day-to-day operations needed to operate water facilities that serve Orinda residents. Energy generated by the Project would offset operational costs for EBMUD's utility service in Orinda (and throughout EBMUD's service area), benefitting all EBMUD customers. Use of 5-MW solar would reduce EBMUD's use of nonrenewable energy sources, which comprise 20 to 22 percent of PG&E's power mix in 2017 (PG&E, 2018). An increase in use of solar energy sources would minimize use of nonrenewable energy sources that generate greenhouse gas and criteria air pollutants emissions. Greenhouse gas emissions have global impacts on the climate, so regardless of where the currently used nonrenewable energy is sourced from, a reduction in emissions would benefit Orinda residents. The Project would also provide educational benefits to the community. Educational opportunities may include educational placards posted along the section of the

Oursan Trail (Bear Creek Trail) adjacent to the Project detailing the environmental benefits of the Project and engagement with local schools during oak planting efforts.

3. **The use will be properly related to other adjacent land uses and to transportation and service facilities in the vicinity**. The Project would involve construction of a solar facility on EBMUD-owned land, located adjacent to a PG&E substation and power lines. The Project would serve EBMUD's needs and would not conflict with adjacent utility uses. Use of existing trails on EBMUD land would not be hindered during construction or operation of the Project. The number of construction workers needed would be comparatively small, and the construction workers would be on the Project site for a short duration. Maintenance activities would require as-needed visits from approximately three workers. No adverse impact on existing transportation and service facilities would occur due to the small number of vehicle trips required.
4. **Under all the circumstances and conditions of the particular case, the use will not have a material adverse effect on the health or safety of persons residing or working in the vicinity**. No persons are residing or working in the vicinity of the site, and the solar facility will not have an adverse effect on health or safety. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44 into the Project, which includes practices and procedures for dust control, minimizing fugitive dust emissions during construction. Construction crews would be required to adhere to EBMUD's Standard Construction Specification 01 35 44, which includes the requirement for implementing a Spill Prevention and Response Plan and other requirements related to hazardous material storage and use. The Project would not expose workers or the public to hazardous materials or air pollutants during construction. Operation and maintenance of the Project would be conducted on an as-needed basis and would not result in generation of hazardous emissions or release hazardous materials that would affect health or safety. The solar panels do not contain hazardous materials. The Project would not increase the potential for wildfires, because the underlying vegetation communities would not change, and the site would continue to be managed by EBMUD to prevent wildfires (See Section XX Wildfires for further discussion). Adverse impacts on the health or safety of persons in the vicinity would not occur.
5. **The use will not contribute to a substantial increase in the amount of noise or traffic in the surrounding area**. The Project would not be a long-term source of noise or traffic, and the short-term construction noise and traffic to and from the Project site would be less than significant (refer to discussion of noise and traffic impacts in the IS/MND below). The distance between sensitive receptors and the site as well as dense trees and vegetation between construction activities and the nearest sensitive receptor would minimize construction noise at receptors. Wagner Ranch Elementary School, the nearest sensitive receptor, is located

approximately 1,400 feet away from the Project site. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, which requires noise controls including preparation and implementation of a noise control monitoring plan and implementation of noise barriers, if needed, to avoid a significant increase in noise at sensitive receptors. Operation of the Project would not result in audible noise at the nearest sensitive receptor. Noise levels would remain similar to existing conditions. No adverse noise impacts would occur over the operational life of the Project. Construction would occur over an approximate 7-month period, resulting in daily delivery and worker truck trips to and from the Project site. Existing access roads off Bear Creek Road would be used during construction and operation. The Project would generate approximately 24 one-way delivery truck trips per day and an estimated 88 one-way worker trips per day over the approximate 7-month construction period. The Project would not generate regular traffic over the operational period because the solar facility would be unmanned. The short duration and low volume of additional vehicles during construction would not result in adverse traffic impacts.

XII. Mineral Resources

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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Discussion

A) No Impact.

The Project site is not within a mineral resource zone established by the State Department of Conservation and there are no identified important mineral resources on the Project site. The Project would not result in the loss of availability of a known mineral resource. No impact would occur.

B) No Impact.

The Project site is not within a mineral resource area designated by the City of Orinda General Plan. The Project would not result in the loss of availability of a locally important mineral resource recovery site. No impact would occur.

XIII. Noise

Would the project:	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?	☐	☐	☒	☐
B) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
C) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project corridor to excessive noise levels?	☐	☐	☐	☒

Discussion

A) Less than Significant Impact.

Overview

For the purposes of this MND and consistent with Appendix G, Environmental Checklist Form, of the CEQA Guidelines, the Project is considered to have a significant impact if it would conflict with the local noise ordinance. Local noise issues are addressed by assessing consistency with applicable noise ordinance standards or general plan guidelines (if there is no noise ordinance). Noise ordinances regulate such sources as mechanical equipment and amplified sounds as well as prescribe hours of heavy equipment operation.

The Project site and all sensitive receptors in the vicinity are located in the City of Orinda. Project-related noise increases and proposed construction hours were compared to the noise level and construction time limits contained in the City of Orinda's noise ordinance. Noise standards from the City of Orinda's noise ordinance are shown in Table 3.4-5.

Sensitive receptors are defined as population groups more sensitive to noise that are associated with land uses such as residential areas, hospitals, schools, child care facilities, senior facilities, libraries, churches, and passive recreation areas (Caltrans, 2011b). The projected construction and operational noise levels at nearby sensitive receptors were compared against specific noise criteria. Sensitive receptors in the Project vicinity include hikers and equestrians using Oursan Trail. The closest point of Oursan Trail to the Project site is 150 feet. All other sensitive receptor are over 1,000 feet away from the Project site and separated from the Project site by dense woodland vegetation and topography. Wagner Ranch Elementary School is located approximately 1,400 feet to the southeast of the Project site. The City of Orinda provides daytime and nighttime noise limits for areas designated as single-family residential. The nearest residential receptor is located approximately 2,290 feet to the southeast of the Project site on

Kittiwake Road. This residence and the school do not have a direct line of sight to the Project site due to vegetation and topography. Vegetation and topography can serve as noise barriers. The nearest residence with a line of sight to the Project site is approximately 2,750 feet to the south of the Project on Marston Road (2M Assocciates, 2019).

Existing sources of noise in the Project area include Bear Creek Road, PG&E high voltage transmission lines, and electrical equipment within the adjacent PG&E Sobrante Substation. Rural and undeveloped areas typically have ambient noise levels of 33 to 47 decibels (day-night average sound level [Ldn]) (Eldred, 1981). Due to the presence of utilities and a roadway, ambient noise levels on the Project site are likely on the higher side and closer to 47 decibels. Residential noise levels in wooded areas are generally approximately 50 A-weighted decibels (dBA) Ldn (USEPA, 1978); therefore, for the purposes of the noise analysis, ambient noise levels at the nearest residence are assumed to be 50 dBA Ldn.

Table 3.4-5 City of Orinda Time Limits and Noise Standards

			Ordinance Noise Limited for Various Activities in Single-Family Residential Zones (dBA) [b]	
Construction Time Limits [a]			Day (L_{eq})	Night (L_{eq})
Weekdays	**Saturdays**	**Sundays**	**7 am to 10 pm**	**10 pm to 7 am**
8 am to 6 pm	10 am to 5 pm	Not Allowed	60 (Ldn) [c]	55

Notes:

[a] Time Limits: Orinda Municipal Code, Chapter 17.39.3, specifies construction time limits. Operation of heavy construction equipment is not allowed on Saturdays or Sundays. Noise Limits: To account for duration and timing, the Orinda Municipal Code, Chapter 17.15.2 stipulates a noise limit of 60 dBA (Ldn) in residential districts. The ordinance further reduces noise levels by 5 dB between 10 pm and 7 am relative to the 60 Ldn. Noise that is produced for cumulative periods of no more than 5 minutes and 1 minute in any hour may exceed the standards by 5 dB and 10 dB, respectively. Presumably, these noise levels would be limited to 65 and 70 dBA, respectively. Title 17, Section 17.39.9 of Orinda Municipal Code, specifies a maximum noise level of 45 dBA for mechanical equipment which is permanently affixed to a structure or on the ground (but not limited to air conditioners, pool equipment, spa equipment), except for emergency backup power generators.

[b] Time variations in noise exposure are typically expressed in terms of a steady-state energy level (L_{eq}) that represents the acoustical energy of a given measurement. Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, for planning purposes, an artificial dBA increment is added to "quiet time" noise levels to form a 24-hour noise descriptor called the day-night noise level Ldn). Ldn adds a 10-dBA penalty to all nighttime noise events between 10:00 pm and 7:00 am.

[c] Construction activities are exempt from the daytime noise limits if they occur during the construction time limits specified in the ordinance.

Construction

Construction activities have the potential to generate considerable amounts of noise from heavy equipment operation. Noise levels of construction equipment expected to be used during construction are presented in Table 3.4-6. Construction activities that occur Monday through Friday between the hours of 8 am and 6 pm and on Saturdays between 10 am and 5 pm are exempt from noise restrictions under the City of Orinda noise standards. Construction of the

Project would occur Monday through Friday from 8:00 am to 6:00 pm. Construction would not occur on Sundays or holidays, in accordance with the City of Orinda's noise ordinance.

Nighttime or weekend construction may need to occur in the event of an emergency. The loudest piece of equipment, an impact pile driver, would only be used during allowable construction hours and would not be needed in the event of an emergency. The second loudest piece of equipment, power tools, could be needed, but would attenuate to less than 55 dBA approximately 1,121 feet away. Use of power tools would generate temporary increases in ambient noise that could be a nuisance to recreational users at Oursan Trail on the weekends. Most recreationalists would only be adjacent to the Project site for a short duration and would be able to move away from noisy areas with little impact on their experience. The nearest noise-sensitive facility to the southeast of the Project site (Wagner Elementary School) would not be occupied at night or on weekends and would not be disturbed by any potential emergency construction noise.

Table 3.4-6 Construction Equipment Noise Levels

Equipment	L_{max} (dBA) at 50 Feet	L_{eq} (dBA) at 50 Feet
Bulldozer	82	78
Concrete mixer truck	79	75
Dump truck	76	73
Excavator	81	77
Generator	81	78
Pile driver (impact)	101	94
Power tools	67 - 89	60 - 82
Roller	80	73
Telescopic boom lift	75	68
Trencher	72	69

Note:
[d] Based on an estimate, not an actual measurement.

Source: (FHWA, 2006; Ditch Witch; CDC, 2011)

Construction work outside of the City of Orinda ordinance construction daytime work hour limits are not proposed and would only occur in the case of an emergency. For construction that occurs at night or on weekends outside of the exempted construction hours, the noise limits identified in Table 3.4-5 apply. The City of Orinda noise ordinance stipulates a noise limit of 60 dBA (Ldn) during the day, and 55 dBA (Ldn) during nighttime hours at areas designated for single-family residential. The noise levels from the loudest piece of equipment that could be used in the event of an emergency would attenuate to lower than 55 dBA at the nearest single-family residence located 2,290 feet to the southeast. As such, even at times when construction may occur outside of the construction windows set forth in the City of Orinda ordinance,

nearby residential receptors would not experience noise-related impacts from equipment in excess of the noise limits identified in the noise ordinance. Construction-related noise impacts would be less than significant.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 14 00, Work Restrictions. Section 1.3, Work Hours, of this standard construction specification includes minimization measures for restricting hours of construction equipment, including:

- Work or activity of any kind shall be limited to the hours from 7:00 am[14] to 6:00 pm Monday through Friday.
- Truck operations (haul trucks and concrete delivery trucks) will be limited to the daytime hours (between 9:00 am and 4:00 pm).

Section 1.7, Construction Noise, of EBMUD's Standard Construction Specification 01 14 00, Work Restrictions, also includes minimization measures for restricting hours of construction equipment, including:

- Noise-generating activities greater than 90 dBA (impact construction such as concrete breaking, concrete crushing, tree grinding, etc.) shall be limited to the hours of 8:00 am and 4:00 pm, Monday through Friday.

In addition, Sections 3.5 and 3.6 of EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, include the following provisions to reduce noise levels from impact equipment, which would generate the greatest construction noise:

- If impact equipment is used, the Contractor is responsible for taking appropriate measures, including but not limited to the following:
  - Hydraulically or electrically powered equipment shall be used wherever feasible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust shall be used (a muffler can lower noise levels from the exhaust by up to about 10 dB). External jackets on the tools themselves shall be used, where feasible, which could achieve a reduction of 5 dB. Quieter procedures, such as drilling rather than impact equipment, shall be used whenever feasible.
  - Impact construction, including jackhammers, hydraulic backhoe, concrete crushing/recycling activities, vibratory pile drivers, etc., shall be limited to the

[14] For this Project, EBMUD would not start work until 8:00 am during weekdays, in conformance with the City of Orinda noise ordinance.

daytime hours specified in Standard Construction Specification 01 14 00 (see below for discussion).
- Erect temporary noise barriers or noise control blankets around the construction site, particularly along areas adjacent to residential buildings.
- Utilize noise control blankets around the major noise sources to reduce noise emission from the site.
- Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of sound blankets, for example.
- Limit the noisiest phases of construction to 10 workdays at a time, where feasible.
- Notify neighbors/occupants within 300 feet of Project construction at least 30 days in advance of extreme noise-generating activities about the estimated duration of the activity.
- Noise monitoring shall be conducted periodically during noise-generating activities. Monitoring shall be conducted using a precision sound-level meter that is in conformance with the American National Standards Institute Standard S1.4, Specification for Sound Level Meters. Monitoring results shall be submitted weekly to the Engineer.

Implementation of Section 1.4, Work Hours, and Section 1.8, Construction Noise, of EBMUD's Standard Construction Specification 01 14 00 and Sections 3.5 and 3.6 of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, would limit construction work hours and would reduce noise levels from impact equipment, which would further reduce the less than significant noise impacts. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Operation

Several new sources of noise would be installed on the Project site including trackers, inverters, and transformers. Maintenance activities would occur occasionally including panel washing. Noise levels associated with operation and typical equipment used during maintenance are shown in Table 3.4-7.

Inverters are the loudest piece of equipment that would be introduced to the area. Noise levels from inverters would attenuate to less than 47 dBA at 150 feet from inverters. Inverters and transformers would be located on the interior of the Project site and noise levels from Project equipment would not exceed the ambient noise level for recreationalists at Oursan Trail. Maintenance activities would occur during daylight hours, similar to construction activities. Power tools may be used during maintenance activities but would attenuate to less than 55 dBA approximately 1,121 feet away. Noise levels associated with maintenance activities would be generated only when maintenance activities are taking place and maintenance activities would not be frequent (estimated at approximately 8 days per year). Use of power tools would generate temporary increases in ambient noise that could be a nuisance to recreational users at

Oursan Trail. Most recreationalists would only be adjacent to the Project site for a short duration and would be able to move away from noisy areas with little impact on their experience.

The noise from operation and maintenance activities would not be audible at the closest residences due to the intervening distance of 2,290 feet and topography. No conflict with the City of Orinda noise ordinance noise limitations in residential areas would occur. The impact from operational noise would be less than significant.

Table 3.4-7 Operational Noise Levels

Source	L_{eq} (dBA) at 50 Feet
Maintenance	
Pickup truck	71
Power tools	60 - 82
Solar Field Equipment	
Tracker	41
2.5 MW Inverter	55
Transformer [a]	42

Notes:

[a] A representative 2-MW transformer.

Source: (NEMA, 2013; Ldn Consulting, 2011; Sengpielaudio, 2018; FHWA, 2008; Power Electronics)

B) Less than Significant Impact.

Overview

Existing sources of vibration in the Project area are primarily cars and trucks traveling on Bear Creek Road. Vibration-sensitive structures include the underground EBMUD water pipeline and the nearest building to the Project site, which is the EBMUD Watershed Office located approximately 940 feet to the west of the Project site.

The City of Orinda does not provide numerical thresholds for determining when groundborne vibration impacts are considered significant. Therefore, the analysis uses peak particle velocity (ppv) thresholds from the California Department of Transportation to determine whether the Project's construction would result in impacts. The thresholds used in this analysis and identified in Table 3.4-8 were selected based on Project site conditions and adjacent land uses.

Table 3.4-8 Vibration Thresholds (PPV)

Source Character	Building Damage (Commercial)	Underground Utilities	Annoyance
Single-event	2.0	4.0	--
Frequent Intermittent/ Continuous	2.0	--	0.1
Transient	2.0	--	0.9

Source: (Caltrans, 2013; AASHTO, 2004)

Construction

Groundborne vibrations would be generated during construction activities due to the use of heavy equipment and the presence of truck traffic. Vibration levels associated with construction activities are shown in Table 3.4-9. Groundborne vibration attenuates rapidly with distance.

Table 3.4-9 Construction Equipment Vibration Levels

			Minimum Distance to Remain at or Below Threshold (feet)		
Source Type	Source Character	PPV at 25 Feet (in/sec)	Building Damage (Commercial)	Underground Utilities	Annoyance
Impact hammer/ pile driver	Frequent Intermittent	1.518 [a] 0.644 [b]	21	14	155 90
Loaded trucks	Transient	0.076	19	2	5
Small bulldozer	Transient	0.003	3	<1	<1

Notes:

[a] Maximum

[b] Typical

Source: (FTA, 2006)

Construction vibration would not cause any potential damage to adjacent structures due to the distance construction would occur away from structures. Individuals hiking on the Oursan Trail would be in areas where vibration cold be experienced for a short period of time (seconds) as they travel along the trail near the Project area. The impact from vibration would be less than significant.

Operation

Use of the solar array would be similar to existing conditions, with a few vehicles accessing the Project site for maintenance. Equipment on the Project site would generate negligible vibration. No permanent source of noticeable vibration would be present on the Project site. No impact from groundborne vibration would occur.

C) No Impact.

Construction and Operation

No private airstrips are located in the vicinity of the Project site. The Project site is not located within an airport land use plan or within 2 miles of a public airport. No impact would occur.

XIV. Population and Housing

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 (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
B) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

A) No Impact.

The Project is an unmanned solar-generating facility and interconnection. The power generated by the Project would offset existing electrical use by EBMUD facilities and would not supply power to accommodate population growth. Project construction would require approximately 5 to 44 workers on-site over the approximate 7-month long construction period. Workers would commute to the site daily from nearby communities and would not reside on-site. The Project would be operated remotely. Maintenance of the site would be conducted on an as-needed basis and would not generate permanent employment. The Project would not induce unplanned population growth directly or indirectly. No impact would occur.

B) No Impact.

The Project site is vacant land. No housing is located at the Project site or in the vicinity of the Project. No existing people or housing would be displaced by the Project. No impact would occur.

XV. Public Services

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, or the need for new or physically altered government 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:				
(i) Fire protection?	☐	☐	☐	☒
(ii) Police protection?	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
(iii) Schools?	☐	☐	☐	☒
(iv) Parks?	☐	☐	☐	☒
(v) Other public facilities?	☐	☐	☐	☒

Discussion

A) (i – v) No Impact.

The Project site is undeveloped and does not contain any governmental facilities. The Project does not include relocation or construction of any governmental or other public facilities. The Project would not induce population growth in the area, as analyzed in Section XIV, Population and Housing. The Project would not create demand for any public facilities that would not cause the need for new or physically altered government facilities. The Project would not impact public services. No impact would occur.

XVI. Recreation

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?	☐	☐	☐	☒
B) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion

A) No Impact.

Overview

Oursan Trail (Bear Creek Trail), a segment of the statewide Mokelumne Coast to Crest Trail, and a trail within EBMUD-owned property, is located immediately west of the Project site. It is directly accessed by either of the following two staging areas:

- The Orinda Connector Staging Area: An informal unpaved roadside parking area that accommodates approximately 10 vehicles. It is approximately 0.3 mile from the Project site off of Bear Creek Road, just north of the intersection with San Pablo Dam Road.
- The Overlook Staging Area: A developed paved area with a restroom that includes approximately 25 parking spaces, a handicapped parking space, and an

area for trailers accommodating equestrian parking. It is located off of Bear Creek Road, approximately 1 mile north of the Project site.

Use of trails on EBMUD-owned property has historically been low intensity. In 2017, there were a total of 8,000 trail-use permit holders using 83 miles of trail system across 29,000 acres of watershed land (EBMUD, 2017b). In January and February 2018, approximately 253 and 182 people used Oursan Trail, respectively[15].

Construction

The Project site would be fenced for security and safety. Construction activities would not involve closure of the adjacent Oursan Trail because no trails are located within the fenced Project area. Trail users would not be displaced from the Oursan Trail or nearby trails to other parks or recreational facilities because there would be no trail closures. Nearby recreational facilities, such as San Pablo Reservoir operated by EBMUD, or Tilden Regional Park operated by the East Bay Regional Park District, would not experience an increase in use due to the Project construction, leading to substantial deterioration because construction personnel working on the Project site are not expected to frequent the nearby parks. No impact would occur.

Operation

The Project is a utility project that would not include the construction of housing or features that would induce population growth resulting in an increased demand for recreational facilities. The Project would not make any recreational area inaccessible such that it would increase use of and cause subsequent deterioration of other recreational facilities. Permanent changes and deterioration of nearby trails would not occur because the trails are not located within the Project site. No impact would occur.

B) No Impact.

The Project would not include or require the construction or expansion of recreational facilities. No impact would occur.

XVII. Transportation

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?	☐	☐	☒	☐

[15] The trail use numbers are based on the number of people who signed the EBMUD trail register at the entrance to the trail in each month.

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
B) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
C) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
D) Result in inadequate emergency access?	☐	☐	☒	☐

Discussion

A) Less than Significant Impact.

Construction

Construction of the Project would generate approximately 24 one-way delivery truck trips per day and an estimated maximum of 88 one-way worker vehicle trips per day during the approximate 7-month long construction period. Construction activities would generate a maximum of 14 trips per hour during the construction period. The Contra Costa Transportation Authority (CCTA) Congestion Management Plan (CMP) sets a threshold of 100 trips during peak hours to conduct detailed analysis of traffic impacts. The temporary construction traffic would not exceed the CCTA CMP threshold for traffic impact.

Temporary traffic delays on Bear Creek Road may occur during Project construction. Temporary traffic delays on Bear Creek Road would be limited to 1 to 2 minutes to allow construction vehicles to cross the street. Given the very short period that road closures could occur, traffic would not need to be rerouted. Due to the very brief duration of potential delays, the impact on the circulation system would be less than significant.

Due to the undeveloped nature of the Project site, the Project is not located near any transit routes. Bay Area Rapid Transit (BART) provides rail services in the Project area and County Connection serves the Project area by bus. The closest transit stop to the Project site is the Orinda BART station, which also serves County Connection Line 6, located approximately 2.25 miles southeast of the Project site.

The closest bicycle facilities to the Project site are a Class II bicycle lane along San Pablo Dam Road, which terminates at the intersection with Bear Creek Road, where it is adjacent to the Project site. San Pablo Dam Road would be used to access the Project site, but no road closures would occur that would impact the use of the Class II bicycle lane. Temporary traffic delays on Bear Creek Road may occur during Project construction, which could impact bicyclists using the road. Temporary traffic delays would be limited to 1 to 2 minutes as haul trucks enter or exit the site on Bear Creek Road and would not conflict with the bicycle facilities due to the short duration of any potential delay.

Also, as detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 55 26, Traffic Regulation. Section 1.2, Submittals, of EBMUD's Standard Construction Specification 01 55 26 requires a Traffic Control Plan that conforms to the most current version of the Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones and requires that the Traffic Control Plan include:

- Circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible.
- A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.
- Procedures, to the extent feasible, to schedule construction of Project elements to minimize overlapping construction phases that require truck hauling.
- Designated Contractor staging areas for storage of all equipment and materials in such a manner to minimize obstruction to traffic.
- Locations for parking by construction workers.

Because EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation, has been incorporated into the Project and requires implementation of a Traffic Control Plan that minimizes impacts to traffic circulation, Project impacts related to short-term construction traffic from the Project would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Operation

The Project will operate as an unmanned facility that would be visited periodically by operations staff for maintenance, panel washing, and security. Operation and maintenance of the Project would not generate regular traffic, and the volume of operational traffic would be low. Vehicle traffic for maintenance would be limited to approximately three vehicles. Maintenance visits are expected to occur as needed, approximately eight times per year (one visit for panel washing, two visits for vegetation management, and five visits for general maintenance dispatch). The low volume of operational traffic would not conflict with the CCTA CMP. The CMP requires a traffic impact analysis for proposed development that would generate more than 100 net new peak hour vehicle trips. The Project would not generate any regular new peak hour vehicle trips because operation and maintenance of the Project would not generate regular traffic. Impacts would be less than significant.

B) Less than Significant Impact.

Overview

Public Resources Code Section 21099

Background. In January 2016, the Office of Planning and Research published for public review and comment the *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA,* recommending that transportation impacts for projects be measured using a

vehicle miles traveled (VMT) metric. In late 2018, the Natural Resources Agency finalized the updates to the CEQA Guidelines, and on December 28, 2018, the updated CEQA Guidelines became effective. Accordingly, this Initial Study/MND does not contain a discussion of automobile delay impacts, but rather uses VMT to evaluate transportation-related effects.

The Office of Planning and Research's transportation impact guidelines provide screening criteria for identifying land use project types, characteristics, or locations that would avoid exceedances of these VMT thresholds of significance. The Office of Planning and Research recommends that if a project or land use proposed as part of the project meets the below-described screening criterion, then VMT impacts are presumed to be less than significant for that land use, and a detailed VMT analysis is not required. This screening criterion and how it is applied for the Project is described below.

Small Projects. According to the Office of Planning and Research, lead agencies may generally assume that a project would not have significant VMT impacts if the project would either: (1) generate fewer trips than the level for studying consistency with the applicable congestion management program or (2) where the applicable congestion management program does not provide such a level, fewer than 100 vehicle trips per day. The CCTA CMP requires a traffic impact analysis for proposed development that would generate more than 100 net new peak hour vehicle trips. Therefore, the Project uses the screening criterion of 100 net new peak hour vehicle trips as the level at which most projects would not typically generate a substantial increase in VMT.

The subsection below discusses the screening criterion and threshold of significance used to determine whether public services and utilities would result in a substantial increase in VMT. The screening criterion and threshold of significance are consistent with CEQA Section 21099 and with the screening criteria recommended in the Office of Planning and Research's proposed transportation impact guidelines.

Public Service Land Uses (e.g., police, fire stations, public utilities). Public service land uses do not typically generate a substantial increase in VMT but rather support other land uses (e.g., office and residential). Therefore, the utility land use (solar facility) proposed at the Project site is presumed not to generate substantial increases in VMT.

Project Impacts

The Project meets the screening criteria for VMT because it is a public services land use (public utility). Operation of the Project would not generate any regular operational trips because the Project is an unmanned facility with no permanent staff on-site. Because it meets the screening criteria, VMT impacts are considered to be less than significant, and a detailed VMT analysis is not required for the Project. Construction of the Project would not induce additional vehicle trips by adding a new roadway and would not increase the physical roadway capacity.

C) Less than Significant Impact.

The Project would not modify the geometric design features of any publicly accessible roadway. The Project involves the construction of new unpaved access roads within the facility to allow

for access to the solar arrays for construction and operation personnel. The new access road and existing access road would not be accessible to the public and would not include hazardous design features. An increase in hazards due to construction equipment crossing Bear Creek Road could occur during Project construction. As analyzed under Impact A) above, the Project would be required to develop and implement a Traffic Control Plan.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 1.2, Submittals; Section 3.1, General (Execution); and Section 3.3, Flaggers (Execution), of EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation. Section 1.2, Submittals, requires preparation of a Traffic Control Plan that conforms to the most current version of the Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones.

Section 3.1, General (Execution), includes the following provision:

- Install temporary traffic markings where required to direct the flow of traffic. Maintain the traffic markings for the duration of need and remove by abrasive blasting when no longer required.

Section 3.3, Flagging (Execution), includes the following provision:

- Provide flaggers to control traffic where required by the approved traffic control plan.

Because EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation, has been incorporated into the Project and requires implementation of a Traffic Control Plan that includes the use of temporary traffic markings and flaggers, Project impacts related to short-term construction traffic hazards from the Project would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

D) Less than Significant Impact.

Construction

The Project would involve temporary traffic delay as construction equipment enters and exits the Project site, but the Project would not require any road closures that could affect emergency access. In addition, as detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 1.2, Submittals, and Section 3.1, General (Execution), of EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation. Section 1.2, Submittals, requires preparation of a Traffic Control Plan that conforms to the most current version of the Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones and requires that the Traffic Control Plan include:

- A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.

Section 3.1, General (Execution), includes the following provisions:

- For complete road closures, immediate emergency access to be provided if needed to emergency response vehicles.
- A minimum of 12-foot travel lanes must be maintained unless otherwise approved by EBMUD.

Because Section 1.2, Submittals, and Section 3.1, General (Execution), of EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation, have been incorporated into the Project and require maintenance of emergency access at all times, Project impacts related to emergency access would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Operation

The Project is an unmanned facility that would be visited periodically by operations staff for maintenance, panel washing, and security. No temporary road closures would occur, and operation vehicles would not block public roadways. No impact would occur.

XVIII. Tribal Cultural Resources

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
A) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), 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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.	☐	☐	☒	☐

Discussion

A) (i-ii) Less than Significant Impact.

Native Americans on the Native American Heritage Commission list[16] were notified about the Project in May 2018, and EBMUD requested information on any known cultural resources in the Project area. No information was provided in responses to these requests, and no tribal cultural resources are known to occur in the Project area based on a review of cultural resources inventories and a cultural resource survey of the Project site (Basin Research Associates, 2018). The Archaeological Sensitivity Map in the Contra Costa General Plan categorizes the Project site as within "largely urbanized areas" and is not categorized as being in an archaeological sensitive area (CCCDD, 1996). However, ground-disturbing activities during construction have the potential to unearth previously undiscovered tribal cultural resources. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.9, Protection of Cultural and Paleontological Resources, of this standard specification, which includes appropriate cultural resources management practices and complies with statutory requirements, outlines the following procedures:

- Preconstruction cultural resources training is required for all construction personnel. In the event that a cultural or paleontological resource is identified during preconstruction activities or during excavation for construction activities, all work within 100 feet of the resource shall be halted until a qualified archaeologist can review, identify, and evaluate the resource for its significance. Should the archaeologist determine that an archaeological resource has the potential to be a tribal cultural resource, a Native American monitor shall be retained by EBMUD to monitor work in the area where the tribal cultural resource was discovered.
- Discovery of human remains requires that all construction activities shall immediately cease at the location of discovery and within 100 feet of the discovery. EBMUD shall contact the County Coroner to determine whether or not the remains are Native American. If the remains are determined to be Native American, the Coroner shall contact the Native American Heritage Commission (NAHC). The NAHC shall then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to EBMUD for the appropriate means of treating the human remains and any associated funerary objects.

[16] The Native American Heritage Commission provided a list of six Native American individuals/groups that EBMUD notified about the Project

Because Section 3.9, Protection of Cultural and Paleontological Resources, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, and it requires implementation of archaeological resources procedures that address the inadvertent discovery of tribal cultural resources and follow statutory law, the Project's impact related to tribal cultural resources is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

XIX. Utilities and Service Systems

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 stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
B) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐
C) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
D) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
E) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion

A) Less than Significant Impact.

Construction

Water

Water would be used during construction for dust suppression, concrete washout, and other miscellaneous activities. EBMUD would provide the water needed for construction from an existing on-site water pipeline owned by EBMUD, as shown on Figure 3.4-17. EBMUD has sufficient water available to supply water required for dust control, and no new water treatment facilities would be required. A temporary tap would be installed on the existing

water pipeline to obtain water for dust suppression during construction. Approximately 1,000-feet of the existing on-site water pipeline may be relocated, as necessitated by installation of Project components. Approximately 1,150 feet of water line may also be installed from the existing water pipeline to the southwestern edge of the Project site and the northeastern edge of the Project site, respectively, to irrigate the native vegetation proposed along Oursan Trail and Bear Creek Road. The impacts from the realignment of the on-site water pipeline and the water pipeline extensions are analyzed throughout this Initial Study/MND.

Wastewater

Approximately 44 workers would be on the Project site at any one time and will be serviced by temporary restrooms. The Project site is within the Central Contra Costa Sanitary District, which treats 36 million gallons of wastewater a day, on average, with a capacity to treat up to 54 million gallons a day (Central San, 2018). The amount of wastewater generated by this small number of workers would not exceed wastewater treatment capacity. Adequate wastewater and water treatment facilities are available under existing conditions. Construction of the Project would not require expanded water or wastewater treatment facilities or the construction of new water facilities.

Stormwater

As described in Section X, Hydrology and Water Quality, no stormwater drainage facilities are located in the Project site. Construction of the Project would result in a minor increase in impervious surfaces, approximately 0.05 acre. Additional impervious surface could increase the quantity of stormwater runoff, as could the 18 acres of site grading. A small stormwater detention basin would be installed, if needed, and other permanent erosion control BMPs may be required to comply with the requirements of the CGP. The impact from the construction of the detention basin would be less than significant.

Electric Power

Construction of either an overhead or underground conductor would be required to connect the new control building to an existing PG&E 12-kV distribution line on the south side of Bear Creek Road, shown on Figure 3.4-17. Construction of the conductor and power poles would not interfere with existing electrical utility operation. The construction of the electric power line is considered part of the Project and the impacts are analyzed throughout this Initial Study/MND.

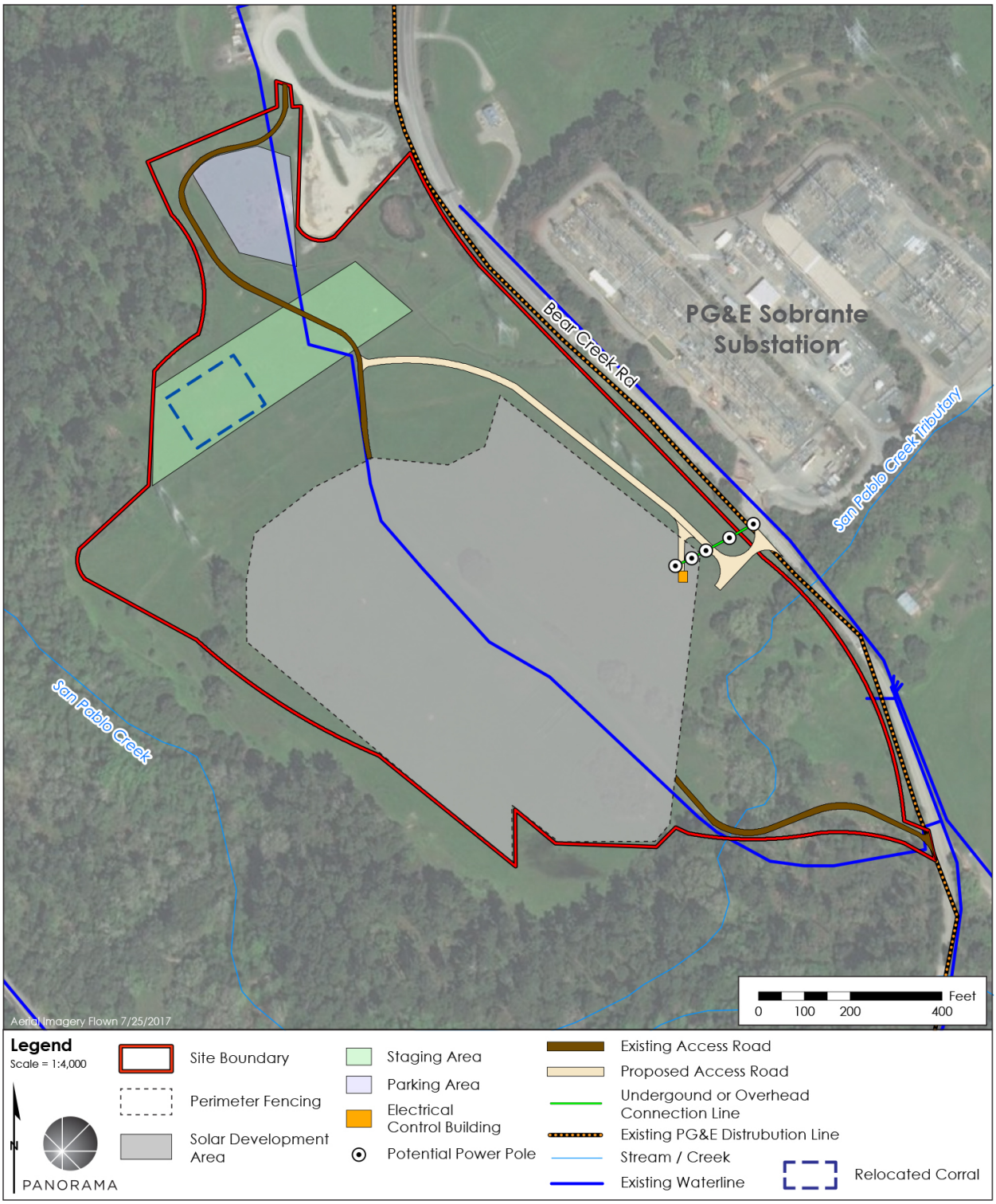
Natural Gas

No natural gas facilities are located within the Project site. The Project would not require the construction or relocation of any natural gas facilities.

Telecommunication

No telecommunication lines are currently located within the Project site. The Project would include installation of fiber optic telecommunication cable within the collector line trench.

Figure 3.4-17 Existing Utilities



Source: (USGS, 2018; Tele Atlas North America, Inc., 2018; California Department of Fish and Wildlife, 2016; EBMUD, 2019c; EBMUD, 2018a; Vollmar Natural Land Consulting, 2018)

The installation of telecommunication lines within the Project site is considered part of the Project and the impacts of the telecommunication line installation are considered in this Initial Study/MND. The Project would not require the relocation or otherwise affect any existing telecommunication lines.

Operation
Periodic solar panel washing would occur as needed, typically one time per year to keep the panels operating efficiently. Approximately 1,500 gallons of water would be needed for a panel washing and applied at a rate that would not result in runoff from the site. Adequate water treatment capacity exists to support the volume of water for panel washing. Operation and maintenance of the Project would not generate or require treatment of wastewater. No impact would occur.

B) Less than Significant Impact.

Construction
The volume of water needed for dust control throughout construction is approximately 75,000 gallons, which is not a substantial volume of water. Potable water would be sourced from an existing EBMUD water line located within the Project site (refer to Figure 3.4-17). Adequate water supplies are available under existing and future conditions due to the very minimal volume of water that is required for construction and the short-term water use. The impact would be less than significant.

Operation
The annual quantity of water needed to wash the solar panels (approximately 1,500 gallons per year) would not affect water supplies or require expanded entitlements. The impact would be less than significant.

C) Less than Significant Impact.

As analyzed under Impact B) above, the local wastewater treatment facility has adequate capacity to accommodate the small volume of wastewater that would be generated during construction of the Project. No wastewater would be generated during operation of the Project. The impact would be less than significant.

D) Less than Significant Impact.

Construction
Acme and Keller Canyon Landfills are located in Contra Costa County with a combined capacity of over 64 million cubic yards remaining (CalRecycle, 2018). Construction of the Project would generate small volumes of construction waste (e.g., equipment packaging and trash generated by workers). The small quantity of waste generated would not be in excess of the capacity at nearby landfills (USEPA, 2016b). The impact would be less than significant.

Operation
Maintenance of the facility may generate minimal waste from disposal of broken parts or materials. Sufficient landfill capacity exists to address this irregular source of waste. The Project

would not create a regular source of waste. The impact on landfill capacity would be less than significant.

E) No Impact.

Project construction activities would generate debris that needs to be disposed of, such as equipment packaging and trash generated by workers. Contaminated soils and other materials are not anticipated to be generated because no sources of soil contamination are expected on the Project site. The waste material generated during Project construction and maintenance debris would be transported to an appropriate disposal location in accordance with federal, state, and local statutes and regulations related to solid waste. Any removed vegetation would be chipped on-site or composted. The Project would comply with all applicable statutes and regulations for disposal of solid waste during construction. No impact would occur.

XX. Wildfire

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?	☐	☐	☒	☐
B) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
C) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
D) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

Overview

Wildfire risks and hazards are described in detail in Section IX, Hazards and Hazardous Materials. The Project site is located within a local responsibility area that abuts a state responsibility area. The entire Project site is located on lands in a Very High Fire Hazard Severity Zone, as defined by CAL FIRE.

A) Less than Significant Impact.

Project construction would not impair an adopted emergency response or emergency evacuation plan. Vehicles delays of 1 to 2 minutes would occur as large construction equipment

moves across Bear Creek Road or enters and exits the Project site. Vehicles and equipment would be parked and staged adjacent to the Project site and off public roads within the designated parking and staging areas. Access would always be granted to emergency responders, and road closures would be halted in the event of an emergency to allow safe access. Construction equipment and materials and maintenance vehicles would be parked and staged off public roads.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 14 00, Work Restrictions, and Standard Construction Specification 01 55 26, Traffic Regulation. Section 1.2, Submittals, of EBMUD's Standard Construction Specification 01 55 26 requires a Traffic Control Plan that conforms to the most current version of the Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones and requires that the Traffic Control Plan include a description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.

Because EBMUD's Standard Construction Specifications 01 55 26, Traffic Regulation, has been incorporated into the Project and requires implementation of a Traffic Control Plan that requires emergency response vehicle access, Project impacts on emergency response and evacuation would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

B) No Impact.

Construction of the Project would not change the slope of the Project site or otherwise affect wind patterns in the Project area that would exacerbate wildfire risks. The minor recontouring and grading on the site would be conducted to create flatter areas for solar installation. The solar panels would be low to the ground (mounted approximately 8 feet above the ground surface) and would not affect wind directions or wind patterns. No impact would occur.

C) Less than Significant Impact.

Solar Panels

The Project would not require a fire break or emergency water system. Brush and vegetation within the Project site would be cleared at the start of construction which would minimize the risk of igniting a wildlife. After construction, low vegetation such as grasses would be allowed to grow under the solar panels. The potential for solar panel failure that would result in fires is very low because solar panels do not generate sparks or contain parts that are known to start fires. After construction, EBMUD would implement its Fire Management Plan, which involves conducting fuel inventories and mechanical fuel treatments on their managed lands to reduce the risk of wildfires. When necessary, potentially hazardous vegetation would be removed. The impact on fire risk as a result of the solar panels would be less than significant.

Access Roads
The Project would involve the construction of approximately 1,200 feet of access roads composed of gravel, connecting the Project site with Bear Creek Road. The access road would be maintained on an as-needed basis. Maintenance of the access roads would not exacerbate fire risk or result in additional impacts on the environment. No impact would occur.

Power Collection
The Project would involve the construction of a power collection system, most of which would be installed underground where the risk for igniting fires would be very low. Transformers, inverters, and combiner boxes would be installed aboveground in contained electrical boxes. The risk of ignition from transformers and inverters is low because the electrical box would contain any potential sparks in the event of an equipment malfunction. The Project would involve the installation of approximately 205 feet of either underground or overhead conductor between the control building and the 12-kV PG&E distribution line along Bear Creek Road. Ignition risk for exposed overhead conductor is considered moderate to high. As described in Section IX, Hazards and Hazardous Materials, the proposed power line route is located away from existing trees and tall vegetation. Overhead conductor for the Project would have approximately the same risk of failure and igniting fires as existing power lines in the area. EBMUD would manage the risk of wildfires from the overhead conductor by conducting inspections of the overhead conductor and vegetation for clearance. EBMUD would also implement its Fire Management Plan, which includes fire-prevention direction, fuel inventories and treatments, maintenance requirements, and response procedures. Installation of the aboveground electrical facilities would be built to meet all relevant California Building standards, including building code, electrical code, and fire code requirements, thereby minimizing the potential for ignition to occur at the facility. The Project would not exacerbate fire risk or result in additional environmental impacts. Because EBMUD would maintain defensible space around the facility, and the Project would be built to modern code requirements with fire protection services nearby, the impacts would be less than significant.

D) Less than Significant Impact.
As described in Section VII, Geology and Soils, the Project site is relatively flat and has not historically been affected by landslides, nor has the area directly surrounding the Project. Construction of the Project would not involve substantial grading that could result in landslides as a result of post-fire instability. As described in Section X, Hydrology and Water Quality, the drainage patterns of the Project site would not be altered during construction and the Project has been designed to avoid the 100-year flood zone.

A wildfire in the region could involve indirect impacts, such as flooding, runoff, landslides, or drainage changes. If construction of the Project caused a wildfire and it could not be contained, indirect impacts from a wildfire could expose people or structures to significant risks. As described above, the wildfire risks would be managed by complying with General Order 95 and through implementation of the Fire Management Plan. The impact would be less than significant.

XXI. Mandatory Findings of Significance

Would 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?	☐	☒	☐	☐
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)	☐	☒	☐	☐
C) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Discussion

A) Less than Significant Impact with Mitigation.

As described above, construction of the Project has the potential to affect habitat, wildlife, and plants as described in Section IV, Biological Resources. Mitigation measures have been identified to reduce these impacts to less-than-significant levels. Construction of the Project would not 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, or reduce the number or restrict the range of a rare or endangered plant or animal. The Project site consists primarily of grassland habitat dominated by volunteer plant species which is common throughout the region. No rare wildlife populations are known to occupy the Project site. The impact on habitat and populations of fish and wildlife would be less than significant with the mitigation measures identified in Section IV.

The Project would not eliminate important examples of major periods of California history and prehistory. No important examples of California history or prehistory are known to occur within the Project site as discussed in Section V, Cultural Resources. In addition, as detailed in the Project Description, a number of EBMUD standard practices, applicable to all EBMUD projects, have been incorporated into the Project. Implementation of EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Section 3.9, Protection of Cultural and Paleontological Resources, would avoid significant impacts on any inadvertent

discoveries of prehistoric resources, as discussed in Section V, Cultural Resources. The potential impact would be less than significant.

B) Less than Significant Impact with Mitigation.

The CEQA Guidelines (Section 15130) require a discussion of the cumulative impacts of a Project. Cumulative impact analysis accounts for the combined impacts associated with two or more projects in a given area. The following cumulative analysis evaluates the potential cumulative impacts from the Project in combination with other past, present, and probable future projects in the area. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project. Based on the cumulative impacts analysis provided below, the Project would not result in any significant cumulative environmental impacts.

Cumulative Projects List

Table 3.4-10 includes a list of present (i.e., under construction) and probable future projects considered in this cumulative analysis. The table indicates the project name, a description of the project, its location and status.

Table 3.4-10 Cumulative Projects

Project Name	Description	Proximity to Project at Its Nearest Point	Status
Bear Creek Bridge Seismic Retrofit	This project will seismically retrofit the bridge. The project includes improvements to the abutments and piers on Bear Creek Bridge to prevent collapse. The project also involves installation of concrete piles on the outside of the exiting bridge and connecting the piles with a concrete beam.	Within 0.1 mile of the Duffel Site	Construction 2022 (City of Orinda, 2018)
Dos Osos Reservoir Replacement Project	This project includes replacement of the existing Dos Osos Reservoir and associated rehabilitation of the Dos Osos Pumping Plant. The project also involves the construction of new, 12-inch inlet-outlet pipeline to connect the existing water distribution system to the new dual reservoirs and an 800-foot long permanent access road that will be constructed from Los Norrabos to the new dual reservoirs.	Within 1.5 miles of Duffel site	Construction from 2024 through 2025
Westside Pumping Plant Replacement	This project consists of relocation of the existing Westside Pumping Plant to the site of the existing Encinal Pumping Plant and associated pipeline improvements. The project also requires the demolition of the existing Encinal Pumping Plant, demolition of the existing Westside Pumping Plant, and construction of a new Westside Pumping Plant. The Westside Project includes the replacement of the existing Encinal Reservoir with a new Encinal Regulator.	Within 1.2 miles of Duffel site	Construction from 2020 through 2023

Project Name	Description	Proximity to Project at Its Nearest Point	Status
Briones Outlet Tower Retrofit Project	This project will seismically retrofit the Tower. The Tower retrofit is needed to comply with Division of Safety of Dams (DSOD) requirements and safeguard the Briones dam in the event of an earthquake.	Within 0.5 mile of Duffel site	Construction from 2020 through 2021
Briones Isolation Valve	The project will relocate the isolation valve for the Briones Aqueduct to a more safely accessible location to improve maintenance access.	Within 0.2 mile of the Duffel site	Construction 2020
Happy Valley Pumping Plant	This project consists of construction of a new pumping plant to meet future water demands in Orinda and Lafayette.	Within 1.1 miles of Duffel site	Construction from 2020 through 2021
Happy Valley Pipeline Phase 2	This project consists of construction of 3,000 feet of 16-inch pipeline installed in Miner Road, Orinda.	Within 1.1 miles of Duffel site	Construction from 2020 through 2021
Sunnyside Pumping Plant	This project consists of construction of a new pumping plant to serve Orinda and Lafayette area.	First segment within 1 mile of Duffel site	Construction from 2020 through 2021
Orinda Water Treatment Plant Disinfection Improvement Projects	This project includes the installation of a new UV facility and a chlorine contact basin along with supporting infrastructure to those unit processes, tie-ins to the existing plant conveyance infrastructure, and relocation of existing utilities to provide the space for the new facilities, into the existing facility.	Within 1 mile of the Duffel site	Construction from 2021 through 2023.
City of Orinda Housing Element	In 2015, the City of Orinda adopted its 2015-2023 Housing Element which assumed a maximum of 108 multi-family residential units to be built by 2023.	Various locations within the City of Orinda	Potential for construction from 2015 to 2023

Source: (Ramona Gonzalez, EBMUD, 2018)

Impacts Avoided

The Project would have no impact on the following resources and would therefore not contribute to potential cumulative impacts on these resources:

- Land use and planning
- Mineral resources
- Population and Housing
- Public Services
- Recreation

Cumulative impacts would also be avoided on aesthetics, agricultural and forestry resources, cultural resources, tribal cultural resources, hazards and hazardous materials, noise, and utilities and service systems. None of the cumulative projects would be located within the same viewshed as the Project; therefore, no cumulative aesthetic impact would occur. None of the

cumulative projects would be located within agricultural or forestry land; therefore, no cumulative impact would occur on agricultural or forestry resources. No cultural or tribal cultural resources are known to occur within the Project area. Due to the distance between the Project and the cumulative projects, no cumulative impact on cultural resources would occur. The cumulative projects are separated from the Project by 0.5 mile or more. Construction noise at distances greater than 0.5 mile would not be discernable above ambient noise levels (Sengpielaudio, 2018); therefore, no cumulative noise impact would occur. No known hazardous materials sites are located on the Project site and the Project would not contribute to a cumulative impact on hazards or hazardous materials. The Project and cumulative projects would not require substantial utilities or service system resources. No cumulative impact on utilities or service systems would occur.

Cumulative Impacts

Air Quality (Less than Significant Impact)

The Project is located within an air basin that is in nonattainment for ozone and $PM_{2.5}$. BAAQMD has set thresholds for these pollutants through consideration of the cumulative impact. Because the Project would not exceed the BAAQMD thresholds for any criteria pollutant, the Project's contribution to a cumulative impact would be less than considerable, and thus less than significant.

Biological Resources (Less than Significant Impact with Mitigation)

The Project would occur in similar habitats to some of the cumulative projects. The cumulative projects are separated from the Project site by a distance of 0.5 mile or more. The majority of cumulative projects would not affect habitat because they would be located within disturbed areas. The Dos Osos Reservoir Replacement Project, Happy Valley Pumping Plant, and Sunnyside Pumping Plants would involve new infrastructure in undeveloped areas and implementation of the City of Orinda Housing Element could involve housing development in undeveloped areas. Undeveloped areas that would be affected by the cumulative projects likely contain habitats similar to the Project site (e.g., grassland, oak woodland, or scrubland). The cumulative impact from habitat loss is potentially significant due to the loss of habitat for Alameda whipsnake and potential for cumulative oak tree removal. The cumulative projects would also need to comply with the requirements of the federal and state Endangered Species Act. These projects would therefore need to comply with the conditions of any state or federal incidental take permit(s) and/or biological opinion for Alameda whipsnake, which would include mitigation for those impacts to address any habitat loss. The cumulative project would also need to comply with the requirements of the City of Orinda's Tree Management Ordinance, which requires planting of replacement trees for any oak trees that would be removed. EBMUD would mitigate impacts on Alameda whipsnake habitat and oak trees. Mitigation Measure BIO-18 requires compensatory mitigation for Project impacts on habitat. Mitigation Measure BIO-22 requires tree planting to replace oaks removed as part of the Project. The Project contribution to a potentially significant biological resource impact would be less than considerable with mitigation and thus less than significant.

Greenhouse Gases (Less than Significant Impact)
Greenhouse gases are cumulative in nature and the cumulative impact from greenhouse gas production at a global scale is significant. The Project would offset production of nonrenewable energy sources and would therefore not contribute considerably to cumulative greenhouse gas impacts as discussed further in Section VIII.

Geology and Soils and Hydrology and Water Quality (Less than Significant Impact)
The cumulative projects would all require some grading and earth disturbance. All of the cumulative projects that result in land disturbance of more than 1 acre would be required to prepare an SWPPP and comply with the statewide CGP. Implementation of sediment and erosion control BMPs would avoid significant cumulative impacts on geology and soils, and hydrology and water quality.

Transportation and Traffic (Less than Significant Impact)
The CCTA CMP is the plan that applies to operation of the circulation system in the cumulative project area. The CCTA CMP is designed to address cumulative traffic impacts. The CMP sets a screening level of 100 new peak hour trips for evaluation of Project traffic. None of the cumulative projects are anticipated to generate 100 peak hour trips and the traffic from the projects would be dispersed through the road network because the projects are not concentrated in any one area. The cumulative impact from conflicts with the CCTA CMP would be less than significant. The cumulative projects and Project, with the exception of the City of Orinda Housing Element Update, are public service projects that would not generate VMT during operation and would not cause a cumulative impact from VMT. Construction of the Bear Creek Bridge Seismic Retrofit Project would reduce traffic to one lane over the bridge; however, the Bear Creek Bridge Seismic Retrofit Project would occur after construction of the Project is completed and would not cause a cumulative construction traffic impact. The cumulative impact on traffic would be less than significant.

Wildfire (Less than Significant Impact)
None of the cumulative projects would involve changes to the environment that would exacerbate wildfire risk. The types of cumulative projects that would be implemented are not associated with increased risk of wildfire. The cumulative impact related to wildfire would be less than significant.

C) Less than Significant Impact.

The Project would not have any environmental effects which would cause substantial adverse effects on human beings. Direct and indirect impacts on human beings from Project construction and operation are addressed in Sections III, Air Quality; IX, Hazards and Hazardous Materials; and XIII, Noise, above.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project. For impacts related to Aesthetics, Air Quality, Cultural Resources, Greenhouse Gases, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise and Transportation and Traffic, the relevant

EBMUD standard practices and procedures discussed in the MND ensure that impacts would be less than significant.

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APPENDIX A

Mitigation Monitoring and Reporting Plan

Appendix A Mitigation Monitoring and Reporting Plan

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Location
Biological Resources					
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-1: Sensitive Plant Species** A qualified botanist (EBMUD) shall conduct preconstruction special-status plant surveys during the A qualified botanist (EBMUD) shall conduct preconstruction special-status plant surveys during the appropriate blooming season (March – May) in all areas where ground disturbance will occur prior to construction. Any observed sensitive plant species shall be mapped and flagged for avoidance where feasible. EBMUD shall notify CDFW or CNPS upon discovery of any sensitive plant species during preconstruction surveys. If sensitive plant species are discovered, the following measures shall be implemented: • Sensitive plant species shall be avoided or minimized by limiting ground disturbance where sensitive plants occur. • If plant species that are listed on the federal or California Endangered Species Lists or plants ranked with 1B.1 or 1B.2 CNPS ranking cannot be avoided, EBMUD will salvage the affected plants and transplant them to a similar habitat in the Project vicinity. The re-established population should achieve a 1:1 ratio (transplanted: re-established) after 2 years. If this performance criterion cannot be met, an in-lieu fee shall be paid to the state CNPS program. • If any additional sensitive plant species are discovered on-site that cannot be avoided, the appropriate agencies shall be consulted by EBMUD to determine the appropriate species-specific mitigation measures. • Species-specific mitigation may include repairing, rehabilitating, or restoring the impacted area; preserving in-situ populations on-site; or by providing off-site compensation. Off-site compensation may include the permanent protection of an off-site population through a conservation easement or the purchase of mitigation banking credits at a 2:1 ratio (mitigation: impacted population).	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction	Entire Project Area
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-2: Worker Environmental Awareness Training** Prior to construction all contractor construction personnel shall attend an environmental training program provided by EBMUD's biological contractor for up to 1 day for site supervisors, foremen, and Project managers. Non-supervisory contractor personnel are required to attend training for up to 30 minutes. Contractor construction personnel shall receive worker environmental awareness training from a qualified biologist. The training shall discuss all sensitive habitats and sensitive species that may occur within the Project work limits, including the following: • Foothill yellow-legged frog • California red-legged frog • Western pond turtle • Alameda whipsnake • Short-eared owl • Yellow warbler • Grasshopper sparrow • Golden eagle • Long-eared owl • Burrowing owl • Ferruginous hawk • Northern harrier • Olive-sided fly catcher • White-tailed kite • Bald eagle • Loggerhead shrike • Pallid bat • Western red bat • Ring-tailed cat • San Francisco dusky-footed woodrat • American badger The training shall include the responsibilities of contractor's construction personnel, applicable mitigation measures, and notification requirements. The training shall also address other measures that protect biological resources, such as limiting all vehicle speeds to fifteen (15) mph or less on the construction site and any adjacent unpaved roads during construction and post construction. The following information shall also be provided during the training:	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction	Entire Project Area

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Location
	• Specific information regarding the special-status species potentially present and their habitat needs • Any reports of occurrences in the Project area • An explanation of the status of each listed species and their protection under state and federal laws • A list of measures being taken to reduce effects to the species during construction and implementation Fact sheets conveying this information and an educational brochure containing color photographs of all special-status species potentially present shall be prepared for distribution to the above-mentioned people and anyone else who may enter the Project area. Construction personnel shall be instructed to halt construction activities and contact the designated biologist if a wildlife species is observed in an area where it could be harmed by construction activities. A list of employees who attend the training sessions shall be maintained by EBMUD and made available to USFWS and/or CDFW upon request. Following completion of the Project, maintenance workers would enter the Project site to conduct regular maintenance activities. These maintenance workers shall also be provided with the environmental awareness training described in this measure. Maintenance personnel would be instructed to observe the 15-mph speed limit and to halt maintenance activities and contact the designated EBMUD biologist if a wildlife species is observed in an area where it could be harmed by maintenance activities.				
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-3: Install Exclusion Fencing** Temporary exclusion fencing shall be installed around the limits of work areas and access routes to ensure special-status amphibians, reptiles, and mammals cannot enter the work area. The exclusion fencing shall exclude the seasonal pond at the southern end of the Project site from the Project construction area. Installation of exclusion fencing shall occur under the supervision of the designated biologist and immediately following a clearance survey of the area. The exclusion fencing shall have a minimum aboveground height of 30 inches, and the bottom of the fence should be keyed in at least 4 inches deep and backfilled with soil to prevent wildlife from passing under the fencing. Exclusion fencing shall be installed to prevent species entry into active work areas and to mark the limits of construction disturbance at equipment staging areas, site access routes, construction equipment and personnel parking areas, debris storage areas, and any other areas that may be disturbed. The exclusion fencing shall be installed in a manner that reduces the potential for trapping migrating wildlife and for wildlife climbing over the fence, such as having the top of the fencing curved over on the outside of the fence. Cover boards shall be installed along the perimeter of the fencing to provide protection from the sun and predators, where necessary and appropriate. Gates shall be installed in the exclusion fencing that allow Project access and adequately exclude wildlife. Gates will be secured at the end of each workday using sandbags or other means to prevent wildlife from entering the exclusion zone. The exclusion fencing shall remain in place and be maintained for the duration of construction activities and shall be removed within 15 days of completion of construction activities. Prior to entering and beginning work in fenced areas each day, a biological monitor shall inspect the work area and both sides of the fence perimeter for special-status species, any trapped wildlife, and to identify damage to the exclusion fencing. The biological monitor must be trained by the designated biologist (Mitigation Measure BIO-5) on California red-legged frog and Alameda whipsnake identification, the laws protecting the species, and procedures to implement if the species is observed. If California red-legged frog, Alameda whipsnake, or trapped wildlife are observed, the designated biologist shall be notified immediately to determine the appropriate procedures to implement. Any damage to the fencing shall be immediately reported and repaired until the last day that construction equipment is at the Project site.	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction	Entire Project Area

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Location
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-4: Yellow-legged Frog and Western Pond Turtle Pre-Construction Surveys** No more than twenty-four (24) hours prior to the date of initial ground disturbance, a preconstruction survey for yellow-legged frog (*Rana boylii*) and western pond turtle (*Emys marmorata*) shall be conducted by a designated biologist at the Project site. The survey shall consist of walking the Project limits and within the Project site to ascertain the possible presence of the species. The designated biologist shall investigate all potential areas that could be used by each species for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows, such as for California ground squirrels or gophers. If foothill yellow-legged frog or western pond turtle are found, the designated biologist will determine if moving the individuals is appropriate (e.g. if the species is at risk of injury). If the biologist determines that relocation of foothill yellow-legged frog or western pond turtle is necessary, EBMUD will ensure the designated biologist is given sufficient time to move the animals from the work site before ground disturbance is initiated. If the biologist determines that relocation of the species is not necessary, the biologist will monitor the species until it leaves the Project vicinity.	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction	Entire Project Area
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-5: Designated Biologist** EBMUD shall obtain USFWS and California Department of Fish and Wildlife (CDFW) approval for a designated biologist(s) for the Project. The designated biologist(s) shall be on-site during all activities that may result in take of California red-legged frog or Alameda whipsnake. The qualifications of the designated biologist(s) shall be submitted to USFWS and CDFW for review and written approval at least thirty (30) calendar days prior to the date earthmoving is initiated at the Project site. The designated biologist(s) shall keep a copy of any Biological Opinion and Incidental Take Permit issued for the Project in their possession when on-site.	EBMUD and	EBMUD	Prior to and During Construction	Entire Project Area
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-6: Designated Biologist Authority** The designated biologist(s) shall be given the authority to freely communicate verbally, by telephone, electronic mail, or in writing, at any time with construction personnel, any other person(s) at the Project site, otherwise associated with the Project, the USFWS, the CDFW, or their designated agents. The designated biologist shall have oversight over implementation of the avoidance and minimization measures and all permit conditions, and, through EBMUD, shall have the authority and responsibility to stop Project activities if they determine any of the associated permit requirements are not being fulfilled. If the designated biologist(s) exercises this authority, the USFWS and CDFW shall be notified by telephone and electronic mail within twenty-four (24) hours.	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction	Entire Project Area
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-7: California Red-legged Frog Pre-Construction Survey** No more than twenty-four (24) hours prior to the date of initial ground disturbance, a preconstruction survey for California red-legged frog (*Rana draytonii*) shall be conducted by a designated biologist at the Project site. The survey shall consist of walking the Project limits and within the Project site to ascertain the possible presence of California red-legged frog. The designated biologist shall investigate all potential areas that could be used by the species for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows, such as for California ground squirrels or gophers. If any California red-legged frogs are found, the designated biologist shall follow the procedures specified in Mitigation Measure Biology-14.	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to Construction	Entire Project Area

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Location
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-8: Timing Construction Commencement to Avoid California Red-Legged Frog** Initial ground-disturbing activities shall be avoided between November 1 and March 31 to avoid the time period when California red-legged frogs are most likely to be moving through the Project area.	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction	Entire Project Area
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-9: Onsite Construction Monitoring** The designated biologist shall be present at the Project site until all initial habitat disturbances have been completed. After habitat disturbance has been completed and all exclusion fencing has been installed, a biological monitor will monitor daily on-site compliance with all avoidance measures. The biological monitor shall contact the designated biologist for instructions should any snake or frog be observed on the site. The biological monitor and the designated biologist shall have the authority to halt any action that could adversely affect sensitive biological resources. The designated biologist shall continue to conduct compliance checks at least once per week until construction is completed to ensure that the fencing is intact and that all avoidance measures are being implemented.	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction	Entire Project Area
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-10: Avoid Construction During Rain Events** To the maximum extent practicable, no construction activities shall occur during rain events or within 24-hours following a rain event. Prior to construction activities resuming, a designated biologist will inspect the Project area and all equipment/ materials for the presence of California red-legged frogs.	EBMUD and EBMUD's Construction Contractor	EBMUD	During Construction	Entire Project Area
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-11: Cover Trenches** Trenches or pits 1 foot or deeper that are going to be left unfilled overnight shall be securely covered with boards or other material to prevent California red-legged frog or other special-status species from falling into them. If covering of trenches or pits is not feasible, wooden ramps or other structures of suitable surface that provide adequate footing for the California red-legged frog are to be placed in the trench or pit to allow for their unaided escape. Auger holes or fence post holes that are greater than 0.10 inch in diameter shall be immediately filled or securely covered so they do not become pitfall traps for the California red-legged frog or other special-status species. The designated biologist shall inspect the trenches, pits, or holes prior to their being filled to ensure there are no trapped wildlife in them. The trench, pit, or hole shall also be examined by the designated biologist each workday morning prior to initiation of work, and in the late afternoon no more than 1 hour after work has ceased to ascertain whether any individuals have become trapped. If the escape ramps fail to allow the animal to escape, the designated biologist shall remove and transport the animal to a safe location or contact the USFWS for guidance.	EBMUD and EBMUD's Construction Contractor	EBMUD	During Construction	Entire Project Area

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Location
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-12: Erosion Control Material** Plastic monofilament netting (erosion control matting), loosely woven netting, or similar material in any form shall not be used at the Project site because California red-legged frogs can become entangled and trapped in them. Any such material found on-site shall be immediately removed by the designated biologist, construction personnel, or EBMUD. Materials utilizing fixed weaves (strands cannot move), polypropylene, polymer, or other synthetic materials shall not be used.	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction	Entire Project Area
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-13: Waste Management** Uneaten human food and trash attracts crows, ravens, coyotes, and other predators of the California red-legged frog and other wildlife. A litter control program shall be instituted at the Project site. All workers shall ensure their food scraps, paper wrappers, food containers, cans, bottles, and other trash are deposited in covered or closed trash containers. The trash containers shall be removed from the Project site at the end of each working day.	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction	Entire Project Area
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-14: Procedures for Encounters with California Red-Legged Frog** Each encounter with the California red-legged frog will be treated on a case-by-case basis in coordination with the USFWS, but the general procedure is as follows: (1) the animal will not be disturbed if it is not in danger; or (2) the animal will be moved to a secure location if it is in any danger. These procedures are further described below: • When a California red-legged frog is encountered in the Project area, all activities which have the potential to result in the harassment, injury, or death of the individual shall be immediately halted. The designated biologist will then assess the situation in order to select a course of action that will avoid or minimize adverse effects to the animal. To the maximum extent possible, contact with the animal will be avoided and the applicant will allow it to move out of the potentially hazardous situation to a secure location on its own volition. This procedure applies to situations where a California red-legged frog is encountered while it is moving to another location and is actively dispersing. It does not apply to animals that are uncovered or otherwise exposed or in areas where the individual is not expected to move on its own and may be in danger (e.g., within the fenced construction perimeter). • California red-legged frogs that are in danger (e.g. animals that are uncovered or otherwise exposed or in areas within the fences construction perimeter where the individual is not expected to move on its own) shall be relocated and released by the designated biologist outside the construction area within the same habitat. Prior to the initial ground disturbance, the designated biologist will obtain approval of the relocation protocol from the USFWS and CDFW in the event that a California red-legged frog is encountered and needs to be moved away from the Project site. California red-legged frog shall be released in appropriate habitat nearby on the EBMUD watershed. The designated biologist will limit the duration of the handling and captivity of the California red-legged frog to the minimum amount of time necessary to complete the task. The applicant will immediately notify the USFWS and CDFW once the California red-legged frog is relocated and the site is secure.	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction	Entire Project Area

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Location
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-15: Alameda Whipsnake Pre-Construction Survey** No more than twenty-four (24) hours prior to the date of initial ground disturbance, a preconstruction survey for Alameda whipsnake (*Masticophis lateralis euryxanthus*) shall be conducted by a designated biologist at the Project site. The survey shall consist of walking the Project limits and within the Project site to ascertain the possible presence of Alameda whipsnake. The designated biologist shall investigate all potential areas that could be used by the species for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows, such as for California ground squirrels or gophers. If any Alameda whipsnake are found, the designated biologist shall follow the procedures defined in Mitigation Measure Biology-17 for encounters with Alameda whipsnake.	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to Construction	Entire Project Area
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-16: Timing Construction Commencement during Alameda Whipsnake Active Period** To the extent feasible, initial ground-disturbing activities would be timed between April 1 and October 31 when Alameda whipsnake are most active. EBMUD will ensure that daily monitoring by the designated biologist is completed for Alameda whipsnake during all initial ground-disturbing activities.	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction	Entire Project Area
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-17: Procedures for Encounters with Alameda Whipsnake** Each encounter with the Alameda whipsnake will be treated on a case-by-case basis in coordination with the USFWS, but the general procedure is as follows: (1) the animal will not be disturbed if it is not in danger; or (2) the animal will be moved to a secure location if it is in any danger. These procedures are further described below: • When an Alameda whipsnake is encountered in the Project area, all activities which have the potential to result in the harassment, injury, or death of the individual shall be immediately halted. The designated biologist will then assess the situation in order to select a course of action that will avoid or minimize adverse effects to the animal. If Alameda whipsnake is encountered within the exclusion fencing, the designated biologist will relocate the individual outside of the fencing. Contact with the animal will be avoided when Alameda whipsnake is moving out of the construction area on its own volition, prior to installation of exclusion fencing. • Alameda whipsnakes that are in danger (e.g. animals that are uncovered or otherwise exposed or in areas of immediate construction where the individual is not expected to move on its own) shall be relocated and released by the designated biologist outside the construction area within the same habitat. Prior to the initial ground disturbance, EBMUD will obtain approval of the relocation protocol from the USFWS and CDFW in the event that an Alameda whipsnake is encountered and needs to be moved away from the Project site. Alameda whipsnake shall be released in appropriate habitat nearby on the EBMUD watershed. The designated biologist will limit the duration of the handling and captivity of the Alameda whipsnake to the minimum amount of time necessary to complete the task. The applicant will immediately notify the USFWS and CDFW once the Alameda whipsnake is relocated and the site is secure.	EBMUD and EBMUD's Construction Contractor	EBMUD	During Construction	Entire Project Area

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Location
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-18: Habitat Compensation** To mitigate impacts on Alameda whipsnake-designated critical habitat due to construction and operation of the Project, EBMUD shall obtain habitat credits for habitat suitable for the species from a conservation or mitigation bank at a minimum ratio of 0.5:1 for temporary impacts and 3:1 for permanent impact (habitat developed: habitat credit purchased), or at the ratio required by CDFW and USFWS. The habitat credits shall cover any temporary and permanent loss of habitat that may occur or other habitat disturbances requiring mitigation by CDFW and/or USFWS.	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction	Entire Project Area
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-19. American Badger and Ring-Tailed Cat** • A qualified biologist shall conduct a pre-activity survey for active American badger dens and ring-tailed cat nests within 30 days prior to grading or vegetation clearing. The pre-activity survey area shall occur within potentially suitable habitat for American badger and ring-tailed cat (e.g., grasslands and woodlands) located within 250 feet of work areas where grading or land vegetation clearing may occur. • EBMUD may use cameras to determine if dens are active. If active dens are identified at any time during construction, the dens shall be flagged and avoided. A 250-foot work restriction buffer shall be established around active maternal dens of the American badger or nests of the ring-tailed cat. For non-maternal dens or nests, a 50-foot work restriction buffer shall be established around active dens or nests. Smaller buffers may be established through consultation with CDFW. If an active non-maternal den cannot be avoided, EBMUD would implement passive exclusion techniques, such as sealing the den or tree cavity containing the nest after animals have vacated, or other passive exclusion techniques determined through consultation with CDFW. • A qualified biologist shall inspect construction activities near active American badger dens or ring-tailed cat nests on a weekly basis to ensure the work restriction buffers are implemented appropriately and active dens and nests are avoided.	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction	Entire Project Area
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-20. San Francisco Dusky-Footed Woodrat** • A preconstruction survey shall be performed by a qualified biologist (EBMUD) within 7 days prior to the start of ground-disturbing activities to identify the locations of active species' nests within the Project boundary. Any nests detected shall be mapped and flagged for avoidance by the qualified biologist (EBMUD). • If active nests are determined to be present, avoidance measures shall be implemented first. Because San Francisco dusky-footed woodrats are year-round residents, avoidance mitigation is limited to restricting Project activities to avoid direct impacts to San Francisco dusky-footed woodrats and their active nests to the extent feasible. A minimum 10-foot buffer should be maintained between Project construction activities and each nest to avoid disturbance. In some situations, a smaller buffer may be allowed if, in the opinion of a qualified biologist (EBMUD), removing the nest would be a greater impact than that anticipated as a result of Project activities. • If an unoccupied nest is found within the Project site and it cannot be avoided, the nest should be disassembled by hand by a qualified biologist (EBMUD). The nest materials should be relocated off-site outside of the wildlife exclusion fencing to prevent rebuilding. • If occupied nests are found within the Project site, and a litter of young is found or suspected, the nest shall be left alone for 2 to 3 weeks before a recheck to verify that young are capable of independent survival before proceeding with nest dismantling. Dismantling shall be done by hand, allowing any animals to escape either along existing woodrat trails or toward other available habitat. • EBMUD shall notify CDFW of any nests, unoccupied or occupied, before they are dismantled.	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction	Entire Project Area

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Location
Impact Biology 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 the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-21: Bird and Bat Conservation Strategy** At least 60 days prior to construction, a draft Bird and Bat Conservation Strategy (BBCS) shall be prepared and submitted for review and approval to the CDFW and USFWS. The BBCS shall include, but not be limited to, the following strategies to be implemented before, during, and after Project operations: • At least one month of preconstruction avian and bat surveys shall be performed, the protocols for which will be detailed in the approved BBCS, to assess baseline avian abundance and activity patterns on-site • A statement of the EBMUD's understanding of the importance of bird and bat safety and commitment to remain in compliance with relevant laws • Documentation of conservation measures EBMUD would implement through design and operations to avoid and reduce bird and bat fatalities at the solar facility, including consideration of bird height and wingspan requirements and use of flight diverters, perch and nest discouraging material, etc. • Consistent, practical, and up-to-date direction to the solar contractor's staff on how to avoid, reduce, and monitor bird and bat fatalities • Establishment of accepted processes to monitor and mitigate bird and bat fatalities • A threshold of 10 non-special-status bird fatalities annually or any special-status bird fatalities, that if surpassed, would trigger adaptive changes to management and mitigation management in coordination with CDFW and USFWS • An adaptive management framework to be applied, if thresholds are surpassed • A three-year post-construction monitoring study	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction	Entire Project Area
Impact Biology b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	**Mitigation Measure BIO-22: Mitigation for Oak Woodland Habitat** The loss of oak woodland habitat shall be mitigated on EBMUD watershed through planting of oak woodland vegetation and establishment of new oak woodland habitat. Oak trees shall be replaced at a 5:1 ratio with five oak trees planted for each oak tree removed. Prior to on-site habitat replacement, EBMUD restoration consultant shall prepare an oak mitigation plan that defines the species that shall be planted and the methods for planting, monitoring, and maintenance to ensure effectiveness of the oak replacement efforts. Alternatively, EBMUD may mitigate through off-site compensation of oak woodland habitats. Off-site compensation may include the permanent protection of an off-site population of oak woodland habitat through a conservation easement or the purchase of mitigation banking credits at a 2:1 ratio (2 acres preserved for each acre impacted).	EBMUD	EBMUD	During and/or after Construction	Entire Project Area
Impact Biology 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?	**Mitigation Measure BIO-23: Compensation of Wetland Impacts** The permanent loss of wetlands shall be compensated through on-site enhancement or establishment of wetlands. Permanent impacts to wetlands shall be compensated through enhancement of wetlands at a minimum 2:1 ratio (enhancement:impact) or creation of wetlands at a minimum 1:1 ratio. All areas of temporary impact will be restored to preconstruction contours and habitat conditions. EBMUD will prepare a habitat mitigation plan that includes: • Baseline conditions within the mitigation site • Proposed mitigation site conditions • Mitigation methods (e.g., habitat creation or enhancement) • Performance standards/success criteria including a minimum of 70% vegetated cover with native wetland vegetation that are the target of the wetland creation and enhancement efforts and less than 3% invasive species cover • Habitat maintenance including trash removal, invasive weed removal, and repair of any damage to the mitigation site • Monitoring requirements including annual monitoring during the establishment period. The annual	EBMUD	EBMUD	During and/or after Construction	Entire Project Area

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Location
	monitoring will include surveys for native vegetation cover, photo documentation at defined photo-monitoring locations, and monitoring for invasive species and any other habitat stressors. Monitoring will be conducted for the first five years or until success criteria are met. • Reporting requirements, including an annual report to be submitted by January 31st following the reporting year. The annual report will need to provide the results of annual habitat monitoring, recommendations for any corrective actions needed to meet success criteria, and a description of any corrective actions taken in the previous reporting year.				
Land Use and Planning					
Impact Land Use and Planning 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?	**Refer to Mitigation Measures BIO-22 and BIO-23 above.**	EBMUD	EBMUD	During and/or after Construction	Entire Project Area

APPENDIX B

EBMUD Practices and Procedures Monitoring and Reporting Plan

Appendix B EBMUD Practices and Procedures Monitoring and Reporting Plan

Impact Area	EBMUD Practices and Procedures[1]	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Locations
Air Quality					
Air Quality A) Potential to conflict with or obstruct implementation of the applicable air quality plan.	**EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements** **1.3 Submittals** E. Dust Control and Monitoring Plan: 1. Submit a plan detailing the means and methods for controlling and monitoring dust generated by demolition and other work on the site for the Engineer's acceptance prior to any work at the jobsite. The plan shall comply with all applicable regulations including but not limited to the Bay Area Air Quality Management District (BAAQMD) visible emissions regulation and Public Nuisance Rule. The plan shall include items such as mitigation measures to control fugitive dust emissions generated by construction activities. The Plan shall outline best management practices for preventing dust emissions, provide guidelines for training of employees, and procedures to be used during operations and maintenance activities. The plan shall also include measures for the control of paint overspray generated during the painting of exterior surfaces. The plan shall detail the equipment and methods used to monitor compliance with the plan. The handling and disposal of water used in compliance with the Dust Control Plan shall be addressed in the Water Control and Disposal Plan. 2. Containment, as described in Article 3.3, shall be utilized during any abrasive blasting of the exterior of structures. **3.3 Dust Control and Monitoring** B. Dust Control 1. Contractor shall implement all necessary dust control measures, including but not limited to the following: a. All exposed surfaces with the potential of dust-generating shall be watered at least twice daily, or be covered with coarse rock, or as directed by the Engineer to reduce the potential for airborne dust from leaving the site b. The simultaneous occurrence of more than two ground disturbing construction phases on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time, as appropriate c. Cover all haul trucks entering/leaving the site and trim their loads as necessary d. Using wet power vacuum street sweepers to: 1) Sweep all paved access road, parking areas and staging areas at the construction site daily or as often as necessary 2) Sweep public roads adjacent to the site at least twice daily or as often as necessary e. The use of dry power sweeping is prohibited. f. All trucks and equipment, including their tires, shall be washed off prior to leaving the site g. Gravel or apply non-toxic soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites h. Water and/or cover soil stockpiles daily i. Site accesses to a distance of 100 feet from the paved road shall be treated with 12-inches layer of compacted coarse rock j. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	Entire Project area

[1] In EBMUD Standard Specifications, "District" = EBMUD; "Engineer" = EBMUD Engineer, "Contractor" = EBMUD Contractor, "Work" = Scope of Work for the Project

Impact Area	EBMUD Practices and Procedures[1]	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Locations
	roadways from sites with a slope greater than one percent k. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible l. Building pads shall be laid as soon as possible after grading m. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established. n. Wind breaks (e.g. fences) shall be installed on the windward sides(s) of actively disturbed areas of construction. Wind breaks should have a maximum 50 percent air porosity o. All vehicle speeds shall be limited to fifteen (15) mph or less on the construction site and any adjacent unpaved roads.				
Air Quality D) Potential to result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	**EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements** **1.3 Submittals** I. Tuneup Logs 1. The Contractor shall submit a log of required tune-ups for all construction equipment, particularly haul and delivery trucks on a quarterly basis for review. **3.4 Emissions Control** A. Air Quality Emissions Control 1. The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available. 2. The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards. 3. Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with the California Air Resources Board or otherwise permitted by the appropriate local air district, as required. 4. Contractor shall implement standard air emissions controls such as: a. Minimize the use of diesel generators where possible b. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes as required by the California Airborne Toxics Control Measure (ATCM) Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points c. Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines d. Locate generators at least 100 feet away from adjacent homes e. Perform regular low-emission tune-ups on all construction equipment, particularly haul trucks and earthwork equipment 5. Contractor shall implement the following measures to reduce greenhouse gas emissions from fuel combustion: a. On road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals. b. Construction equipment engines shall be maintained to manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation c. All construction equipment, diesel trucks, and generators shall be equipped with Best	EBMUD and EBMUD's Contractor	EBMUD	During Construction	All project areas

Impact Area	EBMUD Practices and Procedures[1]	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Locations
	Available Control Technology for emission reductions of Oxide of Nitrogen (NOx) and Particulate Matter (PM) d. Demolition debris shall be recycled for reuse to the extent feasible. See the Construction and Demolition Waste Disposal Plan paragraphs above for requirements on wood treated with preservatives				
Biological Resources					
Biological Resources A) Potential to have 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 the U.S. Fish and Wildlife Service.	**EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements** **1.3 Submittals** A. Storm Water Management 1. Construction General Permit a. The Contractor shall create a user account on the SWRCB's Storm Water Multi-Application & Report Tracking System (SMARTS). The Engineer will link the Contractor to the District's account as a Data Submitter. The Contractor shall prepare and upload to SMARTS Permit Registration Documents (PRDs), including, but not limited to, a Notice of Intent, a Site Specific Risk Assessment, a Site Map, and a Storm Water Pollution Prevention Plan (SWPPP) for the Engineer's review which meets the requirements of the SWRCB, for coverage under the General Construction Stormwater Permit (Order No. 2009-0009-DWQ) and amendments thereto. Upon acceptance by the Engineer, the Engineer will electronically certify and file the PRDs to gain permit coverage and the Contractor shall submit the registration and the subsequent annual fees as required by the SWRCB. b. The Contractor shall be responsible for complying with the requirements of the Construction General Permit. The Contractor's responsibilities include, but are not limited to, providing qualified professionals as described in the permit to prepare and certify all permit-required documents/submittals and to implement effective stormwater/non-stormwater management practices, and conducting inspections and monitoring as required by the permit. The Contractor shall, in compliance with the permit, prepare and upload to SMARTS all required documents, photos, data, and/or reports (including the Annual Reports) and ensure permit coverage termination upon construction completion by preparing a Notice of Termination on SMARTS. The Contractor shall inform the Engineer when documents/reports are available on SMARTS for Engineer certification and submittal. **3.8 Protection of Birds Protected under the Migratory Bird Treaty Act and Roosting Bats** A. The District will conduct biological reconnaissance in advance of construction and will conduct biological monitoring during construction as necessary. B. Protected Species 1. If protected species or suitable habitat for protected species is found during biological reconnaissance surveys: a. Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by the District of up to one-day for site supervisors, foreman and project managers, and up to 30-minutes for non-supervisory contractor personnel. The training program will be completed in person or by watching a video at a District-designated location, conducted by a qualified biologist provided by the District. The program will discuss all sensitive habitats and sensitive species that may occur within the project work limits, including the responsibilities of Contractor's construction personnel, applicable mitigation measures, and notification requirements. The Contractor is responsible for ensuring that all workers requiring training are identified to the District. Prior to accessing or performing construction work, all Contractor personnel shall: 1) Sign a wallet card provided by the Engineer verifying that all Contractor construction personnel have attended the appropriate level of training relative to their position; have read and understood the contents of any applicable documentation; and shall comply	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	All project areas

Impact Area	EBMUD Practices and Procedures[1]	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Locations
	with all project environmental requirements. 2) Display an environmental training hard hat decal (provided by the District after completion of the training) at all times. b. Birds Protected under the Migratory Bird Treaty Act (MBTA): 1) It is unlawful to pursue, hunt, take, capture, or kill any migratory bird without a permit issued by the U.S. Department of the Interior. 2) If construction commences between February 1 and August 31, during the nesting season, the District will conduct a preconstruction survey for nesting birds within 7 days prior to construction to ensure that no nest will be disturbed during construction. 3) If active nests of migratory bird species (listed in the MBTA) are found within the project site, or in areas subject to disturbance from construction activities, an avoidance buffer to avoid nest disturbance shall be constructed. The buffer size will be determined by the District in consultation with California Department of Fish and Wildlife (CDFW) and is based on the nest location, topography, cover and species' tolerance to disturbance. 4) If an avoidance buffer is not achievable, a qualified biologist provided by the District will monitor the nest(s) to document that no take of the nest (nest failure) has occurred. Active nests shall not be taken or destroyed under the MBTA and, for raptors, under the CDFW Code. If it is determined that construction activity is resulting in nest disturbance, work should cease immediately and the Contractor shall notify the Engineer who will consult with the qualified biologist and appropriate regulatory agencies. 5) If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by special-status birds or that are located outside the avoidance buffer for active nests may be removed. Nests initiated during construction (while significant disturbance from construction activities persist) may be presumed to be unaffected, and only a minimal buffer, determined by District's biologist, would be necessary. c. Roosting Bats: 1) If construction commences between March 1 and July 31, during the bat maternity period, the District will conduct a preconstruction survey for roosting bats within two weeks prior to construction to ensure that no roosting bats will be disturbed during construction. 2) If roosting surveys indicate potential occupation by a special-status bat species, and/or identify a large day roosting population or maternity roost by any bat species within 200 feet of a construction work area, a qualified biologist provided by the District will conduct focused day- and/or night-emergence surveys, as appropriate. 3) If active maternity roosts or day roosts are found within the project site, or in areas subject to disturbance from construction activities, an avoidance buffers shall be constructed. The buffer size will be determined by the District in consultation with CDFW. 4) If a non-breeding bat roost is found in a structure scheduled for modification or removal, the bats shall be safety evicted, under the direction of a qualified biologist provided by the District in consultation with CDFW to ensure that the bats are not injured. 5) If preconstruction surveys indicate that no roosting is present, or potential roosting habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by roosting bats, or that are located outside the avoidance buffer for active roosting sites may be removed. Roosting initiated during construction is presumed to be unaffected, and no buffer would be necessary.				

Impact Area	EBMUD Practices and Procedures[1]	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Locations
Cultural Resources					
Cultural Resources B) Potential to cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5? C) Potential to disturb any human remains, including those interred outside of formal cemeteries	**EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements** **3.9 Protection of Cultural and Paleontological Resources** A. Confidentiality of Information on Cultural Resources 1. Prior to, or during the course of the Contractor's performance under this contract, the Contractor may obtain information as to the location and/or nature of certain cultural resources, including Native American artifacts and remains. This information may be provided to the Contractor by the District or a third party, or may be discovered directly by the Contractor through its performance under the contract. All such information shall be considered "Confidential Information" for the purposes of this Article. 2. The Contractor agrees that the Contractor, its subcontractors of any tiers, and their respective agents and employees shall not publish or disclose any Confidential Information to any person, unless specifically authorized in advance, in writing by the Engineer. 3. The indemnity obligations of Document 00 72 00 - General Conditions Article 4.7.5 shall apply to any breach of this Article. B. Conform to the requirements of statutes as they relate to the protection and preservation of cultural and paleontological resources. Unauthorized collection of prehistoric or historic artifacts or fossils along the Work Area, or at Work facilities, is strictly prohibited. C. Before beginning construction, all Contractor construction personnel shall attend a cultural resources training course provided by the District of up to two hours for site supervisors, foreman, project managers, and non-supervisory contractor personnel. The training program will be completed in person or by watching a video, at a District designated location, conducted by a qualified archaeologist provided by the District, or by District staff. The program will discuss cultural resources awareness within the project work limits, including the responsibilities of Contractor's construction personnel, applicable mitigation measures, confidentiality, and notification requirements. The Contractor is responsible for ensuring that all workers requiring training are identified to the District. Prior to accessing the construction site, or performing site work, all Contractor personnel shall: 1. Sign an attendance sheet provided by the Engineer verifying that all Contractor construction personnel have attended the appropriate level of training; have read and understood the contents of the training; have read and understood the contents of the "Confidentiality of Information on Archaeological Resources" and shall comply with all project environmental requirements. D. In the event that potential cultural or paleontological resources are discovered at the site of construction, the following procedures shall be instituted: 1. Discovery of prehistoric or historic-era archaeological resources requires that all construction activities shall immediately cease at the location of discovery and within 100 feet of the discovery. a. The Contractor shall immediately notify the Engineer who will engage a qualified archaeologist provided by the District to evaluate the find. The Contractor is responsible for stopping work and notifying the Engineer, and shall not recommence work until authorized to do so by the Engineer. b. The District will retain a qualified archaeologist to inspect the findings within 24 hours of discovery. If it is determined that the Project could damage a historical resource as defined by CEQA (or a historic property as defined by the National Historic Preservation Act of 1966, as amended), construction shall cease in an area determined by the archaeologist until a management plan has been prepared, approved by the District, and implemented to the satisfaction of the archaeologist (and Native American representative if the resource is prehistoric, who shall be identified by the Native American Heritage Commission [NAHC]). In consultation with the District, the archaeologist (and Native American representative) will determine when construction can resume. 2. Discovery of human remains requires that all construction activities immediately cease at, and within	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	All project areas

Impact Area	EBMUD Practices and Procedures[1]	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Locations
	100 feet of the location of discovery. a. The Contractor shall immediately notify the Engineer who will engage a qualified archaeologist provided by the District to evaluate the find. The Contractor is responsible for stopping work and notifying the Engineer, and shall not recommence work until authorized to do so by the Engineer. b. The District will contact the County Coroner to determine whether or not the remains are Native American. If the remains are determined to be Native American, the Coroner will contact the Native American Heritage Commission (NAHC). The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the District for the appropriate means of treating the human remains and any associated funerary objects. 3. Discovery of paleontological resources requires that all construction activities immediately cease at, and within 100 feet of the location of discovery. a. The Contractor shall immediately notify the Engineer who will engage a qualified paleontologist provided by the District to evaluate the find. The Contractor is responsible for stopping work and notifying the Engineer, and shall not recommence work until authorized to do so by the Engineer. b. The District will retain a qualified paleontologist to inspect the findings within 24 hours of discovery. The qualified paleontologist, in accordance with Society of Vertebrate Paleontology guidelines (Society of Vertebrate Paleontology 2010), will assess the nature and importance of the find and recommend appropriate salvage, treatment, and future monitoring and management. If it is determined that construction activities could damage a paleontological resource as defined by the Society of Vertebrate Paleontology guidelines (Society of Vertebrate Paleontology 2010), construction shall cease in an area determined by the paleontologist until a salvage, treatment, and future monitoring and management plan has been prepared, approved by the District, and implemented to the satisfaction of the paleontologist. In consultation with the paleontologist, the District will determine when construction can resume. E. If the District determines that the find requires further evaluation, at the direction of Engineer, the Contractor shall suspend all construction activities at the location of the find and within a larger radius, as required.				
Geology and Soils					
Geology and Soils B) Potential to result in substantial soil erosion or the loss of topsoil	**EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements** **1.1 Summary** B. Site Activities 1. No debris including, but not limited to, demolition material, treated wood waste, stockpile leachate, soil, silt, sand, bark, slash, sawdust, asphalt, rubbish, paint, oil, cement, concrete or washings thereof, oil or petroleum products, or other organic or earthen materials from construction activities shall be allowed to enter into storm drains or surface waters or be placed where it may be washed by rainfall or runoff outside the construction limits. When operations are completed, excess materials or debris shall be removed from the work area as specified in the Construction and Demolition Waste Disposal Plan. 2. Excess material shall be disposed of in locations approved by the Engineer consistent with all applicable legal requirements and disposal facility permits. 3. Do not create a nuisance or pollution as defined in the California Water Code. Do not cause a violation of any applicable water quality standards for receiving waters adopted by the Regional Board or the State Water Resources Control Board, as required by the Clean Water Act. 4. Clean up all spills and immediately notify the Engineer in the event of a spill. 5. Stationary equipment such as motors, pumps, and generators, shall be equipped with drip pans.	EBMUD and EBMUD's Contractor	EBMUD	During Construction	All project areas

Impact Area	EBMUD Practices and Procedures[1]	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Locations
	6. Divert or otherwise control surface water and waters flowing from existing projects, structures, or surrounding areas from coming onto the work and staging areas. The method of diversions or control shall be adequate to ensure the safety of stored materials and of personnel using these areas. Following completion of Work, ditches, dikes, or other ground alterations made by the Contractor shall be removed and the ground surfaces shall be returned to their former condition, or as near as practicable, in the Engineer's opinion. 7. Maintain construction sites to ensure that drainage from these sites will minimize erosion of stockpiled or stored materials and the adjacent native soil material. 8. Furnish all labor, equipment, and means required and shall carry out effective measures wherever, and as often as necessary, to prevent Contractor's operations from causing visible dust emissions to leave the work areas. These measures shall include, but are not limited to, providing additional watering equipment, reducing vehicle speeds on haul roads, restricting traffic on haul roads, covering haul vehicles, and applying a dust palliative to well-traveled haul roads. The Contractor shall provide the specifications of the dust palliative for Engineer approval prior to use. The Contractor shall be responsible for damage resulting from dust originating from its operations. The dust abatement measures shall be continued for the duration of the Contract. Water the site in the morning and evening, and as often as necessary, and clean vehicles leaving the site as necessary to prevent the transportation of dust and dirt onto public roads. Dust control involving water shall be done in such a manner as to minimize waste and runoff from the site. 9. Construction staging areas shall be graded, or otherwise protected with Best Management Practices (BMPs), to contain surface runoff so that contaminants such as oil, grease, and fuel products do not drain towards receiving waters including wetlands, drainages, and creeks. 10. All construction equipment shall be properly serviced and maintained in good operating condition to reduce emissions. Contractor shall make copies of equipment service logs available upon request. 11. Any chemical or hazardous material used in the performance of the Work shall be handled, stored, applied, and disposed of in a manner consistent with all applicable federal, state, and local laws and regulations. 12. Contaminated materials excavated and/or removed from the construction area shall be disposed of in a manner consistent with all applicable local, state, and federal laws and regulations. **Section 1.3 (A) Stormwater Management (Details as previously listed)**				
Geology and Soils F) Potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature	**EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements** **Section 3.9 Protection of Cultural and Paleontological Resources (Details as previously listed)**	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	All project areas
Greenhouse Gas Emissions					
Greenhouse Gas Emissions A) Potential to generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment	**EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements** **Section 3.4 Emissions Control (Details as previously listed)**	EBMUD and EBMUD's Contractor	EBMUD	During Construction	All project areas
Hazards and Hazardous Materials					
Hazards and Hazards Materials A) Potential to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; and,	**EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements** **1.3 Submittals** D. Spill Prevention and Response Plan 1. Submit plan detailing the means and methods for preventing and controlling the spilling of known hazardous substances used on the jobsite or staging areas. The plan shall include a list of the	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	All project areas

Impact Area	EBMUD Practices and Procedures[1]	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Locations
B) Potential to 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 environments.	hazardous substances proposed for use or generated by the Contractor on site, including petroleum products, and measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate response to spills. Spill response measures shall address notification of the Engineer and appropriate agencies including phone numbers; spill-related worker, public health, and safety issues; spill control, and spill cleanup. 2. Submit a Safety Data Sheet (SDS) for each hazardous substance proposed to be used prior to delivery of the material to the jobsite.				
Hazards and Hazardous Materials F) Potential to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan	**EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation** **1.2 Submittals** A. Submit at least 15 calendar days prior to work a detailed traffic control plan, that is approved by all agencies having jurisdiction and that conforms to all requirements of these specifications and the most recently adopted edition of the California Manual on Uniform Traffic Control Devices (MUTCD). Traffic Control Plan shall include: 1. Circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible. 2. A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included. 3. Procedures, to the extent feasible, to schedule construction of project elements to minimize overlapping construction phases that require truck hauling. 4. Designated Contractor staging areas for storage of all equipment and materials, in such a manner to minimize obstruction to traffic. 5. Locations for parking by construction workers.	EBMUD and EBMUD's Contractor	EBMUD	Prior to Construction	All project areas
Hazards and Hazardous Materials G) Potential to expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires	**EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements** **1.6 Fire Prevention and Protection** A. Perform all Work in a fire-safe manner and supply and maintain on the site adequate fire-fighting equipment capable of extinguishing incipient fires. Comply with applicable federal, local, and state fire-prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standards for Safeguarding Building Construction Operations (NFPA No. 241) shall be followed.	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	All project areas
Hydrology and Water Quality					
Hydrology and Water Quality A) Potential to violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality	**EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements** **Section 1.3 (A) Stormwater Management (Details as previously listed)** **1.3 Submittals** B. Water Control and Disposal Plan: 1. The Contractor shall submit a detailed Water Control and Disposal Plan for the Engineer's acceptance prior to any work at the jobsite. a. Plan shall comply with all requirements of the Specification and applicable discharge permits. b. Contractor shall maintain proper control of the discharge at the discharge point to prevent erosion, scouring of bank, nuisance, contamination, and excess sedimentation in the receiving waters. 2. Drinking Water System Discharges a. Plan shall include the estimated flow rate and volume of all proposed discharges to surface waters, including discharges to storm drains. All receiving waters shall be clearly identified. b. Contractor shall track all discharges directly to a surface water body or a storm drain system that drains to a surface water body. A record consisting of discharge locations and volumes shall be submitted to the Engineer prior to Contract Acceptance.	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	All project areas

Impact Area	EBMUD Practices and Procedures[1]	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Locations
	c. A monitoring program is required for drinking water system discharges greater than 325,850 gallons in conformance with Attachment E, Monitoring and Reporting Program, of the General Drinking Water Discharges Permit, when the water will be discharged either directly into a surface water body or a storm drain system that drains to a surface water body. A record consisting of discharge locations, volumes and Water Quality (WQ) data shall be submitted to the Engineer. The Planned Discharge Tracking Form, attached to the end of this section, may be used to fulfill this requirement. All monitoring results shall be submitted to the Engineer prior to Contract Acceptance. d. Contractor shall dechlorinate all drinking water system discharges to achieve a total chlorine residual concentration of < 0.1 mg/L measured with a handheld chlorine meter utilizing a US EPA approved method and provide effective erosion & sediment control to achieve a visual turbidity concentration of ≤ 100 NTU by implementing BMPs which meet the District minimum standards (see Figure 1 attached to the end of this section) or better. e. Instead of discharging to surface waters, where feasible, Contractor shall beneficially reuse water derived from drinking water systems as defined in the General Drinking Water Discharges Permit. Potential reuse strategies include, but are not limited to, landscape irrigation, agricultural irrigation, dust control, and discharge to stormwater capture basins or other groundwater recharge systems. Contractor shall do so without impacting property or the environment. Contractor shall provide a record of reuse location(s) and volume(s) and submit it to the Engineer prior to Contract Acceptance. f. Contractor shall ensure that the pH level of any discharges shall not be depressed below 6.5, nor elevated above 8.5. If there is potential for discharges to be below 6.5 or above 8.5, Contractor shall employ pH adjustment best management practices to ensure discharges are within the range of 6.5 and 8.5. Contractor shall conduct onsite field measurements for pH per quality assurance and quality control (QA/QC) protocol that conform to U.S. EPA guidelines, or procedures approved by the American Water Works Association or other professional drinking water industry association. Contractor shall submit all monitoring results to the Engineer prior to Contract Acceptance. 3. Non-Stormwater Discharges a. Plan shall describe measures for containment, handling, treatment (as necessary), and disposal of discharges such as groundwater (if encountered), runoff of water used for dust control, stockpile leachate, tank heel water, wash water, sawcut slurry, test water and construction water or other liquid that has been in contact with any interior surfaces of District facilities. Contractor shall provide the Engineer with containment, handling, treatment and disposal designs and a sampling & analysis plan for approval before commencing the Work. Sampling and analysis shall be in conformance with Sections 1.3 (K) *Analytical Test Results* and 3.1 *SAMPLING AND ANALYSIS*. 4. Sanitary Sewer Discharges a. It is District policy to send superchlorinated discharges from pipeline disinfection to the sanitary sewer system. Plan shall include a sampling and analytical program for superchlorinated discharges in conformance with the Sanitary Sewer Discharge Permit. All monitoring results shall be submitted to the Engineer prior to the end of the Work. b. Obtain and provide to the Engineer documentation from the agency (e.g., wastewater treatment plant, local sewer owner) having jurisdiction, authorizing the Contractor to dispose of the liquid and describing the method of disposal. Discharges destined for the District's main wastewater treatment plant in Oakland can reference Special Discharge Permit (SDP) #50333261, issued to the District's Regulatory Compliance Office, when obtaining authorization from the pertinent local jurisdiction that owns the sewers to be used. Contractor shall, prior to the end of the Work, report to the Engineer the volumes of all discharges performed pursuant to the said SDP along with copies of any profile forms and/or correspondence between Contractor and disposal facility.				

Impact Area	EBMUD Practices and Procedures[1]	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Locations
	EBMUD's Environmental Compliance Manual Section 3.0, Water Quality Protection, of the Environmental Compliance manual describes how EBMUD complies with the National Pollutant Discharge Elimination System (NPDES) permit issued by the San Francisco Bay Regional Water Quality Control Board for planned, unplanned, and emergency discharges from the potable water transmission, storage, and distribution system. This section addresses water quality permitting issues relate to facility discharges, potable water discharges, construction stormwater discharges, sanitary sewer overflows, and other activities within navigable waters such as streambed alterations, dredging, levee maintenance, and bank stabilization. Section 3.0 Water Quality Protection, of the EBMUD Environmental Compliance Manual also requires: • Placement of BMPs (dichlorination tabs and sediment control) at all affected storm drains, even if there are no planned discharges, since unplanned discharges may occur at any time when working on pipelines containing chlorinated water • Photo documentation of all BMP installations • Documented calculation of the amount of dichlorination agent necessary to dechlorinate the planned discharge • Measurement and recording of the amount of dichlorination agent used	EBMUD and EBMUD's Contractor	EBMUD	During Construction	All project areas
Hydrology and Water Quality C) (i) Potential to result in substantial erosion or siltation on or off site	**EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements** **Section 1.3 (A) Stormwater Management (Details as previously listed)**	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	All project areas
Hydrology and Water Quality C) (iii) Potential to 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	**EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements** **Section 1.3 (D) Spill Prevention and Response Plan (Details as previously listed)**	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	All project areas
Hydrology and Water Quality E) Potential to conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan	**EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements** **Section 1.3 (A) Stormwater Management and (D) Spill Prevention and Response Plan (Details as previously listed)**	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	All project areas
Noise					
Noise A) Potential to generate 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	**EBMUD's Standard Construction Specification 01 14 00, Work Restrictions** **1.3 Work Hours** A. Work or activity of any kind shall be limited to the hours from 7:00 a.m.[2] to 6:00 p.m. Monday through Friday. D. Truck operations (haul trucks and concrete delivery trucks) shall be limited to the daytime hours 9:00 a.m. and 4:00 p.m. **1.7 Construction Noise** A. Noise-generating activities greater than 90 dBA (impact construction such as concrete breaking,	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	All project areas

[2] For this Project, EBMUD would not start work until 8:00 a.m. during weekdays, in conformance with the City of Orinda noise ordinance.

Impact Area	EBMUD Practices and Procedures[1]	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Locations
	concrete crushing, tree grinding, etc.) shall be limited to the hour of 8:00 am and 4:00 pm, Monday through Friday.				
	EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements **3.5 Vibration Control** A. Limit surface vibration to no more than 0.5 in/sec PPV, measured at the nearest residence or other sensitive structure. See Section 01 14 00. B. Upon homeowner request, and with homeowner permission, the District will conduct preconstruction surveys of homes, sensitive structures and other areas of concern within 15 feet of continuous vibration-generating activities (i.e. vibratory compaction). Any new cracks or other changes in structures will be compared to preconstruction conditions and a determination made as to whether the proposed project could have caused such damage. In the event that the project is demonstrated to have caused the damage, the District will have the damage repaired to the pre-existing condition. **3.6 Noise Control** A. Comply with sound control and noise level rules, regulations and ordinances as required herein which apply to any work performed pursuant to the contract. B. Contractor is responsible for taking appropriate measures, including muffling of equipment, selecting quieter equipment, erecting noise barriers, modifying work operations, and other measures as needed to bring construction noise into compliance. C. Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler. D. Best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) shall be used for all equipment and trucks, as necessary. E. Truck operations (haul trucks and concrete delivery trucks) will be limited to the daytime hours specified in Section 01 14 00. F. Stationary noise sources (e.g. chippers, grinders, compressors) shall be located as far from sensitive receptors as possible. If they must be located near receptors, adequate muffling (with enclosures) shall be used. Enclosure opening or venting shall face away from sensitive receptors. Enclosures shall be designed by a registered engineer regularly involved in noise control analysis and design. G. Material stockpiles as well as maintenance/equipment staging and parking areas (all on-site) shall be located as far as practicable from residential receptors. H. If impact equipment (e.g., jack hammers, pavement breakers, rock drills etc.) is used during project construction, Contractor is responsible for taking appropriate measures, including but not limited to the following: 1. Hydraulically or electric-powered equipment shall be used wherever feasible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust shall be used (a muffler can lower noise levels from the exhaust by up to about 10 dB). External jackets on the tools themselves shall be used, where feasible, which could achieve a reduction of 5 dB. Quieter procedures, such as drilling rather than impact equipment, will be used whenever feasible. It is the Contractor's responsibility to implement any measures necessary to meet applicable noise requirements. 2. Impact construction including jackhammers, hydraulic backhoe, concrete crushing/recycling activities, vibratory pile drivers etc. shall be limited to the day time hours specified in Section 01 14 00. 3. Erect temporary noise barriers or noise control blankets around the construction site, particularly along areas adjacent to residential buildings. 4. Utilize noise control blankets around the major noise sources to reduce noise emission from the site. 5. Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction	EBMUD and EBMUD's Contractor	EBMUD	During Construction	All project areas

Impact Area	EBMUD Practices and Procedures[1]	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Locations
	capability of adjacent buildings by the use of sound blankets for example. 6. Limit the noisiest phases of construction to 10 work days at a time, where feasible. 7. Notify neighbors/occupants within 300 feet of project construction at least thirty days in advance of extreme noise generating activities about the estimated duration of the activity.				
Transportation					
Transportation A) Potential to conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities	**EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation** **Section 1.2, Submittals (Details as previously listed)**	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	All project areas
Transportation C) Potential to substantially increase hazards due to a geometric design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)	**EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation** **Section 1.2, Submittals (Details as previously listed)** **3.1 General** A. Except where public roads have been approved for closure, traffic shall be permitted to pass through designated traffic lanes with as little inconvenience and delay as possible. B. Install temporary traffic markings where required to direct the flow of traffic. Maintain the traffic markings for the duration of need and remove by abrasive blasting when no longer required. C. Convenient access to driveways and buildings in the vicinity of work shall be maintained as much as possible. Temporary approaches to, and crossing of, intersecting traffic lanes shall be provided and kept in good condition. D. When leaving a work area and entering a roadway carrying public traffic, the Contractor's equipment, whether empty or loaded, shall in all cases yield to public traffic. E. Provide temporary signs as required by the traffic control plan and remove signs when no longer required. F. Haul routes for each construction phase shall be provided to all trucks serving the site during the construction period. G. For complete road closures, immediate emergency access to be provided if needed to emergency response vehicles. H. A minimum of twelve (12) foot travel lanes must be maintained unless otherwise approved. **3.3 Flagging** A. Provide flaggers to control traffic where required by the approved traffic control plan 1. Flaggers shall perform their duties and shall be provided with the necessary equipment in accordance with the current "Instructions to Flaggers" of the California Department of Transportation. 2. Flaggers shall be employed full time on traffic control and shall have no other duties.	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	All project areas
Transportation D) Potential to result in inadequate emergency access	**EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation** **Section 1.2, Submittals and Section 3.1 General (Details as previously listed)**	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	All project areas
Tribal Cultural Resources					
Tribal Cultural Resources A) (i-ii) Potential to cause a substantial adverse change in the significance of a tribal cultural resource.	**EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements** **Section 3.9 Protection of Cultural and Paleontological Resources (Details as previously listed)**	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	All project areas

APPENDIX C

Air Quality Emission Calculations

EBMUD Solar Duffel Site

San Francisco Bay Area Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.50	1000sqft	0.01	500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

EBMUD Solar Duffel Site - San Francisco Bay Area Air Basin, Annual

Project Characteristics - June 2020 start date, no energy use for building

Land Use - 500 sf building

Construction Phase - See Project Description

Off-road Equipment - Used standard equipment list for 1 to 2 acre site

Off-road Equipment - Used standard equipment list for 15 to 20 acre site

Off-road Equipment - Used standard equipment list for 25 to 30 acre site

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Used standard equipment list for 15 to 20 acre site

Off-road Equipment - Used standard equipment list for 15 to 20 acre site

Off-road Equipment -

Off-road Equipment - No equipment

Trips and VMT - Refer to PD for workers and trucks (assumed 5 day week), 17.4 miles average one-way commute distance in Contra Costa, ~20 miles to landfill

Grading - 16.7 acres of grading of site, 0.9 acre access road grading, 530 cy of gravel import for roads

Vehicle Trips - No regular vehicle trips to the site

Energy Use -

Construction Off-road Equipment Mitigation - 2x watering, 15 mph unpaved road speed

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	2.00	14.00
tblConstructionPhase	NumDays	1.00	12.00
tblConstructionPhase	NumDays	100.00	51.00
tblConstructionPhase	NumDays	100.00	26.00
tblConstructionPhase	NumDays	100.00	21.00
tblConstructionPhase	NumDays	100.00	11.00
tblConstructionPhase	NumDays	2.00	21.00

tblConstructionPhase	NumDays	100.00	31.00
tblGrading	AcresOfGrading	35.00	16.70
tblGrading	AcresOfGrading	7.88	0.90
tblGrading	MaterialImported	0.00	530.00
tblOffRoadEquipment	HorsePower	81.00	0.00
tblOffRoadEquipment	HorsePower	231.00	0.00
tblOffRoadEquipment	HorsePower	89.00	0.00
tblOffRoadEquipment	HorsePower	187.00	0.00
tblOffRoadEquipment	HorsePower	247.00	0.00
tblOffRoadEquipment	HorsePower	97.00	0.00
tblOffRoadEquipment	LoadFactor	0.73	0.00
tblOffRoadEquipment	LoadFactor	0.29	0.00
tblOffRoadEquipment	LoadFactor	0.20	0.00
tblOffRoadEquipment	LoadFactor	0.41	0.00
tblOffRoadEquipment	LoadFactor	0.40	0.00
tblOffRoadEquipment	LoadFactor	0.37	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	UsageHours	8.00	0.00

tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0
tblProjectCharacteristics	CO2IntensityFactor	641.35	0
tblProjectCharacteristics	N2OIntensityFactor	0.006	0
tblTripsAndVMT	HaulingTripNumber	0.00	168.00
tblTripsAndVMT	HaulingTripNumber	0.00	144.00
tblTripsAndVMT	HaulingTripNumber	66.00	210.00
tblTripsAndVMT	HaulingTripNumber	0.00	612.00
tblTripsAndVMT	HaulingTripNumber	0.00	104.00
tblTripsAndVMT	HaulingTripNumber	0.00	168.00
tblTripsAndVMT	WorkerTripLength	10.80	17.40
tblTripsAndVMT	WorkerTripLength	10.80	17.40
tblTripsAndVMT	WorkerTripLength	10.80	17.40
tblTripsAndVMT	WorkerTripLength	10.80	17.40
tblTripsAndVMT	WorkerTripLength	10.80	17.40
tblTripsAndVMT	WorkerTripLength	10.80	17.40
tblTripsAndVMT	WorkerTripLength	10.80	17.40

tblTripsAndVMT	WorkerTripLength	10.80	17.40
tblTripsAndVMT	WorkerTripNumber	20.00	30.00
tblTripsAndVMT	WorkerTripNumber	18.00	30.00
tblTripsAndVMT	WorkerTripNumber	8.00	10.00
tblTripsAndVMT	WorkerTripNumber	0.00	60.00
tblTripsAndVMT	WorkerTripNumber	0.00	20.00
tblTripsAndVMT	WorkerTripNumber	0.00	8.00
tblTripsAndVMT	WorkerTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1651	1.6991	1.2240	2.7200e-003	0.2042	0.0793	0.2835	0.0957	0.0737	0.1693	0.0000	243.7895	243.7895	0.0500	0.0000	245.0388
Maximum	**0.1651**	**1.6991**	**1.2240**	**2.7200e-003**	**0.2042**	**0.0793**	**0.2835**	**0.0957**	**0.0737**	**0.1693**	**0.0000**	**243.7895**	**243.7895**	**0.0500**	**0.0000**	**245.0388**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1651	1.6991	1.2240	2.7200e-003	0.1162	0.0793	0.1955	0.0496	0.0737	0.1232	0.0000	243.7893	243.7893	0.0500	0.0000	245.0386
Maximum	**0.1651**	**1.6991**	**1.2240**	**2.7200e-003**	**0.1162**	**0.0793**	**0.1955**	**0.0496**	**0.0737**	**0.1232**	**0.0000**	**243.7893**	**243.7893**	**0.0500**	**0.0000**	**245.0386**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**43.08**	**0.00**	**31.03**	**48.17**	**0.00**	**27.21**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-1-2020	8-31-2020	1.3637	1.3637
2	9-1-2020	9-30-2020	0.2641	0.2641
		Highest	1.3637	1.3637

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.5300e-003	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	7.0000e-005	6.1000e-004	5.1000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6604	0.6604	1.0000e-005	1.0000e-005	0.6643
Mobile	7.7000e-004	3.8900e-003	9.4500e-003	3.0000e-005	2.8600e-003	3.0000e-005	2.8900e-003	7.7000e-004	3.0000e-005	8.0000e-004	0.0000	3.0753	3.0753	1.1000e-004	0.0000	3.0781
Waste						0.0000	0.0000		0.0000	0.0000	0.1259	0.0000	0.1259	7.4400e-003	0.0000	0.3118
Water						0.0000	0.0000		0.0000	0.0000	0.0367	0.0000	0.0367	3.7700e-003	9.0000e-005	0.1574
Total	**3.3700e-003**	**4.5000e-003**	**9.9600e-003**	**3.0000e-005**	**2.8600e-003**	**8.0000e-005**	**2.9400e-003**	**7.7000e-004**	**8.0000e-005**	**8.5000e-004**	**0.1625**	**3.7357**	**3.8982**	**0.0113**	**1.0000e-004**	**4.2116**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.5300e-003	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	7.0000e-005	6.1000e-004	5.1000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6604	0.6604	1.0000e-005	1.0000e-005	0.6643
Mobile	7.7000e-004	3.8900e-003	9.4500e-003	3.0000e-005	2.8600e-003	3.0000e-005	2.8900e-003	7.7000e-004	3.0000e-005	8.0000e-004	0.0000	3.0753	3.0753	1.1000e-004	0.0000	3.0781
Waste						0.0000	0.0000		0.0000	0.0000	0.1259	0.0000	0.1259	7.4400e-003	0.0000	0.3118
Water						0.0000	0.0000		0.0000	0.0000	0.0367	0.0000	0.0367	3.7700e-003	9.0000e-005	0.1574
Total	**3.3700e-003**	**4.5000e-003**	**9.9600e-003**	**3.0000e-005**	**2.8600e-003**	**8.0000e-005**	**2.9400e-003**	**7.7000e-004**	**8.0000e-005**	**8.5000e-004**	**0.1625**	**3.7357**	**3.8982**	**0.0113**	**1.0000e-004**	**4.2116**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	6/1/2020	6/18/2020	5	14	
2	Site Preparation	Site Preparation	6/19/2020	7/6/2020	5	12	
3	Array Installation	Building Construction	7/7/2020	9/15/2020	5	51	
4	Collector Line Installation	Building Construction	7/31/2020	9/4/2020	5	26	
5	Control Building Installation	Building Construction	9/7/2020	10/5/2020	5	21	
6	Substation Upgrades	Building Construction	10/6/2020	10/20/2020	5	11	
7	Access Road Construction	Grading	10/21/2020	11/18/2020	5	21	
8	Testing and Commissioning	Building Construction	11/19/2020	12/31/2020	5	31	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 16.7

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Concrete/Industrial Saws	0	0.00	0	0.00
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Graders	0	0.00	0	0.00
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40

Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Access Road Construction	Concrete/Industrial Saws	1	6.00	81	0.73
Access Road Construction	Graders	1	6.00	187	0.41
Access Road Construction	Rubber Tired Dozers	0	0.00	0	0.00
Access Road Construction	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Array Installation	Cranes	1	8.00	231	0.29
Array Installation	Forklifts	3	8.00	89	0.20
Array Installation	Generator Sets	1	8.00	84	0.74
Array Installation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Array Installation	Welders	1	8.00	46	0.45
Collector Line Installation	Cranes	1	4.00	231	0.29
Collector Line Installation	Forklifts	2	6.00	89	0.20
Collector Line Installation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Control Building Installation	Cranes	1	4.00	231	0.29
Control Building Installation	Forklifts	2	6.00	89	0.20
Control Building Installation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Substation Upgrades	Cranes	1	4.00	231	0.29
Substation Upgrades	Forklifts	2	6.00	89	0.20
Substation Upgrades	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Testing and Commissioning	Cranes	0	0.00	0	0.00
Testing and Commissioning	Forklifts	0	0.00	0	0.00
Testing and Commissioning	Tractors/Loaders/Backhoes	0	0.00	0	0.00

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	8	30.00	0.00	168.00	17.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	30.00	0.00	144.00	17.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Access Road Construction	3	10.00	0.00	210.00	17.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Array Installation	9	60.00	0.00	612.00	17.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Collector Line Installation	5	20.00	0.00	104.00	17.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Control Building Installation	5	8.00	0.00	168.00	17.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Substation Upgrades	5	4.00	0.00	0.00	17.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Testing and Commissioning	0	10.00	0.00	0.00	17.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0510	0.0000	0.0510	0.0241	0.0000	0.0241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0312	0.3514	0.2237	4.3000e-004		0.0152	0.0152		0.0140	0.0140	0.0000	38.1390	38.1390	0.0123	0.0000	38.4474
Total	**0.0312**	**0.3514**	**0.2237**	**4.3000e-004**	**0.0510**	**0.0152**	**0.0662**	**0.0241**	**0.0140**	**0.0381**	**0.0000**	**38.1390**	**38.1390**	**0.0123**	**0.0000**	**38.4474**

3.2 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-004	0.0246	4.9400e-003	7.0000e-005	1.4200e-003	8.0000e-005	1.5000e-003	3.9000e-004	8.0000e-005	4.7000e-004	0.0000	6.4375	6.4375	3.3000e-004	0.0000	6.4458
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0100e-003	7.6000e-004	7.6900e-003	3.0000e-005	2.6700e-003	2.0000e-005	2.6900e-003	7.1000e-004	2.0000e-005	7.3000e-004	0.0000	2.3161	2.3161	5.0000e-005	0.0000	2.3175
Total	**1.7100e-003**	**0.0253**	**0.0126**	**1.0000e-004**	**4.0900e-003**	**1.0000e-004**	**4.1900e-003**	**1.1000e-003**	**1.0000e-004**	**1.2000e-003**	**0.0000**	**8.7537**	**8.7537**	**3.8000e-004**	**0.0000**	**8.7633**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0230	0.0000	0.0230	0.0109	0.0000	0.0109	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0312	0.3514	0.2237	4.3000e-004		0.0152	0.0152		0.0140	0.0140	0.0000	38.1390	38.1390	0.0123	0.0000	38.4473
Total	**0.0312**	**0.3514**	**0.2237**	**4.3000e-004**	**0.0230**	**0.0152**	**0.0382**	**0.0109**	**0.0140**	**0.0249**	**0.0000**	**38.1390**	**38.1390**	**0.0123**	**0.0000**	**38.4473**

3.2 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-004	0.0246	4.9400e-003	7.0000e-005	1.4200e-003	8.0000e-005	1.5000e-003	3.9000e-004	8.0000e-005	4.7000e-004	0.0000	6.4375	6.4375	3.3000e-004	0.0000	6.4458
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0100e-003	7.6000e-004	7.6900e-003	3.0000e-005	2.6700e-003	2.0000e-005	2.6900e-003	7.1000e-004	2.0000e-005	7.3000e-004	0.0000	2.3161	2.3161	5.0000e-005	0.0000	2.3175
Total	**1.7100e-003**	**0.0253**	**0.0126**	**1.0000e-004**	**4.0900e-003**	**1.0000e-004**	**4.1900e-003**	**1.1000e-003**	**1.0000e-004**	**1.2000e-003**	**0.0000**	**8.7537**	**8.7537**	**3.8000e-004**	**0.0000**	**8.7633**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1084	0.0000	0.1084	0.0596	0.0000	0.0596	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0245	0.2545	0.1291	2.3000e-004		0.0132	0.0132		0.0121	0.0121	0.0000	20.0584	20.0584	6.4900e-003	0.0000	20.2206
Total	**0.0245**	**0.2545**	**0.1291**	**2.3000e-004**	**0.1084**	**0.0132**	**0.1216**	**0.0596**	**0.0121**	**0.0717**	**0.0000**	**20.0584**	**20.0584**	**6.4900e-003**	**0.0000**	**20.2206**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-004	0.0211	4.2300e-003	6.0000e-005	1.2200e-003	7.0000e-005	1.2800e-003	3.3000e-004	6.0000e-005	4.0000e-004	0.0000	5.5179	5.5179	2.8000e-004	0.0000	5.5250
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.6000e-004	6.5000e-004	6.5900e-003	2.0000e-005	2.2900e-003	1.0000e-005	2.3100e-003	6.1000e-004	1.0000e-005	6.2000e-004	0.0000	1.9853	1.9853	5.0000e-005	0.0000	1.9864
Total	**1.4600e-003**	**0.0217**	**0.0108**	**8.0000e-005**	**3.5100e-003**	**8.0000e-005**	**3.5900e-003**	**9.4000e-004**	**7.0000e-005**	**1.0200e-003**	**0.0000**	**7.5032**	**7.5032**	**3.3000e-004**	**0.0000**	**7.5114**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0488	0.0000	0.0488	0.0268	0.0000	0.0268	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0245	0.2545	0.1291	2.3000e-004		0.0132	0.0132		0.0121	0.0121	0.0000	20.0584	20.0584	6.4900e-003	0.0000	20.2206
Total	**0.0245**	**0.2545**	**0.1291**	**2.3000e-004**	**0.0488**	**0.0132**	**0.0620**	**0.0268**	**0.0121**	**0.0389**	**0.0000**	**20.0584**	**20.0584**	**6.4900e-003**	**0.0000**	**20.2206**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-004	0.0211	4.2300e-003	6.0000e-005	1.2200e-003	7.0000e-005	1.2800e-003	3.3000e-004	6.0000e-005	4.0000e-004	0.0000	5.5179	5.5179	2.8000e-004	0.0000	5.5250
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.6000e-004	6.5000e-004	6.5900e-003	2.0000e-005	2.2900e-003	1.0000e-005	2.3100e-003	6.1000e-004	1.0000e-005	6.2000e-004	0.0000	1.9853	1.9853	5.0000e-005	0.0000	1.9864
Total	**1.4600e-003**	**0.0217**	**0.0108**	**8.0000e-005**	**3.5100e-003**	**8.0000e-005**	**3.5900e-003**	**9.4000e-004**	**7.0000e-005**	**1.0200e-003**	**0.0000**	**7.5032**	**7.5032**	**3.3000e-004**	**0.0000**	**7.5114**

3.4 Array Installation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0575	0.5266	0.4582	7.3000e-004		0.0305	0.0305		0.0286	0.0286	0.0000	63.2855	63.2855	0.0158	0.0000	63.6799
Total	**0.0575**	**0.5266**	**0.4582**	**7.3000e-004**		**0.0305**	**0.0305**		**0.0286**	**0.0286**	**0.0000**	**63.2855**	**63.2855**	**0.0158**	**0.0000**	**63.6799**

3.4 Array Installation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.5500e-003	0.0895	0.0180	2.4000e-004	5.1700e-003	2.9000e-004	5.4600e-003	1.4200e-003	2.8000e-004	1.7000e-003	0.0000	23.4510	23.4510	1.2100e-003	0.0000	23.4812
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3300e-003	5.5400e-003	0.0560	1.9000e-004	0.0195	1.3000e-004	0.0196	5.1800e-003	1.2000e-004	5.2900e-003	0.0000	16.8748	16.8748	3.9000e-004	0.0000	16.8846
Total	**9.8800e-003**	**0.0950**	**0.0740**	**4.3000e-004**	**0.0246**	**4.2000e-004**	**0.0251**	**6.6000e-003**	**4.0000e-004**	**6.9900e-003**	**0.0000**	**40.3258**	**40.3258**	**1.6000e-003**	**0.0000**	**40.3658**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0575	0.5266	0.4582	7.3000e-004		0.0305	0.0305		0.0286	0.0286	0.0000	63.2855	63.2855	0.0158	0.0000	63.6798
Total	**0.0575**	**0.5266**	**0.4582**	**7.3000e-004**		**0.0305**	**0.0305**		**0.0286**	**0.0286**	**0.0000**	**63.2855**	**63.2855**	**0.0158**	**0.0000**	**63.6798**

3.4 Array Installation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.5500e-003	0.0895	0.0180	2.4000e-004	5.1700e-003	2.9000e-004	5.4600e-003	1.4200e-003	2.8000e-004	1.7000e-003	0.0000	23.4510	23.4510	1.2100e-003	0.0000	23.4812
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3300e-003	5.5400e-003	0.0560	1.9000e-004	0.0195	1.3000e-004	0.0196	5.1800e-003	1.2000e-004	5.2900e-003	0.0000	16.8748	16.8748	3.9000e-004	0.0000	16.8846
Total	**9.8800e-003**	**0.0950**	**0.0740**	**4.3000e-004**	**0.0246**	**4.2000e-004**	**0.0251**	**6.6000e-003**	**4.0000e-004**	**6.9900e-003**	**0.0000**	**40.3258**	**40.3258**	**1.6000e-003**	**0.0000**	**40.3658**

3.5 Collector Line Installation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0112	0.1151	0.0960	1.5000e-004		6.7900e-003	6.7900e-003		6.2500e-003	6.2500e-003	0.0000	13.0079	13.0079	4.2100e-003	0.0000	13.1130
Total	**0.0112**	**0.1151**	**0.0960**	**1.5000e-004**		**6.7900e-003**	**6.7900e-003**		**6.2500e-003**	**6.2500e-003**	**0.0000**	**13.0079**	**13.0079**	**4.2100e-003**	**0.0000**	**13.1130**

3.5 Collector Line Installation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.3000e-004	0.0152	3.0600e-003	4.0000e-005	8.8000e-004	5.0000e-005	9.3000e-004	2.4000e-004	5.0000e-005	2.9000e-004	0.0000	3.9851	3.9851	2.1000e-004	0.0000	3.9903
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2500e-003	9.4000e-004	9.5200e-003	3.0000e-005	3.3100e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.8676	2.8676	7.0000e-005	0.0000	2.8693
Total	**1.6800e-003**	**0.0161**	**0.0126**	**7.0000e-005**	**4.1900e-003**	**7.0000e-005**	**4.2600e-003**	**1.1200e-003**	**7.0000e-005**	**1.1900e-003**	**0.0000**	**6.8528**	**6.8528**	**2.8000e-004**	**0.0000**	**6.8595**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0112	0.1151	0.0960	1.5000e-004		6.7900e-003	6.7900e-003		6.2500e-003	6.2500e-003	0.0000	13.0079	13.0079	4.2100e-003	0.0000	13.1130
Total	**0.0112**	**0.1151**	**0.0960**	**1.5000e-004**		**6.7900e-003**	**6.7900e-003**		**6.2500e-003**	**6.2500e-003**	**0.0000**	**13.0079**	**13.0079**	**4.2100e-003**	**0.0000**	**13.1130**

3.5 Collector Line Installation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.3000e-004	0.0152	3.0600e-003	4.0000e-005	8.8000e-004	5.0000e-005	9.3000e-004	2.4000e-004	5.0000e-005	2.9000e-004	0.0000	3.9851	3.9851	2.1000e-004	0.0000	3.9903
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2500e-003	9.4000e-004	9.5200e-003	3.0000e-005	3.3100e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.8676	2.8676	7.0000e-005	0.0000	2.8693
Total	**1.6800e-003**	**0.0161**	**0.0126**	**7.0000e-005**	**4.1900e-003**	**7.0000e-005**	**4.2600e-003**	**1.1200e-003**	**7.0000e-005**	**1.1900e-003**	**0.0000**	**6.8528**	**6.8528**	**2.8000e-004**	**0.0000**	**6.8595**

3.6 Control Building Installation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.0500e-003	0.0930	0.0776	1.2000e-004		5.4800e-003	5.4800e-003		5.0500e-003	5.0500e-003	0.0000	10.5064	10.5064	3.4000e-003	0.0000	10.5913
Total	**9.0500e-003**	**0.0930**	**0.0776**	**1.2000e-004**		**5.4800e-003**	**5.4800e-003**		**5.0500e-003**	**5.0500e-003**	**0.0000**	**10.5064**	**10.5064**	**3.4000e-003**	**0.0000**	**10.5913**

3.6 Control Building Installation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-004	0.0246	4.9400e-003	7.0000e-005	1.4200e-003	8.0000e-005	1.5000e-003	3.9000e-004	8.0000e-005	4.7000e-004	0.0000	6.4375	6.4375	3.3000e-004	0.0000	6.4458
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-004	3.0000e-004	3.0700e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.9265	0.9265	2.0000e-005	0.0000	0.9270
Total	**1.1000e-003**	**0.0249**	**8.0100e-003**	**8.0000e-005**	**2.4900e-003**	**9.0000e-005**	**2.5800e-003**	**6.7000e-004**	**9.0000e-005**	**7.6000e-004**	**0.0000**	**7.3640**	**7.3640**	**3.5000e-004**	**0.0000**	**7.3728**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.0500e-003	0.0930	0.0776	1.2000e-004		5.4800e-003	5.4800e-003		5.0500e-003	5.0500e-003	0.0000	10.5063	10.5063	3.4000e-003	0.0000	10.5913
Total	**9.0500e-003**	**0.0930**	**0.0776**	**1.2000e-004**		**5.4800e-003**	**5.4800e-003**		**5.0500e-003**	**5.0500e-003**	**0.0000**	**10.5063**	**10.5063**	**3.4000e-003**	**0.0000**	**10.5913**

3.6 Control Building Installation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-004	0.0246	4.9400e-003	7.0000e-005	1.4200e-003	8.0000e-005	1.5000e-003	3.9000e-004	8.0000e-005	4.7000e-004	0.0000	6.4375	6.4375	3.3000e-004	0.0000	6.4458
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-004	3.0000e-004	3.0700e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.9265	0.9265	2.0000e-005	0.0000	0.9270
Total	**1.1000e-003**	**0.0249**	**8.0100e-003**	**8.0000e-005**	**2.4900e-003**	**9.0000e-005**	**2.5800e-003**	**6.7000e-004**	**9.0000e-005**	**7.6000e-004**	**0.0000**	**7.3640**	**7.3640**	**3.5000e-004**	**0.0000**	**7.3728**

3.7 Substation Upgrades - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7400e-003	0.0487	0.0406	6.0000e-005		2.8700e-003	2.8700e-003		2.6400e-003	2.6400e-003	0.0000	5.5033	5.5033	1.7800e-003	0.0000	5.5478
Total	**4.7400e-003**	**0.0487**	**0.0406**	**6.0000e-005**		**2.8700e-003**	**2.8700e-003**		**2.6400e-003**	**2.6400e-003**	**0.0000**	**5.5033**	**5.5033**	**1.7800e-003**	**0.0000**	**5.5478**

3.7 Substation Upgrades - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	8.0000e-005	8.1000e-004	0.0000	2.8000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2426	0.2426	1.0000e-005	0.0000	0.2428
Total	**1.1000e-004**	**8.0000e-005**	**8.1000e-004**	**0.0000**	**2.8000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2426**	**0.2426**	**1.0000e-005**	**0.0000**	**0.2428**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7400e-003	0.0487	0.0406	6.0000e-005		2.8700e-003	2.8700e-003		2.6400e-003	2.6400e-003	0.0000	5.5033	5.5033	1.7800e-003	0.0000	5.5478
Total	**4.7400e-003**	**0.0487**	**0.0406**	**6.0000e-005**		**2.8700e-003**	**2.8700e-003**		**2.6400e-003**	**2.6400e-003**	**0.0000**	**5.5033**	**5.5033**	**1.7800e-003**	**0.0000**	**5.5478**

3.7 Substation Upgrades - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	8.0000e-005	8.1000e-004	0.0000	2.8000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2426	0.2426	1.0000e-005	0.0000	0.2428
Total	**1.1000e-004**	**8.0000e-005**	**8.1000e-004**	**0.0000**	**2.8000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2426**	**0.2426**	**1.0000e-005**	**0.0000**	**0.2428**

3.8 Access Road Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.1000e-004	0.0000	5.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.9700e-003	0.0951	0.0643	1.3000e-004		4.3800e-003	4.3800e-003		4.1500e-003	4.1500e-003	0.0000	11.3325	11.3325	2.5600e-003	0.0000	11.3966
Total	**8.9700e-003**	**0.0951**	**0.0643**	**1.3000e-004**	**5.1000e-004**	**4.3800e-003**	**4.8900e-003**	**6.0000e-005**	**4.1500e-003**	**4.2100e-003**	**0.0000**	**11.3325**	**11.3325**	**2.5600e-003**	**0.0000**	**11.3966**

3.8 Access Road Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.8000e-004	0.0307	6.1700e-003	8.0000e-005	1.7700e-003	1.0000e-004	1.8700e-003	4.9000e-004	9.0000e-005	5.8000e-004	0.0000	8.0469	8.0469	4.1000e-004	0.0000	8.0573
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.8000e-004	3.8400e-003	1.0000e-005	1.3400e-003	1.0000e-005	1.3400e-003	3.6000e-004	1.0000e-005	3.6000e-004	0.0000	1.1581	1.1581	3.0000e-005	0.0000	1.1587
Total	**1.3800e-003**	**0.0311**	**0.0100**	**9.0000e-005**	**3.1100e-003**	**1.1000e-004**	**3.2100e-003**	**8.5000e-004**	**1.0000e-004**	**9.4000e-004**	**0.0000**	**9.2050**	**9.2050**	**4.4000e-004**	**0.0000**	**9.2160**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.3000e-004	0.0000	2.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.9700e-003	0.0951	0.0643	1.3000e-004		4.3800e-003	4.3800e-003		4.1500e-003	4.1500e-003	0.0000	11.3325	11.3325	2.5600e-003	0.0000	11.3966
Total	**8.9700e-003**	**0.0951**	**0.0643**	**1.3000e-004**	**2.3000e-004**	**4.3800e-003**	**4.6100e-003**	**3.0000e-005**	**4.1500e-003**	**4.1800e-003**	**0.0000**	**11.3325**	**11.3325**	**2.5600e-003**	**0.0000**	**11.3966**

3.8 Access Road Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.8000e-004	0.0307	6.1700e-003	8.0000e-005	1.7700e-003	1.0000e-004	1.8700e-003	4.9000e-004	9.0000e-005	5.8000e-004	0.0000	8.0469	8.0469	4.1000e-004	0.0000	8.0573
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.8000e-004	3.8400e-003	1.0000e-005	1.3400e-003	1.0000e-005	1.3400e-003	3.6000e-004	1.0000e-005	3.6000e-004	0.0000	1.1581	1.1581	3.0000e-005	0.0000	1.1587
Total	**1.3800e-003**	**0.0311**	**0.0100**	**9.0000e-005**	**3.1100e-003**	**1.1000e-004**	**3.2100e-003**	**8.5000e-004**	**1.0000e-004**	**9.4000e-004**	**0.0000**	**9.2050**	**9.2050**	**4.4000e-004**	**0.0000**	**9.2160**

3.9 Testing and Commissioning - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.4000e-004	5.6000e-004	5.6700e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7095	1.7095	4.0000e-005	0.0000	1.7105
Total	**7.4000e-004**	**5.6000e-004**	**5.6700e-003**	**2.0000e-005**	**1.9700e-003**	**1.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.7095**	**1.7095**	**4.0000e-005**	**0.0000**	**1.7105**

3.9 Testing and Commissioning - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.4000e-004	5.6000e-004	5.6700e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7095	1.7095	4.0000e-005	0.0000	1.7105
Total	**7.4000e-004**	**5.6000e-004**	**5.6700e-003**	**2.0000e-005**	**1.9700e-003**	**1.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.7095**	**1.7095**	**4.0000e-005**	**0.0000**	**1.7105**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	7.7000e-004	3.8900e-003	9.4500e-003	3.0000e-005	2.8600e-003	3.0000e-005	2.8900e-003	7.7000e-004	3.0000e-005	8.0000e-004	0.0000	3.0753	3.0753	1.1000e-004	0.0000	3.0781
Unmitigated	7.7000e-004	3.8900e-003	9.4500e-003	3.0000e-005	2.8600e-003	3.0000e-005	2.8900e-003	7.7000e-004	3.0000e-005	8.0000e-004	0.0000	3.0753	3.0753	1.1000e-004	0.0000	3.0781

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	3.49	0.66	0.34	7,685	7,685
Total	3.49	0.66	0.34	7,685	7,685

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.575198	0.040076	0.193827	0.113296	0.016988	0.005361	0.017552	0.025197	0.002581	0.002349	0.005904	0.000881	0.000789

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	7.0000e-005	6.1000e-004	5.1000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6604	0.6604	1.0000e-005	1.0000e-005	0.6643
NaturalGas Unmitigated	7.0000e-005	6.1000e-004	5.1000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6604	0.6604	1.0000e-005	1.0000e-005	0.6643

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	12375	7.0000e-005	6.1000e-004	5.1000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6604	0.6604	1.0000e-005	1.0000e-005	0.6643
Total		**7.0000e-005**	**6.1000e-004**	**5.1000e-004**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.6604**	**0.6604**	**1.0000e-005**	**1.0000e-005**	**0.6643**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	12375	7.0000e-005	6.1000e-004	5.1000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6604	0.6604	1.0000e-005	1.0000e-005	0.6643
Total		**7.0000e-005**	**6.1000e-004**	**5.1000e-004**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.6604**	**0.6604**	**1.0000e-005**	**1.0000e-005**	**0.6643**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	3780	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	3780	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.5300e-003	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Unmitigated	2.5300e-003	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	5.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.9500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	**2.5300e-003**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	5.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.9500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	**2.5300e-003**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0367	3.7700e-003	9.0000e-005	0.1574
Unmitigated	0.0367	3.7700e-003	9.0000e-005	0.1574

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.115625 / 0	0.0367	3.7700e-003	9.0000e-005	0.1574
Total		**0.0367**	**3.7700e-003**	**9.0000e-005**	**0.1574**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.115625 / 0	0.0367	3.7700e-003	9.0000e-005	0.1574
Total		**0.0367**	**3.7700e-003**	**9.0000e-005**	**0.1574**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.1259	7.4400e-003	0.0000	0.3118
Unmitigated	0.1259	7.4400e-003	0.0000	0.3118

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0.62	0.1259	7.4400e-003	0.0000	0.3118
Total		**0.1259**	**7.4400e-003**	**0.0000**	**0.3118**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0.62	0.1259	7.4400e-003	0.0000	0.3118
Total		**0.1259**	**7.4400e-003**	**0.0000**	**0.3118**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX D

Land Use Plan Consistency Analysis

APPENDIX D

Table 1 Land Use Plans, Policies, and Regulations Consistency Analysis

Land Use Plan, Policy, or Regulation			Consistency with Land Use Plan, Policy, or Regulation
City of Orinda Municipal Code: Title 17 - Zoning			
Public, Semipublic, and Utility District (PS)	**Purpose**	The specific purpose of the PS public, semi-public and utility district is to preserve established patterns of diverse uses such as the high-intensity community center and the East Bay Municipal Utility District ("EBMUD") filter plant and the undeveloped lands of the EBMUD watershed and to subject any changes in existing uses (with the exception of new emergency shelters) to a heightened level of scrutiny to assure consistency with the general plan. (17.9.1)	The Project would involve installation of a solar facility to offset EBMUD's power use, which would constitute a utility use. Utility uses require a use permit in accordance with the municipal code. EBMUD would apply for a City of Orinda Conditional Use Permit (CUP). The Project is within the scope of uses that are allowed within this designation with a CUP. No specific restriction is identified regarding installation of utility-scale solar in the zoning code.
	Permitted Uses	• A use permit is required for major and minor utilities (17.9.2) • Accessory structures are permitted if the main use is permitted, otherwise requires a use permit if added on the site of a conditional use (17.9.2) • Fences and retaining walls are permitted in every district and are allowed in conjunction with specific uses as provided in this section (17.15.3)	
City of Orinda General Plan: 2.1 Land Use Element			
Utility (Protected Watershed) Designation (Utility-W) [1]		EBMUD and PG&E facilities and lands are mapped where they are of sufficient size to warrant differentiation from adjoining uses. In addition to primary utility purposes, watershed, open space, and public recreational uses are appropriate to this designation. Cultural uses are also appropriate, but only in areas specifically designated as "P" on the General Plan map. Areas designated "Protected Watershed" (W) on the General Plan map are limited to watershed management activities, including development of off-	The Project would be a low intensity use; less than park and recreational use. Operation of the Project would not generate trash or increased traffic, as it would be an unmanned facility, monitored remotely, with maintenance conducted on an as needed basis (approximately eight visits to the site per year). The Project is consistent with the policies of the East Bay Watershed Master Plan (EBWMP) as an acceptable watershed management activity and is therefore consistent with the general plan designation for the

[1] In accordance with Resolution No. 42-09 (City of Orinda, 2010).

Land Use Plan, Policy, or Regulation		Consistency with Land Use Plan, Policy, or Regulation
	channel wetlands. Areas designated "W" on the General Plan map shall not include Parks and Recreation uses.	Project site. which encourage development of solar on EBMUD facilities. The Project would not conflict with the watershed designation and meets the general plan's goal of only allowing a lower intensity use, rather than active recreational land use, under the "W" subcategory designation.
Policy B	Seek cooperation of PG&E and EBMUD in managing landholdings to maximize community benefit and visual attractiveness, consistent with utility needs.	The Project site is currently not open to the public and is used for cattle grazing. The adjacent Bear Creek Trail (also referred to as Oursan Trail) would not be obstructed during construction or operation. Views of the Project site from the adjacent trail and road are currently partially screened by vegetation. Implementation of landscaping along Bear Creek Road and Bear Creek Trail (Oursan Trail) would protect views along Bear Creek Road and trail. The location of the Project adjacent to PG&E substation allows for very limited power line infrastructure to connect to the existing electrical infrastructure at PG&E's substation. In addition, EBMUD is seeking to locate the short segment of interconnecting power line underground, if feasible. The Project would not conflict with this policy.
City of Orinda General Plan: 4.1 Conservation Element		
Policy C	Preserve valuable wildlife habitats, particularly riparian habitats.	The Project has been designed to avoid riparian areas and valuable wildlife habitats. The area of disturbance is subject to cattle grazing and controlled burns for vegetation management and has a history of human disturbance and alteration. The area of disturbance is dominated by grassland vegetation and invasive weeds. The Project would impact oak trees and the Project mitigation includes replacement of all impacted trees.
Policy M	Encourage preservation of EBMUD land for watershed and recreation use.	The Project site is currently fenced for cattle grazing. No recreational facilities or trails are located within the Project site. Recreationalists are not allowed access to the fenced area. The adjacent Bear Creek Trail (Oursan Trail) would not be obstructed during construction or operation. The Project would protect watershed uses by protecting

Land Use Plan, Policy, or Regulation	Consistency with Land Use Plan, Policy, or Regulation
	water quality functions. The Project would maintain a low level of activity on the Project site throughout the operational period. The Project would be unmanned and monitored remotely, with maintenance occurring as needed, approximately eight visits per year (one visit for panel washing, two visits for vegetation management, and five visits for general maintenance dispatch). Washing of the solar panels would not create runoff into the creek as the little water used in panel washing would be infiltrated into the soil, evaporated, or utilized by the vegetation below it. Operation of the Project would not generate trash and would not bring heavy traffic to the area. Water quality in the adjacent San Pablo Creek and downstream San Pablo Reservoir would be preserved due to the low intensity use. The EBMUD Water Quality program component of the EBWMP calls for adherence to guidelines for erosion control on watershed lands. Runoff from the site drains into San Pablo Creek, which flows into San Pablo Reservoir, within San Pablo Reservoir watershed. The Project site is currently managed through grazing activities and prescribed burns to reduce fuel level on an as-needed basis. The Project would eliminate prescribed burns and grazing activities from the Project site and replace these activities with trimming and mowing of vegetation below the solar panels. The change in management activities could potentially reduce the types and possible sources of runoff, improving the quality of use of the site, as studies of sediment yields following prescribed burns have found minimal increases to fine sediment volumes in creeks within prescribed burn areas. Low-severity fires were found to have a minimal impact on stream water chemistry (J. G. Cawson, 2012; Bêche, Stephens, & Resh, 2005). Although prescribed burns and grazing are already implemented to minimize potential water quality impacts, removing these activities from the site and replacement with mechanical vegetation removal would potentially reduce water

Land Use Plan, Policy, or Regulation		Consistency with Land Use Plan, Policy, or Regulation
		quality impacts. EBMUD would also prepare a Storm Water Pollution Prevention Plan (SWPPP) before construction and implement erosion and sediment control Best Management Practices (BMPs) during construction and operation of the Project consistent with this guideline and EBMUD standard practices and procedures. With implementation of BMPs, the Project would be consistent with the EBWMP Water Quality program component. The Project would not interfere with watershed operations. The Project is also consistent with the watershed and recreation use policies in the EBWMP. The Project would not impact visual quality from recreational areas with implementation of proposed landscaping along Bear Creek Trail (Oursan Trail). The Project would not conflict with this policy.
Policy I	Limit development in the proximity of reservoirs to prevent siltation and water contamination.	The Project is located approximately 0.5 mile from San Pablo Reservoir. Coverage under the Construction General Permit (NPDES No. CAS000002) is required for the Project, because more than 1 acre would be disturbed. EBMUD would prepare a site-specific SWPPP, for construction, which would ensure that siltation and water quality impacts do not occur from ground disturbing activities. EBMUD Standard Construction Specification 01 35 44 requires the Project contractor to implement a Spill Prevention and Response Plan to prevent and respond to accidental releases of hazardous materials used during construction. Operation is not anticipated to involve ground disturbing activities that could result in erosion and subsequent siltation of the San Pablo Reservoir. Vegetation will be allowed to grow back underneath the panels to provide permanent cover of disturbed areas. As discussed above, the Project would involve a very low level of activity during the operational period. The solar panels and infrastructure are not a source of contaminants and would not cause water contamination. In addition, all permanent erosion control

Land Use Plan, Policy, or Regulation		Consistency with Land Use Plan, Policy, or Regulation
		BMPs would be constructed and maintained in compliance with the SWPPP. The Project would not conflict with this policy.
Policy J	Encourage the conservation of energy through the promotion of solar design, and recycling of newspaper, aluminum and bottles. Provisions should be made to allow for a conveniently located and screened recycling area in the downtown.	The Project would involve installation of a solar facility. The Project would be consistent with the goals of this policy.

Table 2 EBMUD Strategic Plan Consistency Analysis

Strategic Plan Goal and Strategy	Project Consistency with Goal and Strategy
Goal: Long Term Water Supply We ensure a reliable high quality water supply for the future.	**Not generally applicable. The project generally has no nexus with the water supply goal.**
Strategy 1: Preserve current water rights and entitlements and augment the District's successful water supply projects by obtaining supplemental supplies to meet customer demands.	NA
Strategy 2: Reduce potable water demand through water efficiency and conservation and build on past water savings success to help ensure a reliable water supply.	NA
Strategy 3: Reduce potable water demand through water recycling and build on past success to achieve a diversified and reliable water supply.	NA
Strategy 4: Maintain a Climate Change Monitoring and Response Plan to inform the District's planning efforts for future water supply, water quality and infrastructure and support sound water and wastewater infrastructure investment decisions.	NA
Goal: Water Quality and Environmental Protection We meet or surpass environmental and public health standards and protect public trust values.	**The project supports the near-term objectives as stated below.**
Strategy 1: Manage the Mokelumne and East Bay watersheds to ensure a high quality water supply and protect natural resources while providing appropriate public access.	As shown in the EBWMP consistency analysis below, the Project is compatible with the District's EBWMP. The Project would not have a negative impact on water quality or natural resources. The Project

Strategic Plan Goal and Strategy	Project Consistency with Goal and Strategy
	site is not currently accessible to the public and the Project would not affect public access. Educational placards can be added to the Project to educate the public in the immediate vicinity about the benefits of the renewable energy Project, and the acts taken to ensure the natural resources were protected.
Strategy 2: Operate and maintain District facilities to surpass federal and state drinking water regulations.	NA
Strategy 3: Operate and maintain District facilities to anticipate and meet all water discharge, air emission, and land disposal requirements to protect and enhance the environment.	This Project will significantly reduce the District's greenhouse (GHG) emissions and will be critical to meeting District emission goals as specified in the District's Energy Policy.
Strategy 4: Minimize impacts to the environment by reducing, recycling, reusing and reclaiming waste, and by conserving natural resources.	This Project will produce renewable energy, offsetting the use of fossil fuels to generate electricity.
Strategy 5: Ensure protection and stewardship of San Francisco Bay.	NA
Strategy 6: Operate Pardee and Camanche Reservoirs and facilities jointly as an integrated system to achieve multiple objectives including municipal water supply, stream flow regulation, environmental protection, flood control, hydropower, and releases for downstream requirements.	NA
Goal: Long –Term Infrastructure Investment We maintain and improve the District's infrastructure in a cost-effective manner to ensure sustainable delivery of reliable, high quality service now and in the future, addressing economic, environmental, and social concerns.	**Not generally applicable. Although the projects generally would support financial objectives and sustainability by lowering operating costs.**
Strategy 1: Maintain coordinated master plans for all facilities and assets.	NA
Strategy 2: Meet operational needs and reliability goals by effectively maintaining the infrastructure.	NA
Strategy 3: Implement the master plans and set priorities in the operating and capital budget process to reflect the needs identified in those plans.	NA
Goal: Long –Term Financial Stability We manage the District's finances to meet funding needs and maintain fair and reasonable water and wastewater rates.	**Generally applicable. The project will support the near-term objective as stated below. This project will introduce large-scale renewable energy technology to reduce and stabilize long-term energy costs for District operations.**
Strategy 1: Maintain a Long-Range Financing Plan that sets forth the long-	The Project is cost-effective, with operating savings that eventually

Strategic Plan Goal and Strategy	Project Consistency with Goal and Strategy
term funding needs of the District.	surpass implementation costs within the lifetime of the Project.
Strategy 2: Implement water and wastewater rates and charges that are legal, fair, reasonable, and equitable.	NA
Strategy 3: Ensure integrity, accountability and transparency in financial management.	NA
Strategy 4: Implement technologies that improve the efficiency and effectiveness of business processes.	NA
Goal: Customer and Community Services We build stakeholder trust and long-term relationships through service excellence, proactive communication and education.	**Generally applicable. This project will support the near-term objectives as stated below.**
Strategy 1: Educate the public on the District's priorities, initiatives, systems and services.	This Project provides an opportunity to engage the public on renewable energy through proactive communication and education including potential installation of educational placards adjacent to the facility to educate the public about the District's use of renewable energy.
Strategy 2: Continue to build trust by providing quality service, timely information and resolution of customer and community inquiries.	NA
Strategy 3: Build long-term partnerships in the community, regionally and nationally, in areas of shared interest.	The Project will be implemented in coordination with local land use agencies and community by adapting the Project where possible to maximize support.
Strategy 4: Maintain an active Emergency Preparedness Program to plan for and manage the District's functions during an emergency and allow for an efficient and effective recovery following an emergency	The Project could potentially reduce energy dependence by increasing local generation. Greater independence would be achieved if the Project were connected directly to District loads.
Goal: Workforce Planning and Development We create an environment that attracts, retains and engages a high performing diverse workforce in support of the District's mission and core values.	**Not generally applicable. The project has no nexus with this goal.**
Strategy 1: Maintain robust workforce plans to determine future needs, identify gaps and implement actions to close the gaps.	NA
Strategy 2: Continue to develop employees to meet workforce demands.	NA

Strategic Plan Goal and Strategy	Project Consistency with Goal and Strategy
Strategy 3: Integrate District values, recognize employee contributions, and establish clear performance measures to achieve a high performance culture.	NA
Strategy 4: Enhance the District's ability to recruit a highly qualified, diverse staff that exhibits the District's values.	NA

Table 3 Watershed Master Plan Consistency Analysis

Watershed Master Plan Goal, Objective, or Guideline[2]	Consistency
Water Quality	
Goal: Maximize reservoir water quality to comply with current and anticipated future drinking water regulations to provide the best possible source of supply to District customers.	The Project would not affect reservoir water quality. The District would implement appropriate sediment and erosion control BMPs to avoid sedimentation to downstream water resources and reservoirs. The Project does not involve any direct or indirect pollutants to the reservoirs and would not conflict with this goal.
Objectives: • Maintain the high quality of water stored in District reservoirs. • Ensure that surface water runoff from District lands meets state water quality standards. • Restore degraded areas on the watershed that are a source of excessive sediment. • Address existing and potential water quality impacts for lands within the reservoir basins that are not owned by the District.	The Project would not affect water quality in the reservoir and would not affect water quality in surface water due to implementation of appropriate sediment and erosion control BMPs required as part of EBMUD Standard Construction Specification 01 35 44 and the State of California Construction General Permit, including the Project-specific SWPPP. The Project would not create an excessive source of sediment because the site would be allowed to revegetate following construction of the Project. The Project would not affect the District's ability to meet water quality objectives. The solar panels and infrastructure are not a source of water contaminants and would not affect downstream water quality. The Project would not conflict with this objective.
WQ.7: Implement erosion control standards and BMPs to reduce soil erosion, sedimentation, and nutrient impacts throughout the watershed. Standards and BMPs should be adhered to by all staff, contractors, researchers, recreationists, visitors, and others	The District would implement its Standard Construction Specification 01 35 44 requirements for erosion control. The District would also prepare a Project-specific SWPPP and implement all sediment and erosion control BMPs in compliance with the State of California Construction General

[2] For clarity purposes, only relevant goals and objectives are included.

Watershed Master Plan Goal, Objective, or Guideline[2]	Consistency
performing construction, maintenance, or other activities on watershed lands.	Permit. The Project would not conflict with this guideline. The District would monitor implementation of all water quality BMPs in accordance with District procedures and the State of California Construction General Permit. The Project would not conflict with this guideline.
WQ.8: Conduct erosion control analysis and planning before initiating construction or other land disturbance activities.	The District would conduct erosion analysis and planning through preparation of a SWPPP prior to construction. The Project would not conflict with this guideline.
WQ.11: Prevent construction-related water quality impacts such as erosion from exposed soil and pollutants from equipment.	The District would implement its Standard Construction Specification 01 35 44 requirements for erosion control and pollutants. District would also prepare a Project-specific SWPPP and implement all sediment and erosion control BMPs in compliance with the State of California Construction General Permit. The Project would not conflict with this guideline.
WQ.25 Design and construct roads, trails, and fire roads to minimize disruption of natural hydrology.	The Project will not require new access roads within streams or natural drainages and would not disrupt the natural hydrology of the area. The Project would not conflict with this guideline.
Biodiversity and Ecological Management	
Goal: Maintain and enhance biological resource values on District lands through active management, HCP compliance and careful coordination with other resource management programs.	The Project would reduce grazing lands that presently provide relatively low-value biological habitat. The Project disturbance area was revised to avoid riparian areas and ponds that could provide higher-value habitat. EBMUD is also constructing wetlands adjacent to the solar development area to fully mitigate all temporary and permanent impacts on wetlands. Vegetation would be allowed to reestablish within the Project site. Overall, the Project would not conflict with this goal.
Objectives: • Maintain, protect, enhance, and where feasible, restore plant and animal communities, populations, and species. • Implement an ecosystem management approach that maintains, protects, and enhances natural ecological processes. • Apply an adaptive management strategy using inventory, management, monitoring, and research. • Coordinate all resource management programs to ensure that biological resources are protected. • Seek opportunities to develop mitigation banks or conservation	The Project would allow vegetation to regrow beneath the panels after construction. The District would provide compensatory mitigation for impacts on Alameda whipsnake in accordance with all permit conditions. The Project would include development of wetland mitigation areas on Watershed lands adjacent to the solar development area. The Project would not conflict with District objectives for protection and enhancement of ecological processes, adaptive management, protection of biological resources, or development of mitigation banks and conservation areas.

Watershed Master Plan Goal, Objective, or Guideline[2]	Consistency
areas on watershed lands, consistent with maintaining biodiversity and other resource values.	
BIO.6. Protect heritage native trees and trees with outstanding characteristics, and ensure that grazing does not prevent sustainable growth of new trees in the grazed areas.	The solar array is located in an area with approximately 23 oak trees. Impacted oak trees would be replaced at a minimum 5:1 ratio to maintain consistency with this guideline.
BIO.15. As required by law, control noxious weeds and pest animal species using the most conservative, least toxic, but effective methods available (BIO.18). BIO.18. Apply integrated pest management (IPM) strategies, eliminating pesticides where feasible, ensuring negligible impacts on water quality, biodiversity, and other resources and without increasing fire risk.	Noxious weed and pest management activities in the Project site would comply with District management guidelines including application of IPM strategies. No pesticides are proposed for the Project. The Project would not conflict with this guideline.
BIO.24 Ensure that all District projects that affect wetlands or waters of the United States as defined under Section 404 of the Clean Water Act receive appropriate permits prior to disturbance.	The District is in the process of obtaining all applicable permits for impacts to wetlands and waters in compliance with Section 404 of the Clean Water Act. The Project would not conflict with this guideline.
Forestry	
Goal: Continue the ongoing long-term management program for non-native forests to maintain and enhance other environmental resources, including water quality, fire protection, biodiversity, visual quality, and recreational use.	No non-native forests are located within the Project site. The Project would not conflict with this goal.
Objective: • Implement a long-term plan for managing non-native forest species that includes maintenance of stand health and vigor and phased conversion of selected stands of non-native forests to native forests or other ecologically suitable habitats. • Use forest management as a tool to achieve strategic fire management goals, biodiversity goals, and other resource goals. • Protect water quality, biodiversity, and other resource values during forest management program implementation. • Manage trees in areas of high public use to ensure visitor safety and maintain aesthetic values.	No non-native forest species are located within the Project site. No forest management would be required in the Project site. No areas of high public use exist within the project site. The Project would not conflict with these objectives.
Guidelines	None of the Forestry Guidelines apply to the Project.

Watershed Master Plan Goal, Objective, or Guideline[2]	Consistency
Livestock Grazing	
Goal: Conduct livestock grazing to help achieve other resource management goals.	Grazing currently occurs within the Project site. The Project would reduce grazing within the Project site and would relocate the existing corral to an area north of the solar development area. The District would still be able to achieve other resource management goals as described in the EBWMP consistency analysis. Vegetation control/fire guarding would be achieved with mechanical means. The Project would not conflict with this goal.
Objectives: • Use grazing by domestic livestock (e.g., horses, cattle, llamas, sheep, and goats) as a tool to manage vegetation for other resource needs. • Eliminate or restrict grazing in areas where substantial impacts on water quality, biodiversity, fire control, or other management objectives may result. • Generate livestock grazing revenue for the District where consistent with other resource values.	The Project would involve vegetation management through mechanical means instead of grazing. The Project would relocate the cattle staging to areas north of the solar development footprint. The Project would not conflict with these objectives. The revenue gained over the life of the solar Project will more than offset the nominal reduction in revenue from livestock grazing.
Guidelines	None of the Livestock Grazing Guidelines would apply to the Project.
Fire and Fuels	
Goal: Protect human life and property and provide for public safety, and protect and enhance water quality, other natural resources, and watershed land uses.	The Project would not conflict with implementation of this goal. No persons are residing or working in the vicinity of the site and solar facility will not have an adverse effect on health or safety. The solar panels do not contain hazardous materials and the Project would not increase the potential for wildfires because the underlying vegetation communities would not change as a result of the Project. The short segment (200 feet) of overhead powerline would not create an increased risk of wildfire ignition. The site would continue to be managed by EBMUD to prevent wildfires. The Project would not impact public safety. The Project would also protect water quality, natural resources, and watershed land uses as described in the water quality and biodiversity goals and objectives above.
Objective: • Provide an appropriate level of fire protection for all watershed lands, emphasizing protection of life, public safety, and property values in interface areas.	The Project would not allow for future prescribed burning. EBMUD would provide routine vegetation management for vegetation control and fire management and to ensure defensible space is maintained consistent with the requirements of local fire agencies. The nearest fire station is within approximately 2.1 miles from the Project site and there is a hydrant

Watershed Master Plan Goal, Objective, or Guideline[2]	Consistency
• Implement measures to reduce fire hazard to protect water quality from wildfire-related soil erosion, sedimentation, and nutrient impacts. • Use a strategic planning approach to fire management that ensures fire and fuels management activities are consistent with the objectives for other resources to the extent practicable. • Recognize the importance of fire as a natural ecological process and use prescribed burning and other techniques to reduce hazardous fuel loads under carefully selected conditions to achieve long-term fire safety, water quality protection, and biodiversity management objectives. • Cooperate with other agencies, adjacent property owners, and homeowner groups and participate actively in planning processes to develop coordinated resource management plans (CRMPs) and other cooperative multiagency agreements for fire hazard reduction and fire incident management. • Maintain fire management program funding that supports implementation of adopted plan elements. • Maintain firefighting capability, equipment, and patrols to retain the basic level of fire safety and initial response necessary.	located approximately 480 feet southeast of the Project site. The Project would not conflict with this objective due to implementation of fire prevention practices.
FF1. Continue to develop and implement appropriate prescribed burning procedures to safely and cost-effectively meet fuel reduction and other management objectives. Test approaches such as burning during the growing and nongrowing seasons, varying fire intensities, and using varied prescription cycles, and follow California Department of Forestry and Fire Protection (Cal Fire) regulations and standards for prescribed burning when and where applicable.	Prescribed burns will no longer occur within the solar site; however, mechanical methods of fire and fuel management will be applied, and the Project would not affect the District's ability to test prescribed burning techniques on other watershed lands. The Project will not conflict with this guideline.
Developed Recreation and Trails	
Goals: Continue to provide a high-quality recreational experience to users of watershed lands that does not compromise the District's goals for water quality, biodiversity, and watershed management protection. Provide reasonable access routes between watershed lands and adjacent open space areas consistent with all District resource management goals. Provide equal access to recreational opportunities for users from a wide range of socioeconomic backgrounds and physical abilities where feasible and practical. Ensure that the continuation or modification of recreational use	No recreational facilities or trails are located within the Project site. The Project would not affect access to recreational areas, including adjacent trails. Views of the Project site from Bear Creek Trail (Oursan Trail) would be visually screened by landscaping to protect the recreational experience. The Project would not conflict with this goal.

Watershed Master Plan Goal, Objective, or Guideline[2]	Consistency
creates as little financial burden on the District and its ratepayers as is practical.	
Objectives: • Offer recreational experiences that complement and are consistent with the protection of District watershed lands and water bodies. Provide opportunities for reasonable use of natural watershed attributes. • Give priority to those recreational uses that serve the broadest spectrum of the population while maintaining consistency with water quality, biodiversity, fiscal responsibility, and public safety goals. • Ensure a high quality of recreational experience on District lands by reducing user conflicts, promoting safety and courtesy, and controlling overcrowding. • Promote environmental values in recreational use and management. • Ensure that currently permitted or new recreational activities do not increase the potential for additional soil erosion, landscape modification, or pollutant loading, or adversely affect other watershed or reservoir resources. • Where feasible, provide trail links to the surrounding regional open space network that do not conflict with resource protection priorities. • Assess the comprehensive financial consequences associated with recreational proposals. Evaluate cost parameters related to initial capital expenditure, District staffing and administration requirements, initial program development costs, and long-term operation and maintenance costs. • Ensure that no net increase in adverse environmental effects will result from additions to or modifications of District recreation management programs, and prioritize protection of the interior watershed areas that serve as a refuge for plants and animals.	No recreational facilities or trails are located within the Project site. Views of the Project site from Bear Creek Trail (Oursan Trail) would be visually screened by landscaping to protect the recreational experience. The Project would not conflict with these objectives.
Guidelines	None of the Developed Recreation and Trails Guidelines apply to the Project.
Environmental Education	
Goal: Encourage educational uses of District watershed lands and	The District could install educational placards adjacent to the site to

Watershed Master Plan Goal, Objective, or Guideline[2]	Consistency
identify lands suitable for environmental education uses.	educate the community. The Project would not conflict with implementation of the environmental education goal.
Objectives: • Provide an educational program to inform the public about the importance of protecting water quality and the purpose of the District's watershed lands, resource management practices, and water conservation. • Promote research on watershed lands and resources that could be used in the District's management practices and add to the District's watershed resource database. • Incorporate environmental education into appropriate District actions and activities.	The District could include educational placards in the Project to assist in community education. The Project would not conflict with implementation of these objectives.
Guidelines	None of the Environmental Education guidelines apply to the Project.
Cultural Resources	
Goal: Avoid adversely affecting sensitive cultural resources while implementing District activities on watershed lands, and establish relationships with local Native American groups.	No cultural resources are known to occur within the Project site. The Project would not conflict with this goal.
Objectives: • Identify, preserve, and protect significant cultural resources. • Provide for appropriate research and educational uses of District lands with respect to cultural resources. • Maintain an ongoing relationship with Native Americans who have ancestral ties to District lands.	The Project would not affect known cultural resources within the Project site and would implement District Standard Construction Specification 01 35 44, Section 3.9, Protection of Cultural and Paleontological Resources, to identify, preserve, and protect unanticipated cultural resource discoveries during Project construction. Contact with Native American groups was initiated as a part of the cultural resource investigation for the Project in May 2018, and EBMUD requested information on any known cultural resources in the Project area. No information was provided in response to these requests. The Project would not conflict with these objectives.
CR.2 Negotiate, as needed, with local Native American groups regarding the disposition of Native American artifacts and remains, should any be discovered.	The Project would implement District Standard Construction Specification 01 35 44, Section 3.9, Protection of Cultural and Paleontological Resources and would comply with District management guidelines. The Project would not conflict with this guideline.
CR.5 Avoid disturbing significant cultural resource sites and sites of unknown significance, where feasible. Require fire management and other watershed personnel to protect known cultural resource sites during management activities.	No historic or archaeological resources are known to occur within the Project site. District Standard Construction Specification 01 35 44, Section 3.9, Protection of Cultural and Paleontological Resources would be implemented to minimize disturbance of unknown cultural resources. The

Watershed Master Plan Goal, Objective, or Guideline[2]	Consistency
	Project would not conflict with this guideline.
CR.6 Follow the requirements of CEQA Section 21083.2 when undertaking or approving watershed activities.	The Project would implement District Standard Construction Specification 01 35 44, Section 3.9, Protection of Cultural and Paleontological Resources to comply with the requirements of CEQA Section 21083.2. The Project would not conflict with this guideline.
CR.7 Conduct records searches and surveys before beginning ground-disturbing activities.	A records search and cultural survey has been conducted for the Project. There are no recorded occurrences of archaeological resources within the immediate vicinity (0.5 mile) of the Project. No archaeological resources were documented within the Project site during pedestrian field surveys. The Project would not conflict with this guideline.
CR.9 Document the procedures to be used if potentially significant cultural resources or human remains are discovered accidentally.	The Project would implement District Standard Construction Specification 01 35 44, Section 3.9, Protection of Cultural and Paleontological Resources, which provides procedures for unanticipated discovery of cultural resources and human remains. The Project would not conflict with this guideline.
Visual Resources	
Goal: Limit the negative visual effects of District activities on watershed lands by ensuring that valuable and rare visual resources are protected from degradation during other management activities.	The Project site is partially screened by topography and vegetation from Bear Creek Road and partially by vegetation from Bear Creek Trail (Oursan Trail). Implementation of landscaping to visually screen the Project from Bear Creek Road and Bear Creek Trail (Oursan Trail) would protect visual resources. The Project would not conflict with this goal.
Objectives: • Maintain and protect the general character and visual qualities of watershed lands. • Maintain and protect the visual qualities experienced from reservoir surfaces on which public access is permitted. • Maintain and protect the visual qualities viewed from specific public use areas, public trails, and public roads within watershed lands. • Maintain and protect the visual qualities viewed from key public viewpoints located adjacent to District lands. • Maintain and develop a unified visual quality and unity in structures, signs, and other improvements on watershed lands.	The Project would be visible from the adjacent Bear Creek Trail (Oursan Trail). With implementation of landscaping to visually screen the facility, the Project would maintain the visual quality of the area and not conflict with these objectives. Key Observation Points (KOP) were selected to document the visual conditions in the area and to complete visual simulations of the Project. The visual simulations demonstrate that the Project will have a less than significant impact on visual quality. The Project would not conflict with this objective.
VR.1 Review new land use proposals to ensure that they are consistent with the watershed's visual character, outside of	Compliance with this guideline will be adhered to through the visual impact analysis, which includes documentation of baseline visual

Watershed Master Plan Goal, Objective, or Guideline[2]	Consistency
important viewing areas, or screened from important views from reservoir surfaces, shoreline locations, public trails, roads, and key public viewing areas.	conditions, simulation of post-Project conditions and simulation of Project conditions. The Project would be consistent with the visual character of the area with implementation of landscaping to visually screen the facility.
VR.2 Retain viable shoreline vegetation where it occurs on reservoirs.	NA
VR.3 Control public access along reservoir edges to designated use areas or facilities as needed to prevent visual degradation of important shoreline resources.	NA
VR.4 Ensure that all facility construction or modifications meet District design standards, or an acceptable alternative, and all regulatory requirements.	District design standards will be used.
VR.5 Specify the use of natives in plant restoration standards, where available and appropriate.	Native plants would be used for restoration and visual screening. The Project would comply with this management guideline.
VR.6 Cluster watershed development and uses to reduce visual intrusions into natural watershed lands and to reduce adverse visual effects on intervening watershed lands.	Visual impacts are reduced by co-locating utility assets (PG&E substation and Project) on adjacent parcels and avoiding adjacent watershed lands. The Project would comply with this management guideline.
VR.7 Coordinate with fire management personnel to ensure, to the extent practicable, that fire management needs (e.g., pruning and clearing) and fire management patterns are consistent with visual management guidelines. Avoid the use of "vista pruning" along trails and public roads and around use areas, and avoid the use of firebreaks or the establishment of "fuel cells" as wildfire management techniques except where other mitigation measures are not effective and as a last resort.	The fuel load will be reduced regularly by mechanical means to avoid shading the solar panels. The maintenance of vegetation within the facility would not affect surrounding visual quality because the Project would be screened by landscaping. The Project would comply with this management guideline.
VR.8 Avoid controlled burns in developed public use areas during peak use periods (generally June through September). Coordinate the timing of controlled burns with recreation staff.	Controlled burns at the Project site would be eliminated in favor of mechanical removal of vegetation. The Project would comply with this management guideline.
VR.9 Coordinate with EBRPD, Alameda and Contra Costa Counties, and other adjacent jurisdictions that have significant open space resources to develop common goals and guidelines for preserving and strengthening the regional visual landscape.	The District is coordinating with adjacent jurisdictions in the development of landscape plans to preserve and strengthen the regional visual landscape. The Project would comply with this management guideline.
VR.10 Consider installation of renewable energy facilities that are consistent with the District's Strategic Plan and with the overall management direction of the East Bay Watershed Master Plan. Consistency with the EBWMP shall be assessed in the project-level	The Project site occupies a very small acreage within the watershed, is adjacent to PG&E utility infrastructure and is partially screened by topography and vegetation from Bear Creek Road and partially by vegetation from Bear Creek Trail (Oursan Trail). With implementation of the

Watershed Master Plan Goal, Objective, or Guideline[2]	Consistency
CEQA document for any such facility.	proposed landscaping along Bear Creek Road and Oursan Trail, the Project site would maintain the visual quality of the area consistent with these objectives. The Project site is consistent with the 2018 Strategic Plan and overall direction of the EBWMP Update as evidenced by the consistency analysis in this table. The Project as planned will comply with this management guideline.
Land Ownership	
Goal: Apply a consistent procedure for identifying and evaluating potential watershed land acquisitions to protect water quality and for evaluating the current and future need to dispose of District property, consistent with the District's goals of protecting water quality and natural resource values.	The proposed use of the site for solar development would be consistent with the District's goals of protecting water quality because the use would require low levels of human activity and a very small area of permanent disturbance as described above. The Project would not conflict with this goal.
Objectives: • Ensure long-term protection of District-owned watershed lands through a systematic program of land retention, acquisition, and disposal. • Identify high-priority basin parcels not currently in District ownership that should be acquired by purchase, trade, or sale to ensure protection of watershed lands, reservoir water quality, wildland fire protection, and biodiversity. • Increase revenues generated by the use of District facilities and land, consistent with water quality and natural resource protection priorities.	The Project would provide the District with the long-term opportunity to apportion a smaller amount of District revenues towards energy operations as this Project creates long-term energy savings. The Project would not conflict with this objective.
Guidelines	None of the Land Ownership guidelines would apply to this Project.
Entitlements	
Goal: Provide administrative flexibility for natural resource managers while ensuring that leases and permits do not create excessive management costs, conflict with reservoir operations or other high-priority management programs, or create unacceptable watershed conditions.	The Project may include a surface lease for the property to construct and operate the Project, with the potential for purchasing the assets as it becomes economically beneficial to the District, at which time the lease would be terminated. This Project would not conflict with the entitlements goal.
Objectives: • Administer current and proposed lease agreements and access, research, and land use permits to ensure that lessees/permittees are complying with District priorities to maintain reservoir water	The Project does not involve entitlements and would not conflict with these objectives.

Watershed Master Plan Goal, Objective, or Guideline[2]	Consistency
quality and protect sensitive natural resources. • Ensure that all lease agreements and land use permits consider potential public safety or nuisance issues that could result from lessee/permittee operations. • Ensure that the District receives an appropriate percentage of revenues generated from entitlements for use of District watershed property.	
Guidelines	None of the Entitlements guidelines would apply to this Project.
San Pablo Reservoir Watershed	
SP.23 Prohibit management practices, with the exception of the phased elimination of the Monterey pines surrounding the reservoir, or development proposals that would require large-scale modifications to portions of the San Pablo watershed landscape that are highly visible from San Pablo Dam Road, the San Pablo Dam recreation area, Old San Pablo Dam Road, Inspiration Trail, proposed regional trail connectors, and the reservoir surface.	The Project site would not be visible from San Pablo Dam Road, the San Pablo Dam recreation area, Old San Pablo Ram Road, Inspiration Trail, proposed regional trail connectors, and the reservoir surface. The Project would not conflict with this guideline.

References (See IS/MND References)