

Vallecitos
Water District

DRAFT MITIGATED NEGATIVE DECLARATION FOR THE DISTRICT-WIDE SOLAR PROGRAM



August 2019



Prepared for:
Vallecitos Water District

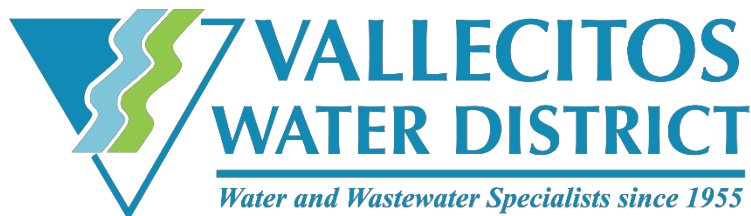
Prepared by:
BRG Consulting, Inc.

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DRAFT
MITIGATED NEGATIVE DECLARATION

DISTRICT-WIDE SOLAR PROGRAM
SAN MARCOS, CALIFORNIA

Lead Agency:
VALLECITOS WATER DISTRICT
201 VALLECITOS DE ORO
SAN MARCOS, CALIFORNIA 92069



Prepared by
BRG Consulting
304 Ivy Street
San Diego, CA 95825
Telephone: (619) 298-7127

AUGUST 2019

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ACRONYMS AND ABBREVIATIONS

AC	alternating current
AQIA	Air Quality Impact Analysis
AQMP	Air Quality Management Plan
BMPs	Best Management Practices
BRG	BRG Consulting, Inc.
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emission Estimator Model
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO ₂ E	Carbon Dioxide Equivalent
CWA	Clean Water Act
dBA	A-Weighted Sound Level
DC	Direct current
DSFPD	Deer Springs Fire Protection District
DTSC	California Department of Toxic Substances Control
EDCO	EDCO Waste and Recycling
EPA	Environmental Protection Agency
EMS	Emergency Medical Service
EMT	Emergency Medical Technician
FTA	Federal Transit Administration
GIS	Geographic Information System
kW	kilowatt
I-15	Interstate 15
I	Industrial
IS/MND	Initial Study/ Mitigated Negative Declaration
Leq	Equivalent Sound Pressure Level
L-I	Light Industrial
MLD	most likely descendent
MT	metric tons
MU-3	Mixed Use 3

ACRONYMS AND ABBREVIATIONS

MW	mega-watt
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Grave Protection and Repatriation Act
NAHC	Native American Heritage Commission
NCTD	North County Transit District
NO _x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
OEHHA	California Office of Environmental Health Hazard Assessment
O ₃	ozone
P.M.	Post mile
PM ₁₀	Particulate Matter (10 microns in diameter or less)
PM _{2.5}	Particulate Matter (2.5 microns in diameter or less)
PV	photovoltaic
RAQS	Regional Air Quality Strategy
ROG	Reactive Organic Gasses
RR	Rural Residential
RWQCB	Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
SDAB	San Diego Air Basin
SDG&E	San Diego Gas & Electric
SDAPCD	San Diego Air Pollution Control District
SF	square feet
SIP	State Implementation Plan
SLF	Sacred Lands File
SO _x	Sulfur Oxides
SR-78	State Route 78
SWPPP	Stormwater Pollution Prevention Plan
QSD	Qualified SWPPP Developer
USFWS	U.S. Fish and Wildlife Service
VdB	velocity decibels
VOC	Volatile Organic Compounds
VWD	Vallecitos Water District

1.0 INTRODUCTION

1.1 Vallecitos Water District

The Vallecitos Water District (VWD or District) provides potable, wastewater and reclaimed water services within northern San Diego County, including service to the City of San Marcos; parts of the cities of Carlsbad, Escondido, and Vista; and unincorporated areas in north San Diego County. In addition, The District wholesales recycled water to the City of Carlsbad and the Olivenhain Municipal Water District. Originally founded as the San Marcos County Water District in 1955 by a group of local citizens to answer the shrinking water table in the San Marcos and Twin Oaks valleys, the District was formed in accordance with Division 12 of the Water Code (sections 30000-33901 et seq.) to provide imported water from Northern California and the Colorado River. Today, the Vallecitos Water District currently serves a population of more than 103,000 within its 45-square-mile boundary.

The Vallecitos Water District's District-Wide Solar Project (the Project or proposed Project) consists of construction and operation of fixed-tilt solar panel arrays at the site of two existing District facilities, including Lift Station #1 and the Twin Oaks Reservoir. Each site will include construction and operation of a fixed-tilt photovoltaic solar panel array and alternating current (AC) wire and conduit that will serve to provide solar-generated electrical power to the facilities thereon.

The Project will use photovoltaic (PV) technology to convert sunlight directly into direct current (DC) electricity. The process starts with photovoltaic cells that make up photovoltaic modules (also referred to as solar panels). Groups of non-reflective photovoltaic panels are wired together to form a PV array. The DC produced by the array is collected at inverters (power conversion devices) where the DC is converted to AC. Disconnect switches, fuses, circuit breakers, and other miscellaneous equipment will be installed throughout the system for electrical protection and operations and maintenance purposes.

1.2 Purpose of the Initial Study/Mitigated Negative Declaration

This document is a Draft Initial Study/ Mitigated Negative Declaration (IS/MND) for evaluation of environmental impacts resulting from implementation of the VWD's District-Wide Solar Project and has been prepared in accordance with the following:

- California Environmental Quality Act (CEQA) of 1970 (Public Resources Code Sections 21000 et seq.); and
- California Code of Regulations, Title 14, Division 6, Chapter 3 (State CEQA Guidelines, Sections 15000 et seq.).

The purpose of the IS/MND is to determine if any potentially significant impacts are associated with the proposed Project and to incorporate mitigation measures into its design, as necessary, to reduce or eliminate the significant or potentially significant effects of the Project. A "significant

effect” or “significant impact” on the environment means “a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project” (Guidelines§15382). As such, the VWD’s intent is to adhere to the following CEQA principles:

- Provide meaningful early evaluation of site planning constraints, service and infrastructure requirements, and other local and regional environmental considerations. (Pub. Res. Code §21003.1);
- Encourage the applicant to incorporate environmental considerations into project conceptualization, design, and planning at the earliest feasible time. (State CEQA Guidelines §15004[b][3]); and,
- Specify mitigation measures for reasonably foreseeable significant environmental effects and commit to future measures containing performance standards to ensure their adequacy when detailed development plans and applications are submitted. (State CEQA Guidelines §15126.4).

1.3 Project Objectives

The following objectives have been identified:

- Generate electrical energy from a renewable source (solar) to partially offset power purchases needed to operate existing District facilities at the project sites;
- Minimize environmental effects by locating the project on disturbed or developed land; and,
- Use technology that is demonstrated and proven to be safe in urban and city settings.

1.4 CEQA Authority to Prepare a Mitigated Negative Declaration

The VWD is responsible for the review and approval of the proposed Project and is also acting as the lead agency for the implementation of the California Environmental Quality Act (CEQA) (California Public Resources Code Section 21000 et seq.) for the Project, as necessary and appropriate. As is true for the proposed Project, a Mitigated Negative Declaration (MND) may be prepared where the Initial Study revealed one or more potentially significant effects on the environment – which may result from the project, but subsequent revisions to the project would avoid the effects or mitigate the source to a less than significant level. An MND can simplify the CEQA process while ensuring that potentially significant effects are avoided or mitigated to a less than significant level (See California Public Resources Code Section 21064.5). This MND has been prepared in accordance with CEQA, the CEQA Guidelines (California Code of Regulations Section 15000 et. seq). and relevant case law; and it incorporates all of the project revisions mitigating any environmental effects to a less than significant level.

VWD is lead agency for the District-wide Solar Program, as it is the public agency with the primary responsibility for preparing environmental documents and for approving, constructing, and

operating the project. VWD is organized in accordance with the provisions of the County Water District Law (California Water Code Section 30000 et seq) for the purpose of providing domestic water supplies. VWD is empowered to plan, construct, operate, maintain, repair, and replace water system facilities as needed to provide water service in compliance with applicable standards and regulations. Additionally, pursuant to California Water Code Section 31149.7, VWD is empowered to "provide, generate, and deliver electric power and may construct, operate, and maintain any and all works, facilities, improvements, and property, or portions thereof necessary or convenient for that generation and delivery." The VWD routinely plans and constructs new facilities, maintains them, and replaces them as necessary to maintain adequate, reliable, and safe water service for its customers. The Project is a continuation of the authority that VWD has exercised in the past.

1.5 List of Discretionary Actions

The following discretionary approvals by the VWD, as Lead Agency, are anticipated to be necessary for implementation of the proposed Project:

- Adoption of a Mitigated Negative Declaration (MND)
- Approval of the proposed Project

1.6 Other Agencies that May Use this MND

This MND is intended for use by responsible and trustee agencies that have jurisdiction over resources that may be affected by this project, as provided in CEQA.

The proposed PV system at Lift Station #1 Project site requires a Conditional Use Permit from the City of San Marcos as well as a General Construction Stormwater Permit from the San Diego Regional Water Quality Control Board.

The proposed PV System at the Twin Oaks Reservoir Project site requires building permits from the County of San Diego.

1.7 Document Organization

This Initial Study/MND is organized to facilitate a basic understanding of the existing setting and environmental implications of the proposed Project and includes the following sections:

Section 1.0 Introduction. Provides information about CEQA and its requirements for environmental review and explains that an Initial Study/MND was prepared by VWD to evaluate the proposed Project's potential to impact the physical environment. This section also includes a list of the discretionary approvals that would be required for each component of the Project.

Section 2.0 Project Description. Provides information about the location of the Project sites and their environmental settings. It also includes a description of the proposed Project's physical features, as well as its construction and operational characteristics.

Section 3.0 Initial Study. Provides a summary of the proposed Project, land use designation and zoning classifications, surrounding land uses, required entitlements, discretionary approvals and permits required for implementation. It also identifies the location of the Project and provides a general description of the surrounding environmental settings.

Section 4.0 Environmental Factors. Identifies the environmental factors that would be potentially affected by the proposed Project.

Section 5.0 Evaluation of Environmental Impacts. Includes the Environmental Checklist and evaluates the proposed Project's potential to affect the physical environment. Each response on the checklist form is discussed and supported with sufficient data and analysis as necessary.

Section 6.0 References. Includes a list of all references cited in the IS/MND.

Section 7.0 Preparers. Includes a list of the persons that prepared this IS/MND.

Section 8.0 The Draft Mitigation Monitoring & Reporting Program.

1.8 Public Review Process.

On August 22, 2019 a Notice of Availability of the Draft Mitigated Negative was published in The San Diego Union Tribune and circulated to property owners within a 500- foot radius of the proposed Project sites. The 30-day public review period will end on September 23, 2019.

2.0 PROJECT DESCRIPTION

2.1 Lift Station #1 PV System

The VWD proposes to install a PV solar generating system at Lift Station #1 in northern San Diego County. Lift Station #1 is located at 1368 W. San Marcos Boulevard within the City of San Marcos, California (Figure 1). The City of San Marcos occupies approximately 24 square miles and is located approximately 5 miles inland from the coast, east of the City of Carlsbad. Regional access to the project area is provided via State Route 78 (SR-78), Rancho Santa Fe Road, Las Posas Road and San Marcos Boulevard. Lift Station #1 is located on the San Marcos 7.5-minute USGS quadrangle, within the southern portion of Section 16 of Township 12 South, Range 3 West. It is surrounded on the north and east by industrial and commercial uses, on the south by vacant land, and on the east by a church. The project site is graded, disturbed and no sensitive biological resources are mapped on the site.

2.1.1 Lift Station #1 PV System

The project site of the proposed Lift Station #1 PV System is a portion of a relatively flat parcel containing a concrete block pump house, two tanks, and utility boxes on the south end of the property adjacent to the main entrance along W. San Marcos Boulevard, and an approximately 2.5 acre vacant and previously graded parcel north of the lift station facilities.

The proposed Project would install and operate a 269-kilowatt (kW) PV solar power generation facility sited within the western one-acre of the vacant parcel (Figure 2). To minimize the potential for glare, the solar PV panels would be constructed of dark-colored (usually blue or black) materials and covered with anti-reflective coatings. Interconnection with the San Diego Gas & Electric (SDG&E) grid would be via an underground electrical line to an existing meter within the Lift Station complex; no upgrades would be required. Project features include installation of fix-tilt solar arrays approximately 7.7 feet in height, installation of arrays providing approximately 790 solar panels, string inverters, underground conduits, and associated electrical equipment (Figure 3). A typical fix-tilt solar array is depicted on Figure 4.

The array field would be surrounded by a new fence totaling 5,250 linear feet. The fence would consist of a 6-foot-high chain-link galvanized metal fence topped by three strands of barbed wire approximately 1 foot high. Exterior lighting, if provided, would be shielded and directed downward to minimize the potential for light or glare to spillover onto adjacent properties. The lighting could either be either motion sensitive or light activated to automatically come on in the evening and shut off in the morning. All lighting would conform to applicable City of San Marcos rules and regulations for outdoor lighting.

Construction

Construction of the PV system is anticipated to last approximately 3 to 6 months and would include mobilization, site preparation and grading, construction and panel installation. Because the Lift

Station #1 Project site is currently vacant and disturbed, site preparation process would include the clearing of vegetation and minimal grading. Thereafter, shallow trenching would occur to install cable conduit that would run between the solar units and connect the output of each unit to inverters and from the inverters to the step-up transformer. The arrays for the Lift Station #1 PV System would be installed with pile driven foundation systems that would extend 5 to 15 feet below the ground surface

During construction, water would be used for dust suppression and soils conditioning during ground disturbing activities. Trucks containing water tanks would be used to spray water onto the surface of disturbed soils to minimize dust released into the air. Construction activities would result in ground disturbance, and soil stabilization and storm water management would be required to prevent erosion and sedimentation. Because construction of the Lift Station #1 PV System would result in disturbance of an area greater than one acre, coverage under the Storm Water Construction General Permit for the National Pollution Discharge Elimination System program would be obtained. Additionally, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared by a qualified engineer or erosion control specialist and implemented prior to any ground disturbing activities. The SWPPP would be designed to reduce potential impacts related to erosion and surface water quality during construction and include project information and best management practices (BMPs).

Construction of the project could involve the use of hazardous materials, such as fuels and greases, to fuel and service construction equipment. A Hazardous Materials Business Plan (HMBP) would be developed prior to construction. Trucks and construction vehicles would be serviced at off-site facilities. The use, storage, transport, and disposal of hazardous materials used in construction would be carried out in accordance with federal, state, and county regulations. No extremely hazardous substances (i.e., those governed pursuant to Title 40, Part 335 of the Code of Federal Regulations [CFR]) are anticipated to be produced, used, stored, transported, or disposed of as a result of project construction. Material Safety Data Sheets for all applicable materials present on-site would be made readily available to on-site personnel. Construction waste would be transported to appropriate waste management facilities.

In accordance with the San Marcos Noise Ordinance (Chapter 10.24 of the San Marcos Municipal Code), construction activities would be limited to Monday through Friday from 7:00 a.m. to 6:00 p.m., and Saturdays from 8:00 a.m. to 5:00 p.m.

Operation and Maintenance

After construction, the PV facilities would be automated to allow operation with no staffing present. Production and system health data, as well as onsite weather data, would be monitored and gathered electronically. The solar panels would operate during daylight seven days per week, 365 days per year. Washing of the solar panels, which would be necessary to maintain efficiency, is anticipated to occur twice a year, with water trucked to the site. Such maintenance would require

temporary staffing onsite and use of a water truck. Additionally, maintenance staff would visit the site on an as-needed basis.

2.2 Twin Oaks Reservoir PV System

The Twin Oaks Reservoirs are located at 3566 N. Twin Oaks Valley Road within the Twin Oaks Valley Community Planning area in the County of San Diego (Figure 1). Twin Oaks Valley is approximately 7,835 acres in size and is located west of Interstate 15 (I-15), adjacent to the Bonsall Planning Area, the cities of Escondido, San Marcos and a small portion of the city of Vista. Regional access to the Twin Oaks Reservoirs area is via I-15 from the east, Deer Springs Road, and Twin Oaks Valley Road. The Twin Oaks Reservoirs are located on the San Marcos 7.5-minute USGS quadrangle, within the north east portion of Section 22 of Township 11 South, Range 3 West. Twin Oaks Reservoir #1 and #2 are two in-ground circular potable water storage reservoirs located on a 29-acre site, adjacent to the San Diego County Water Authority's Twin Oaks Valley Water Treatment Plant (Figure 5). Surrounding land uses also include rural and agricultural uses to the west, and vacant land to the south and east.

The reservoirs are buried prestressed concrete storage tanks with a 30-inch layer of earth covering their roofs that are comprised of 18-inches of concrete. Approximately 5.5 acres of open area are available on the earthen-capped rooftops of the concrete reservoirs, which could support approximately 1.9 mega-watts (MW) of low profile, self-ballasted, fixed-tilt solar arrays with racking systems similar those used on large commercial warehouse roofs. The solar arrays would be installed after installation of a weed screen on the existing surface of the rooftops (Figure 6). Ballasting blocks would be used to hold the PV racking system in place to avoid installing anchors through the earthen cap into the concrete roof.

Interconnection with the San Diego Gas & Electric (SDG&E) grid would be via an underground electrical line to an existing meter (#6686952) just south of the reservoirs. Project features include installation of fix-tilt solar arrays approximately 12 inches in height; installation of arrays providing approximately 5,600 solar panels, string inverters, underground conduits, and associated electrical equipment (Figure 6). The project would utilize a ballast foundation system consisting of concrete "tubs" placed at the base of the solar panels to hold them in place. This system avoids the need for driven pile or other foundation systems that would penetrate the reservoir roofs. A typical roof mounted "self-ballasted" solar system is depicted below.



Typical Roof Mounted “Self-Ballasted” Solar System

Construction

Construction of the PV system is anticipated to take approximately 9 months to complete and would include mobilization, site preparation, construction and panel installation. Because solar arrays would be placed on the rooftops of the reservoirs, actual ground disturbance would be minimal. Nonetheless, because the roof tops both contain an earthen cap, and because their combined size exceeds one acre, coverage under the Storm Water Construction General Permit for the National Pollution Discharge Elimination System program would be obtained. Additionally, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared by a qualified engineer or erosion control specialist and implemented prior to any soil disturbing activities. A SWPPP would be designed to reduce potential impacts related to erosion and surface water quality during construction and would include best management practices (BMPs). Construction activities would be limited to Monday through Friday from 7:00 a.m. to 6:00 p.m., and Saturdays from 8:00 a.m. to 5:00 p.m.

Disturbed areas would be watered daily for construction-related dust suppression, using water trucked to the site. Exterior lighting, if provided, would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties. The lighting could either be either motion sensitive or light activated to automatically come on from dusk to dawn. All lighting would conform to applicable City of San Marcos rules and regulations for outdoor lighting.

The operation and maintenance for the Twin Owns Reservoir PV System would be similar to that described for the Lift Station #1 PV System.

2.3 Potential Cumulative Projects

Cumulative impacts are defined in State CEQA Guidelines Section 15355 as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” A cumulative impact occurs from “the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time” (State CEQA Guidelines Section 15355[b]).

Consistent with State CEQA Guidelines Section 15130, the discussion of cumulative impacts in this Draft EIR focuses on significant and potentially significant cumulative impacts. Section 15130(b) of the State CEQA Guidelines provides, in part, the following:

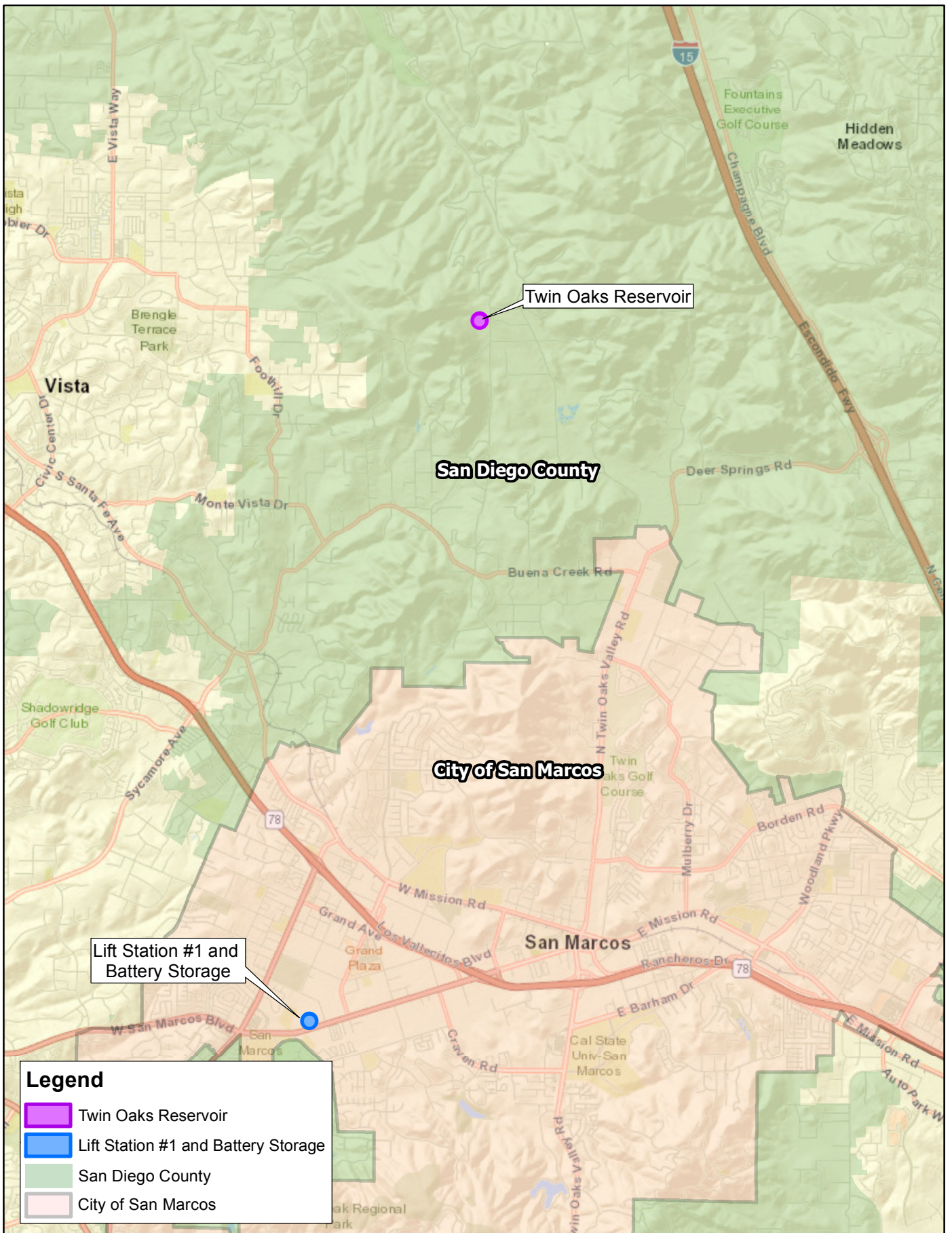
Section 15130 of the State CEQA Guidelines requires a discussion of cumulative impacts, and determination of the project's contribution to identified cumulative impacts. The project's contribution must be viewed when added to the effects of past projects, the effects of other current projects and the effects of reasonably foreseeable future projects. The individual projects included in the cumulative impact assessment are described on Table 1.

TABLE 1. POTENTIAL CUMULATIVE PROJECTS

Project Name	Applicant	Location	Description	Status
San Marcos Sewer Interceptor Phase 2 ⁽¹⁾	Vallecitos Water District	Via Vera Cruz to Lift Station No. 1	Replace existing 21” sewer interceptor with 9,000 LF of 36” and 42” diameter sewer pipes between Twin Oaks Valley Road and Lift Station No. 1. Phase 2 is portion from Via Vera Cruz to Lift Station No. 1 (3,960 LF)	Under design
North Twin Oaks Pump Station Pipeline Replacement P-64 ⁽³⁾	Vallecitos Water District	North Twin Oaks Pump Station	Replace potable water pipeline between N. Twin Oaks Station and N. Twin Oaks Reservoir <ul style="list-style-type: none"> • 12,600 LF/20-inch diameter 	Phased 2021-2025
Main Square (incl in San Marcos Creek Specific Plan) ⁽²⁾	Blue Band Enterprises	1167 W. San Marcos Blvd	Mixed Use (4.5 acres) <ul style="list-style-type: none"> • 44,000 SF Commercial/446 DU • 800 parking spaces 	Planning Application being processed
Brookfield Residential Multi-Family ⁽²⁾	Brookfield Residential Properties	Twin Oaks Valley Road San Marcos, CA 92078	220 residential condo units on 23.22 acres.	Approved
McDonald Group Mixed Use Project ⁽²⁾	The McDonald Group	110 W. San Marcos Blvd	Mixed Use <ul style="list-style-type: none"> • 82 residential units • 5,000 SF of commercial 	Approved
Restaurant Row Modifications ⁽²⁾	Venturepoint Development	1020 W. San Marcos Blvd	Modification of Restaurant Row parking lot, driveway locations, on-site improvements; offsite improvements to W. San Marcos Blvd.	Planning Application being processed
Jumpball ⁽²⁾	Jumpball, LLC	Northwest Corner of San Marcos Blvd. and Bent Ave.	Drive-Thru Restaurant (3,233 SF)	Planning Application being processed
Vidler Estates ⁽²⁾	The Orlando Company	824 N. Twin Oaks Valley Road	Single family subdivision (19 lots) on 4.9-acre.	Approved April 2015 Under Construction

Sources:

- (1) Vallecitos Water District Capital Projects Quarterly Update Board Meeting Third Quarter – FY 2018/19.
- (2) City of San Marcos Major Development Projects Webpage. Available at <https://www.san-marcos.net/work/development-projects>.
- (3) Vallecitos Water District 2018 Water, Wastewater, and Recycled Water Master Plan Final Program Environmental Impact Report, 2019.



SOURCE: Vallecitos Water District Solar Energy & Battery Storage Feasibility Assessment Findings Report, 2018



Regional Location
District-Wide Solar Program
Figure 1



SOURCE: SanGIS, 2018; Vallecitos Water District Solar Energy & Battery Storage Feasibility Assessment Findings Report, 2018

Project Location - Lift Station #1
 District-Wide Solar Program
 Figure 2





SCALE: 1:700

TerraVerde
Renewable Partners

700 LARKSPUR LANDING CIRCLE, STE 140
LARKSPUR, CA 94039
888-318-2597
WWW.TVRPLLC.COM

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SYSTEM DETAILS:

MODULE SPECIFICATION	
Manufacturer:	Canadian Solar
PV Module:	CS6U-340M
Open Circuit Voltage (V):	46.2
Voltage Temp. Coeff. (%/°C):	-0.31
Load Voltage (V):	37.98
Load Current (A):	8.97
Short-Circuit Current (A):	9.48
INVERTER SPECIFICATION	
Inverter Brand:	SOLECTRIA
Inverter Model:	PH-20TL-40C (3PH)
nom. AC Voltage (V):	480
Max. Input Current (A):	120
Min. Voltage Start-Up (V):	200
Max. Input Voltage (V):	1000
SYSTEM SPECIFICATION	
DC System Size (kW):	369.38
Total Number of Modules:	752
DC System Nameplate (kW):	200.00
Total Number of Inverters:	4
Array Grounding (Type):	2SC
Array TR (Deg):	20
CEC System Rating (kW):	248.41



NO.	REVISION / ISSUE	DATE
0.	INTERCONNECTION APPLICATION	27-Dec-17

PROJECT NAME:
VALLECITOS WD - LIFT STATION
1388 W San Marcos Blvd
San Marcos, CA 92078

SUPPLIER NAME:

PROJECT ID#:

LOCATION:
1388 W San Marcos Blvd
San Marcos, CA 92078

GPS COORDS:
33.1324259, -117.2004575

DRAWING TITLE: SITE PLAN

AUTOCAD FILE NAME: VALLECITOSWD-NEM_PV_12.27.17	SHEET: A001
PLOT FILE NAME: VALLECITOSWD-NEM_PV_12.27.17	PLOT DATE: 27-Dec-17
DRAWN BY: FJ	CHECKED BY: JP
SCALE:	PLOT TIME: 17:32

SOURCE: Terra Verde, 2017



Lift Station #1 Site Plan
District-Wide Solar Program
Figure 3



SOURCE:



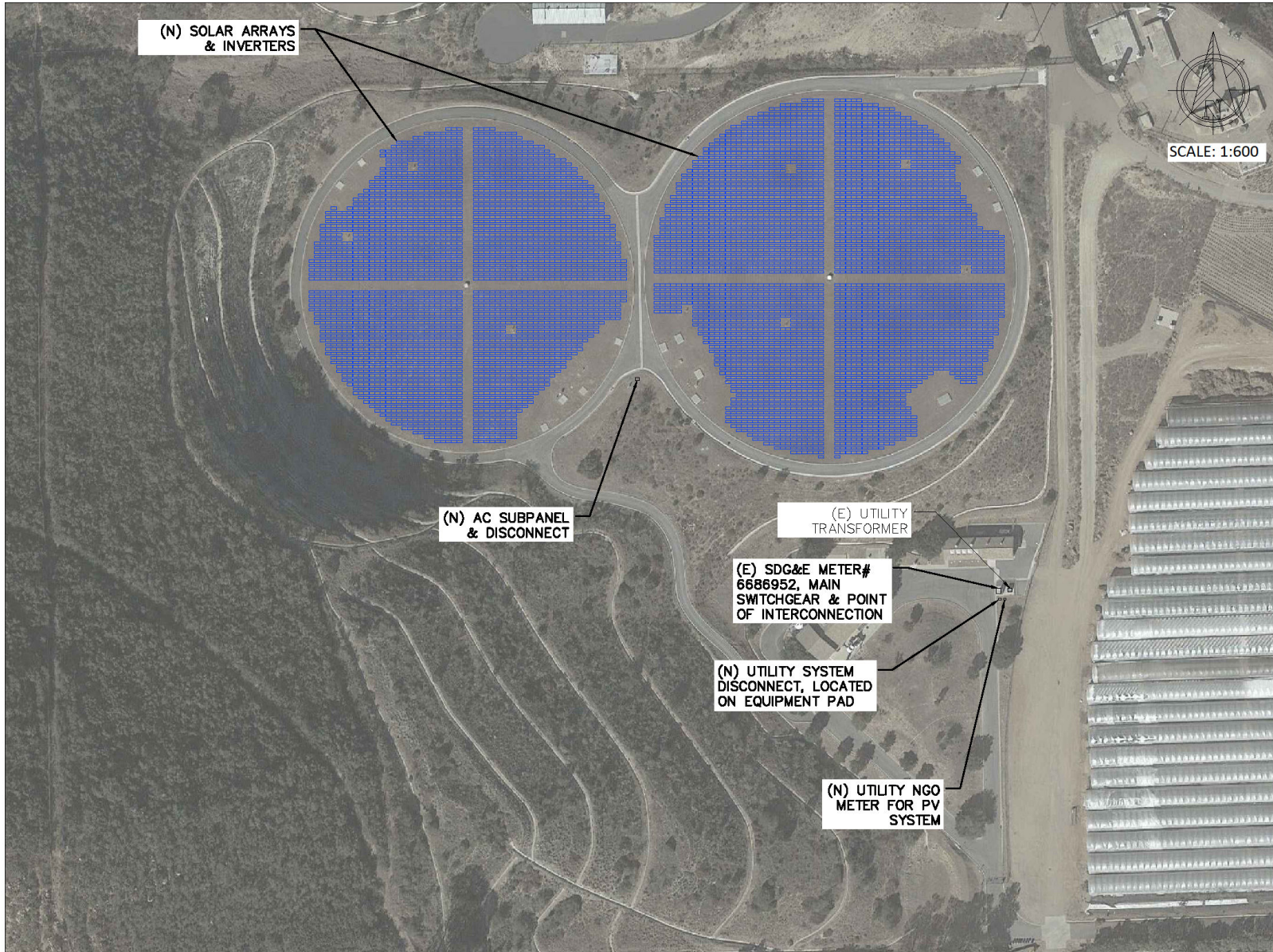
Typical Solar Arrays
District-Wide Solar Program
Figure 4



SOURCE: SanGIS, 2018; Vallecitos Water District Solar Energy & Battery Storage Feasibility Assessment Findings Report, 2018

Project Location - Twin Oaks Reservoir
 District-Wide Solar Program
 Figure 5





TerraVerde
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SCALE: 1:600

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PV SYSTEM DETAILS:

MODULE SPECIFICATION	
Manufacturer	Canadian Solar
Module Model	CS60-164M
Open Circuit Voltage (V)	46.2
Voltage Temp. Coeff. (%/°C)	-0.31
Load Voltage (V)	37.30
Load Current (A)	6.97
Short-Circuit Current (A)	7.45
INVERTER SPECIFICATION	
Inverter Brand	SOLE-RSA
Inverter Model	PV-80TL-480TS-1
Max. AC Voltage (V)	480
Max. Inlet Current (A)	10
Max. Output Voltage (V)	200
Max. Output Current (A)	600
SYSTEM SPECIFICATION	
DC System Size (kW)	1,693.32
Total Number of Modules	3568
AC System (in MWdc level)	1,599.00
Total Number of Inverters	25
Array Spacing (Deg)	80
Array Tilt (Deg)	10
CEC System Rating (kW)	1,727.85

NO.	REVISION / ISSUE	DATE
0.	INTERCONNECTION APPLICATION	28-Dec-17

PROJECT NAME:
VALLECITOS WATER DISTRICT - RESBCT
3896 El Paso Alto
San Marcos, CA 92069

SUPPLIER NAME:

PROJECT ID#:

LOCATION:
3896 El Paso Alto
San Marcos, CA 92069

GPS COORDS:
33.2107167, -117.177282

DRAWING TITLE:
SITE PLAN

AUTOCAD FILE NAME: VALLECITOSWD_RESBCT_PV_12.26.17	SHEET: A001
PLOT FILE NAME: VALLECITOSWD_RESBCT_PV_12.26.17	PLOT DATE: 28-Dec-17
DRAWN BY: FJ	CHECKED BY: JP
	PLOT TIME: 16:23

SOURCE: Terra Verde, 2017



Twin Oaks Reservoir Site Plan
District-Wide Solar Program
Figure 6

3.0 INITIAL STUDY

1. Project Title:

Vallecitos Water District's District-Wide Solar Project

2. Lead Agency Name and Address:

Vallecitos Water District
201 Vallecitos de Oro
San Marcos, California 92069

3. Contact Person and Phone Number:

Mr. Robert Scholl, Senior Engineer
Telephone: 760.744.0460
Email: rscholl@vwd.org

4. Project Location:

Lift Station #1 is located at 1368 W. San Marcos Boulevard within the City of San Marcos, California on the San Marcos 7.5-minute USGS quadrangle, within the southern portion of Section 16 of Township 12 South, Range 3 West.

The Twin Oaks Reservoirs are located in San Diego County, within the Twin Oaks Valley Community Planning area on the San Marcos 7.5-minute USGS quadrangle, within the north east portion of Section 22 of Township 11 South, Range 3 West.

5. Project Sponsor's Name and Address:

Vallecitos Water District
201 Vallecitos de Oro
San Marcos, California 92069

6. General Plan Designation:

Lift Station #1 PV System:	Mixed Use 3 (MU3) (City of San Marcos, 2012).
Twin Oaks Reservoirs PV System:	Public/Semi-Public Facilities (San Diego County, 2011).

7. Zoning:

Lift Station #1 PV System:	Commercial (C) & Industrial (I)/ Mixed Use 3 (MU-3)
Twin Oaks Reservoir PV System:	Rural Residential (RR)

8. Description of Project:

Please see Section 2.0 for Project Description.

9. Surrounding Land Uses and Setting:

Uses surrounding the project sites are presented below.

Direction	Existing Land Use	General Plan Designation	Zoning Classification
Lift Station #1 PV + Battery Energy Storage System			
North	Commerce center and Self-storage units	LI – Light Industrial	Industrial (I) / Light Industrial (L-I)
South	Vacant Land	San Marcos Creek Specific Plan Area	Specific Plan Area, SPA – San Marcos Creek
East	Commercial Center and associated Parking Lots	MU 3	Mixed-Use-3
West	Rock Church & assoc. surface parking	MU 3	C & I / MU-3 (SP)
Twin Oaks Reservoir PV System			
North	Twin Oaks Valley Water Treatment Plant (San Diego County Water Authority)	Public/Semi-Public Facilities	Rural Residential
South	Rural single-family homes	Semi-Rural Residential	Rural Residential
East	Agriculture	Public/Semi-Public Facilities and Semi-Rural Residential	Agriculture
West	Undeveloped rural open space	Rural Lands	Rural Residential

10. Other Public Agencies Whose Approval is Required (e.g., permits, financing approval, or participation agreement.):

The proposed PV system at Lift Station #1 requires a Conditional Use Permit from the City of San Marcos as well as coverage under the General Construction Stormwater Permit from the San Diego Regional Water Quality Control Board.

The proposed PV System at the Twin Oaks Reservoir requires building permits from the County of San Diego.

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

BRG submitted a written request to the State of California's Native American Heritage Commission (NAHC) for a records search in the commission's sacred lands file. Following the NAHC's recommendations, on July 8, 2019, BRG further contacted a total of six tribal representatives in the region in writing to solicit local Native American input regarding possible cultural resources concerns over the proposed Project. Mitigation measures have been included in the Lift Station #1 PV Project to reduce potential impacts on tribal cultural resources in the unlikely event that any are unearthed during construction activities.

4.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

- | | | |
|---|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology /Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials |
| <input checked="" type="checkbox"/> Hydrology / Water Quality | <input type="checkbox"/> Land Use / Planning | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Population / Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation | <input type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities / Service Systems | <input type="checkbox"/> Wildfire | <input type="checkbox"/> Mandatory Findings of Significance |

DETERMINATION:

On the basis of this initial evaluation:

- I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier 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.

Mr. Robert Scholl, P.E., Senior Engineer
Vallecitos Water District

Date:

5.0 EVALUATION OF ENVIRONMENTAL IMPACTS:

- 1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers take account 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). In this case, a brief discussion should identify the following:
 - a) Earlier Analysis Used. Identify and state where they are available for review.
 - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- 7) Supporting Information Sources: A source list should be attached, and other sources used, or individuals contacted should be cited in the discussion.
- 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
- 9) The explanation of each issue should identify:
 - a) The significance criteria or threshold, if any, used to evaluate each question; and
 - b) The mitigation measure identified, if any, to reduce the impact to less than significance.

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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I. AESTHETICS.

Except as provided in Public Resources Code Section 21099, would the project:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) Have a substantial adverse effect on a scenic vista? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Existing Setting

The proposed Lift Station #1 PV Project site is a portion of a relatively flat parcel containing a concrete block pump house on the south end of the property adjacent to the main entrance along W. San Marcos Boulevard, and an approximately 2.5 acre vacant and previously graded parcel north of the lift station facilities. The block pump house is setback from W. San Marcos Boulevard by approximately 50 feet and ornamental landscaping has been planted between the street and the pump house. A chain-link security fence topped with three-strands of barbed wire is installed at the entrance to the site. The project site is surrounded by commercial and industrial businesses, a church and surface parking lot and W. San Marcos Boulevard.

Public views of the Project site from W. San Marcos Boulevard are partially obstructed by existing ornamental trees and the pump station. The Lift Station #1 Project site is not near any classified scenic byways and is not itself classified as a national scenic highway or byway. The Lift Station #1 Project site is unlit; however, indirect sources of light is provided from neighboring uses.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Scenic resources within the City include, but are not limited to, undeveloped hillsides; prominent land-forms such as the San Marcos Mountains, Merriam Mountains, Mount Whitney, Cerro de La Posas, Double Peak, Owens Peak, and Franks Peak; creek corridors; eucalyptus stands; rock outcroppings; landmarks or historic buildings; and ocean views (City of San Marcos, 2012a). None of these features are located within the Lift Station #1 PV Project site.

The Twin Oaks Reservoirs are located at 3566 N. Twin Oaks Valley Road and consist of two in-ground circular potable water storage reservoirs adjacent to the San Diego County Water Authority’s Twin Oaks Valley Water Treatment Plant. Surrounding land uses also include rural and agricultural uses to the west, and vacant land to the south and east. The reservoirs are buried prestressed concrete storage tanks with a-30-inch layer of earth covering their roofs.

Scenic resources within the Twin Oaks Valley Community include areas that provide the scenic mountainous backdrop to development such as Gopher Canyon, San Marcos Mountain, and Merriam Mountain (City of San Diego, 2011). None of these features are located within the Twin Oaks Reservoir PV Project site.

State Route 52 (P.M 9.5 to P.M. 13.0) is the nearest Officially Designated State Scenic highway, which is more than 20 miles south of both Project sites. The City of San Marcos General Plan designates State Route 78 as a view corridor which is eligible for designation as a State Scenic highway. The proposed Lift Station #1 Project site cannot be seen from SR-78. The County of San Diego General Plan designates Twin Oaks Valley Road, from Gopher Canyon Road to San Marcos city limits, as part of the County Scenic Highway System. The proposed Twin Oaks Reservoir Project site is approximately 0.3 miles from this portion of Twin Oaks Valley Road. Intervening development precludes views from Twin Oaks Valley Road.

a) Less Than Significant. Scenic vistas consist of expansive, panoramic views of important, unique, or highly valued visual features that are seen from public viewing areas. This definition combines visual quality with information about view exposure to describe the level of interest or concern that viewers may have for the quality of a particular view or visual setting. The City of San Marcos Opens Space and Conservation Element identifies scenic resources including undeveloped hillsides; prominent land-forms creek corridors; eucalyptus stands; rock outcroppings; landmarks or historic buildings; and ocean views (City of San Marcos, 2012a). The San Diego County General Plan EIR, Section 2.01 Aesthetics, identifies steep slopes as being valuable scenic resources in the Twin Oaks Community.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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The proposed PV facilities would be installed within existing VWD facilities that are not within a scenic vista. Therefore, the proposed Project would not result in a substantial adverse effect on a scenic vista.

b) No Impact. All improvements are proposed within the footprint of an existing VWD facility. No scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway are present within the boundaries of the Lift Station #1 or Twin Oak Reservoir Projects. Therefore, the project would not impact scenic resources.

c) Less Than Significant. For the reasons described in Issues **I.a** and **I.b** herein, the Projects would not substantially degrade the existing visual character or quality of the site and its surroundings. Impacts would be less than significant.

d) Less Than Significant. The proposed Project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the surrounding areas. The project uses dark photovoltaic solar cells, which absorb rather than reflect sunlight.

Lighting

Construction of the proposed Projects would generally occur during daytime hours and could occur as late as 6:00 p.m. in order to meet the construction schedule. No overnight construction would occur. In the event that work is performed between dusk and 6:00 p.m., the construction crews would only use the minimum illumination needed to perform the work safely. All construction lighting would be directed downward and shielded to focus illumination on the desired work areas only. Exterior security lighting may also be installed at the Project sites. This security lighting would be shielded and directed downward to minimize the potential for light or glare to spillover onto adjacent properties. The lighting could either be either motion sensitive or light activated to automatically come on in the evening and shut off in the morning. All lighting would conform to applicable City of San Marcos and County of San Diego rules and regulations for outdoor lighting.

Glare

A common concern about PV solar panels is that they have the potential to create “glare”, posing a nuisance to neighbors. PV solar panels are specifically designed to reduce reflection, as any reflected light cannot be converted into electricity. Light absorption, rather than reflection, is central to the function of a PV solar panel - to absorb solar radiation and convert it to electricity. To minimize the potential for glare, the PV solar panels installed at the Lift Station #1 and the Twin Oaks Reservoir Project sites would be constructed of dark-colored

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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(typically blue or black) materials and covered with anti-reflective coatings. Modern PV solar panels such as these reflect as little as two percent of incoming sunlight, about the same as water and less than soil or even wood shingles (Meister Consulting Group, Inc., 2014).

Mitigation

No mitigation would be required.

Cumulative Impacts

The proposed Lift Station #1 PV System and the Twin Oaks Reservoir PV System would be unmanned facilities installed at existing VWD properties. The following features are incorporated into the Projects that would minimize potential cumulative impacts to aesthetic resources:

- All elements of the Projects would have a low visual profile that would generally be out of view from public vantage points. Operations and maintenance activities would be generally consistent with the current pattern of occasional worker vehicles entering and leaving the sites to maintain the existing facilities.
- Any new security lighting would be shielded and focused downward. Lighting specifications and fixture locations would be indicated on the site plans.
- No trees or other significant vegetation would be removed.

Therefore, the Project’s contribution to cumulative aesthetic impacts would not be cumulatively considerable.

II. AGRICULTURAL AND FOREST RESOURCES.

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the project:

- a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Monitoring Program of the California Resources Agency, to non-agricultural use?				
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Existing Setting

The Lift Station #1 and the Twin Oaks Reservoir Project sites are developed with existing VWD facilities and contain no agricultural lands; no forest lands (as defined in Public Resources Code section 12220(g)); no timberland (as defined by Public Resources Code section 4526); and, no timberland zoned Timberland Production (as defined by Government Code section 51104(g)). The California Department of Conservation’s Farmland Mapping and Monitoring Program maps both project sites as “Urban and Built Up land” (Dept. of Conservation, 2016) and neither are subject to a Williamson Act contract. The Lift Station #1 Project site is zoned C & I/MU-3, which allows commercial, industrial and mixed uses. The Twin Oaks Reservoir Project site is zoned Rural Residential (RR), which allows photovoltaic solar energy system for onsite use as an accessory use to an industrial use in all zones (County of San Diego, 2014).

a) No Impact. The Lift Station #1 and the Twin Oaks Reservoir Project sites are developed with the existing VWD facilities and contain no important farmlands as mapped by the California Department of Conservation’s Farmland Mapping and Monitoring Program. Therefore, construction and operation of PV energy generation facilities on the Lift Station #1 and the Twin Oaks Reservoir Project sites would not result in the conversion of important farmland to non-agricultural uses. No important farmland impacts would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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b) No Impact. The Lift Station #1 Project site is zoned for commercial, industrial and mixed uses. The Twin Oaks Valley Reservoir project site is zoned Rural Residential (RR). Neither project site is subject to a Williamson Act contract. Construction and operation of PV energy generation facilities on the Lift Station #1 and the Twin Oaks Reservoir Project sites would not conflict with agricultural zoning or a Williamson Act contract. No impacts would occur.

c and d) No Impact. Both project sites are designated as Urban and Built Up Lands and do not contain any forest lands, timberland or timberland zoned Timberland Production lands. Additionally, because the Lift Station #1 and Twin Oaks Reservoir Project sites contain nor forestlands, the proposed Projects would not result in the loss or conversion of forestlands to non-forest use. No impacts would occur.

Mitigation

No mitigation would be required.

Cumulative Impacts

Since the proposed Projects would not conflict with any existing zoning for agricultural use, Williamson Act contracts or other changes to the environment resulting in conversion of farmland to non-agricultural use or forestland or timberland to non-forest use, no cumulative impacts would result.

III. AIR QUALITY.

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a) Conflict with or obstruct implementation of the applicable air quality plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Expose sensitive receptors to substantial pollutant concentrations? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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An Air Quality and Greenhouse Gas Analysis (Birdseye Consulting Group, 2019a; Appendix A) was prepared for the proposed Project to assess potential air quality impacts and greenhouse gas emissions. The analysis contained in this section is based on the findings of that technical report.

Existing Setting

The Project sites are located in the San Diego Air Basin (SDAB) and are subject to the San Diego County Air Pollution Control District (SDAPCD) guidelines and regulations. The weather of San Diego County is profoundly influenced by the Pacific Ocean and its semi-permanent high-pressure systems that result in dry, warm summers and mild, occasionally wet winters. The average minimum temperature for January ranges from the mid-40s to the high-50s degrees Fahrenheit (4 to 15 degrees Celsius) across the county. July maximum temperatures average in the mid-80s to the high-90s degrees Fahrenheit (high-20s to the high-30s degrees Celsius). Most of the county’s precipitation falls from November to April, with infrequent (approximately 10 percent) precipitation during the summer. The average seasonal precipitation along the coast is approximately 10 inches (254 millimeters); the amount increases with elevations as moist air is lifted over the mountains.

The SDAPCD is required to monitor air pollutant levels to ensure that air quality standards are met and, if they are not met, to develop strategies to meet the standards. Depending on whether the standards are met or exceeded, the local air basin is classified as being in “attainment” or “non-attainment.” San Diego County is listed as a federal non-attainment area for ozone (eight hour) and a state non-attainment area for ozone (one hour and eight-hour standards), PM₁₀ and PM_{2.5}. The SDAB is in attainment for the state and federal standards for nitrogen dioxide, carbon monoxide, sulfur dioxide and lead.

Sensitive Receptors

Sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing and convalescent facilities. These are areas where the occupants are more susceptible to the adverse effects of exposure to air pollutants. Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with an adequate margin of safety, to protect public health and welfare as well that segment of the public most susceptible to respiratory distress, such as children under 14; the elderly over 65; persons engaged in strenuous work or exercise; and people with cardiovascular and chronic respiratory diseases. The closest properties defined herein as sensitive receptors are residences located approximately 500 feet west of Lift Station #1 Project site and 600 feet south/southeast of the Twin Oaks Reservoir Project site.

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Methodology and Significance Thresholds

Air quality modeling was performed in general accordance with the methodologies outlined in the SDAPCD 2009 Regional Air Quality Strategy (RAQS) to identify both construction and operational emissions associated with the proposed Projects. All emissions were calculated using the California Emissions Estimator Model (CalEEMod) software version 2016.3.2 which incorporates current air emission data, planning methods and protocol approved by the California Air Resources Board.

Construction activities would require the use of equipment that would generate criteria air pollutant emissions. For modeling purposes, it was assumed that all construction equipment used would be diesel-powered. Construction emissions associated with development of the proposed Project were quantified by estimating the types of equipment, including the number of individual pieces of equipment, that would be used on-site during each of the construction phases as well as off-site haul trips to remove demolition debris. Construction emissions were analyzed using the regional thresholds established by the SDAPCD and published under Regulation II, Rule 20-2, Table 20-2-1. “AQIA Trigger Levels.”

Operational emissions include mobile source emissions, energy emissions and area source emissions. Mobile source emissions are generated by motor vehicle trips associated with operation of the Project. Emissions attributable to energy use include electricity and natural gas consumption for space and water heating. Area source emissions are generated by landscape maintenance equipment, use of consumer products and painting. To determine whether a regional air quality impact would occur, the increase in emissions were compared with the SDAPCD’s recommended regional thresholds for operational emissions.

A significant adverse air quality impact may occur when a project individually or cumulatively interferes with progress toward the attainment of the ozone standard by generating emissions that equal or exceed the established long-term quantitative thresholds for pollutants or exceed a state or federal ambient air quality standard for any criteria pollutant. The SDAPCD does not provide quantitative thresholds for determining the significance of construction or mobile source-related projects. However, the SDAPCD does specify Air Quality Impact Analysis (AQIA) trigger levels for new or modified stationary sources (SDAPCD Rules 20.1 through 20.3) If these incremental levels are exceeded, an AQIA must be performed. Although these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes, these levels may be used to evaluate the increased emissions from these projects. For CEQA purposes, the screening level thresholds can be used to demonstrate that a project’s total emissions would not result in a significant impact to air quality. Because the AQIA screening thresholds do not include

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
---------------------------------------	---	-------------------------------------	------------------

VOCs, the screening level for VOCs used in this analysis are from the South Coast Air Quality Management District (SCAQMD), which generally has stricter emissions thresholds than SDAPCD. The thresholds shown below are used in this analysis to determine whether the solar program has the potential to violate an air quality standard or contribute substantially to an existing or projected air quality violation:

TABLE 2. AIR QUALITY SIGNIFICANCE CRITERIA

Criteria Pollutant	Significance Threshold
Carbon Monoxide (CO)	550 pounds/day
Nitrogen Oxides (NOx)	250 pounds/day
Particulate Matter (PM ₁₀)	100 pounds/day
Particulate Matter (PM _{2.5})	67 pounds/day
Sulfur Oxides (SOx)	250 pounds/day
Volatile Organic Compounds (VOCs)/ Reactive Organic Gases (ROGs)	75 pounds/day

a) Less Than Significant. The Project sites are within the San Diego Air Basin (SDAB), the boundaries of which are contiguous with San Diego County. Within San Diego County, the San Diego Air Pollution Control District (SDAPCD) has primary responsibility for the development and implementation of rules and regulations designed to attain national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS), as well as the permitting of new or modified sources and the development of air quality management plans. Projects that propose development that is consistent with the growth anticipated by the relevant planning documents used in the formulation of the RAQS and SIP would be consistent with the RAQS and SIP.

The proposed Projects would not result in a change in land use, and thus are consistent with the City of San Marcos and the County of San Diego General Plan land use designations. Because the proposed Projects would be consistent with the applicable General Plans that were used in the formulation of the RAQS and SIP, they are considered consistent with the RAQS and SIP. Additionally, the proposed Projects would not result in any population or employment growth and are therefore consistent with regional growth projections. Additionally, the proposed Projects would implement all applicable SDAPCD rules and short-term construction and long-term operations would result in minimal emissions far below thresholds, as described below under response **III.b**.

b) Less Than Significant. San Diego County is designated as a federal non-attainment area for ozone (eight hour) and a state non-attainment area for ozone (one hour and eight-hour standards), PM₁₀ and PM_{2.5}. These designations are a result of emissions generated by past and present projects and will continue to be influenced by reasonably foreseeable future projects.

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Cumulative impacts could result if the proposed Project exceeds established thresholds for pollutants in which the region is nonattainment. In addition, cumulative impacts could result if the proposed Project would be constructed at the same time as other development projects in the area, thereby exposing sensitive receptors to cumulative emission concentrations.

Tables 3 and 4 summarize the estimated maximum daily emissions of pollutants occurring during the construction and operation, respectively. As shown in Table 3, construction of the proposed Project would not exceed the SDAPCD regional construction emission thresholds for daily emissions. Thus, the Project construction would not conflict with the SIP, RAQS or AQMP, violate an air quality standard or contribute to an existing or projected violation, result in a cumulatively considerable increase in ozone or particulate matter emissions or expose receptors to substantial pollutant concentrations.

TABLE 3. ESTIMATED MAXIMUM MITIGATED DAILY CONSTRUCTION EMISSIONS

Construction Phase	Maximum Emissions (lbs./day)					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2020 Maximum lbs./day	1.6	16.3	12.1	0.02	1.3	0.9
SCAPCD Regional Thresholds	75	250	550	250	100	67
Threshold Exceeded	No	No	No	No	No	No

Source: Birdseye Consulting Group, 2019a (Appendix A).

TABLE 4. ESTIMATED OPERATIONAL EMISSIONS

Operational Phase	Estimated Emissions (lbs./day)					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Area	0.01	0.0	0.01	0.0	0.0	0.0
Energy	0.0	0.0	0.0	0.0	0.0	0.0
Mobile	0.01	0.01	0.01	0.01	0.01	0.01
Maximum lbs./day	0.02	0.01	0.02	0.01	0.01	0.01
SCAPCD Thresholds	75	250	550	250	100	67
Threshold Exceeded?	No	No	No	No	No	No

Source: Birdseye Consulting Group, 2019a (Appendix A).

The Projects would be required to comply with SDAPCD Rules 52 and 54 which identify measures to reduce fugitive dust and is required to be implemented at all construction sites located within the SDAB. The following best management practices shall be shown on all applicable grading and building plans as details, notes, or as otherwise appropriate:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<ul style="list-style-type: none"> • Minimization of Disturbance. Construction contractors should minimize the area disturbed by clearing, grading, earth moving, or excavation operations to prevent excessive amounts of dust. • Soil Treatment. Construction contractors should treat all graded and excavated material, exposed soil areas and active portions of the construction site, including unpaved on-site roadways to minimize fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization materials, and/or roll compaction as appropriate. As referenced, watering would be implemented for dust control. Watering will be performed as often as necessary, and at least twice daily, preferably in the late morning and after work is done for the day. Note – it was assumed watering would occur two times daily for modeling purposes. • Soil Stabilization. Construction contractors should monitor all graded and/or excavated inactive areas of the construction site at least weekly for dust stabilization. Soil stabilization methods, such as water and roll compaction, and environmentally safe dust control materials shall be applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area shall be seeded and watered until landscape growth is evident, or periodically treated with environmentally safe dust suppressants, to prevent excessive fugitive dust. • No Grading During High Winds. Construction contractors should stop all clearing, grading, earth moving, and excavation operations during periods of high winds (20 miles per hour or greater, as measured continuously over a one-hour period). • Street Sweeping. Construction contractors should sweep all on-site driveways and adjacent streets and roads at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads. 				

The proposed Project would be subject to the conditions noted above to minimize construction emissions and therefore would not negatively impact regional air quality. Operational emissions would be minor and would not contribute to any significant cumulative impacts related to the nonattainment status for ozone, PM₁₀, or PM_{2.5}. Portions of the potential cumulative projects listed on Table 1 could be constructed concurrent with the proposed Project. Possible cumulative impacts on air quality as a result of construction activities in the area would be addressed by compliance with SDAPCD rules and regulations, which apply to all construction projects. Therefore, project construction and operation would not result in a

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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cumulatively considerable net increase in emissions. This impact would be less than significant.

c) Less Than Significant. Potential sources of odors during construction activities include diesel exhaust from construction equipment and diesel vehicles. These odors would not affect a substantial number of people; would occur periodically and dissipate as a function of distance from the source and would be lower at the nearest sensitive receptors; and would end when construction is completed. Therefore, the proposed Project’s odor impact would be less than significant.

d) Less Than Significant. The closest properties defined as receptors are residences are located approximately 500 feet west of the Lift Station #1 PV Project site and 600 feet south/southeast of the Twin Oaks Reservoir PV Project site.

The greatest potential for toxic air contaminant emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed Project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of “individual cancer risk”. The California Office of Environmental Health Hazard Assessment (OEHHA) health risk guidance states that a residential receptor should be evaluated based on a 30-year exposure period. “Individual Cancer Risk” is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Construction is expected to last 12 months. This is much shorter than the assumed 30 or 70-year exposure period used to estimate lifetime cancer risks.

Construction activities would be sporadic, transitory and short-term in nature. Diesel activity occurring on site would be short-term and at distances that would not expose sensitive receptors to substantial pollutant concentrations. Therefore, the proposed Project would not expose sensitive receptors to substantial pollutant concentrations and this impact would be less than significant.

Mitigation

No mitigation measures are required.

Cumulative Impacts

Cumulative impacts are addressed under Item III.b above.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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IV. BIOLOGICAL RESOURCES.

Would the project:

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|---|--------------------------|-------------------------------------|--------------------------|-------------------------------------|
| <p>a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?</p> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?</p> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?</p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <p>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?</p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <p>e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?</p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <p>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?</p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Existing Setting

The Lift Station #1 and the Twin Oaks Reservoir Project sites are developed with existing VWD facilities and have been previously disturbed. The proposed Lift Station #1 PV Project site is a portion of a relatively flat parcel containing a concrete block pump house on the south end of the property adjacent to the main entrance along W. San Marcos Boulevard, and an approximately 2.5 acre vacant and previously graded parcel north of the lift station facilities that supports sparse ruderal vegetation. The project site is adjacent to an existing roadway and development land uses on all four sides.

At the Twin Oaks Reservoir, the PV System would be installed on the roof of the submerged water storage tanks. The project site is surrounded on the north and east by existing water treatment facilities and agricultural uses. Ornamental landscaping is located immediately to the south and west.

A literature review was conducted to identify special-status plant and wildlife species that could potentially occur inside the boundaries of the Project sites using the following resources:

- USFWS list of federally endangered and threatened species that occur in San Diego County California Natural Diversity Database (CNDDDB) query for the Project site and surroundings;
- California Native Plant Society’s (CNPS) Inventory of Rare and Endangered Plants of California;
- The National Hydrography Dataset;
- The National Wetlands Inventory;
- Recent, high-resolution aerial photographs of the project site; and,
- Publicly available environmental documentation for other projects in the vicinity

No sensitive habitat, special special-status plants, wildlife or aquatic resources were found.

The Lift Station #1 Project site contains several ornamental trees as well as a two eucalyptus trees that are not suitable for use by nesting raptors. However, large trees have been planted on the Twin Oaks Reservoir parcel just south and west of the submerged tanks that could provide suitable nesting and roosting habitat for raptors or other species protected by the Migratory Bird Treaty Act (MBTA).

a and b) Less Than Significant with Mitigation Incorporated. The Project sites are heavily disturbed and do not contain natural habitat areas and no sensitive natural communities or riparian habitat is present. The proposed Project would have no adverse effect, either directly

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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or through habitat modifications, on any species identified as a candidate, sensitive, or special status species nor 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 U.S. Fish and Wildlife Service.

There is the potential for nesting raptors to be present in large trees immediately south and west of the Twin Oaks Reservoir Project site. Trimming or removal of the offsite trees or other vegetation is not planned. However, if construction activities during the nesting season (generally February 1 through August 31), breeding birds and active bird nests could be disrupted, if present.

Considering this information, the Twin Oaks Reservoir PV Project’s impacts on nesting birds would be considered potentially significant unless mitigated. Mitigation measure BIO-1 includes performance of a pre-construction survey for raptors and migratory birds, if construction activities would occur between February 1st and August 15th to ensure that any active nests are not disturbed.

c) No Impact. The proposed Project sites are heavily disturbed and does not contain jurisdictional wetlands or other waters. Installation of PV Solar Systems would not result in the filling, removal, or hydrologic interruption of any wetlands or waters, and the Project would not require federal or state permits related to work in waters or streambeds.

d) No Impact. The Project sites are heavily disturbed, adjacent to existing development, and do not contain features that would be conducive to use as a wildlife movement corridor or travel route. Therefore, the proposed Project would not result in significant impacts related to wildlife movement or habitat connectivity.

e. and f) No Impact. The project sites are not covered by any local policies, ordinances, Habitat Conservation Plans, Natural Community Conservation Plans or other approved local, regional, or state habitat conservation plan. Thus, implementation of the proposed Project would not result in any impacts related to consistency with these types of plans.

Mitigation

Mitigation BIO-1: Conduct Pre-Construction Surveys for Raptors and Migratory Birds.

If construction activities at the Twin Oaks Reservoir PV Project site occurs between February 1 and August 15, VWD shall have a qualified biologist conduct preconstruction surveys of trees located immediately south and west of the Project site for active nests of raptors and MBTA protected birds within 10 days of construction. Surveys for nesting raptors shall be conducted in accordance with established CDFW raptor survey protocols. If no active

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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nests are found, PV solar array installation and other construction-related activities may proceed without further studies or mitigative actions.

If active nests are found, the biologist will establish avoidance buffers around nests that are sufficient so that breeding is not likely to be disrupted or adversely affected by construction. An avoidance buffer will constitute an area where project-related activities (i.e., vegetation removal, earth moving, and construction) shall not occur.

Typical avoidance buffers during the nesting season shall be 100 feet for nesting passerine birds and 500 feet for nesting raptors unless a qualified biologist, in consultation with USFWS and/or CDFW, determines that smaller buffers will be sufficient to avoid impacts on nesting raptors and/or other birds.

A qualified biologist shall monitor any active nests during construction, to ensure that the species is not being harmed or harassed by noise or other activities stemming from project-related construction. Buffer shall be maintained by VWD until a qualified biologist, in consultation with USFWS and/or CDFW, has determined that young have fledged and are no longer reliant on the nest or parental care for survival.

Implementation of Mitigation Measure BIO-1 would minimize disturbance or disruption of any active nesting sites of migratory birds and/or raptors and reduce the potentially significant impact to less than significant with mitigation.

Cumulative Impacts

The proposed Project would not result in direct or indirect adverse impacts to biological resources. Therefore, the Project’s contributions to cumulative impacts to biological resources would not be cumulatively considerable.

V. CULTURAL RESOURCES.

Would the project:

- | | | | | |
|--|--------------------------|-------------------------------------|--------------------------|--------------------------|
| a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA Guidelines § 15064.5? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Existing Setting

The proposed Lift Station #1 and Twin Oaks Reservoir Project sites are located within existing VWD facilities on sites that have been disturbed by previous construction.

a, b, c, and d). Less Than Significant with Mitigation Incorporated. The proposed Lift Station #1 and Twin Oaks Reservoir Project sites are located within existing VWD facilities and neither site is known to have any historical or archaeological resources as defined by Section 15064.5 of CEQA. No known burial sites have been identified in the Project sites. Minimal grading could be required prior to installation of the PV facilities at the Lift Station #1 Project site. Although the likelihood of encountering isolated archaeological resources at this site is very low, mitigation measure CUL-1, 2 and 3 shall be implemented in the unlikely event the proposed construction activities at the Lift Station #1 Project site encounter remains.

The Twin Oaks Reservoir PV project would be installed on the rooftops of two submerged water storage tanks. It does not have the potential to impact archaeological resources defined by Section 15064.5 of CEQA. No impacts would occur, and no mitigation would be required.

Mitigation

Mitigation Measure CUL-1 Construction Monitoring for Unanticipated Discoveries. The project’s grading and construction plans and specifications shall state that full-time monitoring by a qualified archaeologist shall be conducted during the initial grubbing and ground disturbance at the Lift Station #1 PV Project site. The project archaeologist, in coordination with the VWD, may re-evaluate the necessity for monitoring after the initial five feet of excavations have been completed. In the event that archaeological resources are inadvertently discovered during ground-disturbing activities, work must be halted within 50 feet of the find until it can be evaluated by a qualified archaeologist. Construction activities could continue in other areas. If the discovery proves to be significant, additional work, such as data recovery excavation or fossil recovery, may be warranted and would be discussed in consultation with the appropriate regulatory agency(ies).

Native American tribes shall be given the opportunity to provide one or more certified cultural monitors for the Project during all excavation or earth-moving within the Project site in Holocene-aged deposits. The Construction Contractor shall give the tribe’s Preservation Officer (PO) or other designated representative two weeks’ notice and shall provide a copy of such notice to the VWD.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Mitigation Measure CUL-2: Human Remains. Procedures of conduct following the discovery of human remains on non-federal lands have been mandated by California Health and Safety Code §7050.5, California Public Resources Code §5097.98, and California Code of Regulations (CCR) §15064.5(e). Should human remains be encountered, all work in the immediate vicinity of the burial must cease, and any necessary steps to ensure the integrity of the immediate area must be taken. The San Diego County Coroner will be immediately notified. The Coroner must then determine whether the remains are Native American. If the Coroner determines the remains are Native American, the Coroner has 24 hours to notify the NAHC, who will, in turn, notify the person they identify as the most likely descendent (MLD) of any human remains. Further actions will be determined, in part, by the desires of the MLD. The MLD has 48 hours to make recommendations regarding the disposition of the remains following notification from the NAHC of the discovery. If the MLD does not make recommendations within 48 hours, the owner shall, with appropriate dignity, reinter the remains in an area of the property secure from further disturbance. Alternatively, if the owner does not accept the MLD’s recommendations, the owner or the descendent may request mediation by the NAHC.

Mitigation Measure CUL-3: Avoid Potential Effects on Undiscovered Burials. The VWD shall implement the following measures to reduce or avoid impacts related to undiscovered burials. In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, all potentially damaging ground-disturbance in the area of the burial and a 100-foot radius shall halt and the San Diego County Coroner shall be notified immediately. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, then Federal laws governing the disposition of those remain would come into effect. Specifically, the Native American Graves Protection and Repatriation Act (NAGPR).

California law also recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. VWD shall ensure that the procedures for the treatment of Native American human remains contained in California Health and Safety Code Sections 7050.5 and 7052 and Public Resources Code Section 5097 are followed.

Cumulative Impacts

The proposed Project would not contribute to any cumulative permanent adverse impacts on cultural resources. No undeveloped land would be developed by the proposed Project.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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VI. ENERGY.

Would the project:

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|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

a) Less Than Significant. The proposed Project would not substantially affect energy consumption. It would increase the renewable energy used by VWD at their Lift Station #1 and Twin Oaks Reservoir facilities. Construction equipment and haul trucks would consume fuel during the construction process; however, each site’s small size would minimize the energy consumed. During operations, the proposed Project would require fuel for vehicles and equipment used by site maintenance workers. The minimal amount of electricity that would be required would be greatly offset by generation of new electricity from the proposed Projects, and the Project’s electricity demand would not constitute a wasteful, inefficient, or unnecessary use of energy. The proposed Project would not increase energy consumption or increase inefficient energy use. The impact would be less than significant.

b) No Impact. The proposed Project would directly support California’s Renewable Portfolio Standard goal of increasing the percentage of electricity procured from renewable sources to 50 percent. Because the proposed Project would provide a new source of renewable energy supporting the State’s energy goals, would offset its fuel usage, and would comply with fuel and energy efficiency regulations, it would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. No impact would occur.

Mitigation

No mitigation would not be required.

Cumulative Impacts

The proposed Project would not result in direct or indirect significant environmental impacts due to wasteful, inefficient or unnecessary consumption of energy resources and would directly support California’s Renewable Portfolio Standard. Therefore, the Project’s contributions to cumulative energy impacts would not be cumulatively considerable.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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VII. GEOLOGY AND SOILS.

Would the project:

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

<p>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?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>ii) Strong seismic ground shaking?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>iii) Seismic-related ground failure, including liquefaction?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>iv) Landslides?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>b) Result in substantial soil erosion or the loss of topsoil?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>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?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>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?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>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?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Existing Setting

The Lift Station #1 and the Twin Oaks Reservoir Project sites are situated in the coastal foothill section of the Peninsular Ranges Geomorphic Province which extends approximately 900 miles from the Transverse Ranges and the Los Angeles Basin south to the southern tip of Baja California and varies in width from approximately 30 to 100 miles. The Peninsular Ranges Province generally consist of rugged mountains underlain by Jurassic metavolcanic and metasedimentary rocks, and Cretaceous igneous rocks of the southern California batholith. The Peninsular Ranges Province is traversed by a group of sub-parallel faults and fault zones trending roughly northwest (Vallecitos Water District, 2019).

No known faults exist at the Lift Station #1 or the Twin Oaks Reservoir Project sites. The closest Alquist-Priolo Earthquake Fault zone is the Elsinore Fault located approximately 18.5 and 12.8 miles northeast of the Lift Station #1 and the Twin Oaks Reservoir Project sites, respectively (California Geological Survey, 2017).

a.i) Potentially Significant Unless Mitigated. According to the State Fault Hazard Maps (CGS 2007), neither the Lift Station #1 nor the Twin Oaks Reservoir Project sites are located in an Alquist-Priolo Earthquake Fault Zone. No known active faults have been mapped on the sites or in the vicinity. The closest known active fault is the Elsinore Fault located approximately 18.5 and 12.8 miles northeast of the Lift Station #1 and the Twin Oaks Reservoir Project sites, respectively. Nonetheless, the proposed Project could be subject to a significant risk of fault rupture.

Ground shaking is the most common effect of earthquakes that adversely affects people and structures. The California Building Code defines different regions of the United States and ranks them according to their seismic hazard potential. All of San Diego County is located within Seismic Design Categories E and F, which have the highest seismic potential (VWD, 2019). Therefore, the proposed Project may be subject to the adverse effects of seismic ground shaking.

Implementation of the mitigation measure GEO-1 would reduce the exposure of people and VWD facilities to substantial adverse effects associated with seismically induced ground shaking, liquefaction potential, landslides, and expansive soils to a less than significant level. Additionally, the design and construction of the proposed solar generating components would comply with requirements of the California Building Code to address potential seismic-related hazards.

a. ii) Less Than Significant. Though the potential for damaging earthquakes in the project area is lower than is typical of Southern California, the threat of a severe earthquake occurring

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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that would result in strong earth shaking at the project site remains. The project proposes installation of PV systems which do not pose a threat of loss, injury, or death in the event of a ground shaking event. Impacts are considered less than significant.

a.iii) Less Than Significant. According to the Vallecitos Water District 2018 Water, Wastewater, and Recycled Water Master Plan Draft Program Environmental Impact Report (October 2018), none of the project sites are located within a liquefaction zone.

a.iv) Less Than Significant. Landslides are the downslope movement of geologic materials including soil and rock. The Project sites consist of relatively flat terrain and would have low risk associated with landslides. Proposed Project design and construction would comply with requirements of the California Building Code (CBC) Seismic Zone 4 design guidelines to address potential seismic-related ground failure hazards including landslides. Based on low potential for landslides at the sites and incorporation of applicable standards, potential Project impacts associated with seismic-related ground failure would be less than significant.

b) Less Than Significant With Mitigation Incorporated. Implementation of the proposed Project at Lift Station #1 would require the removal of existing vegetation, trenching, installation of ground mounted solar foundations within a one-acre portion of the vacant parcel. The Construction General Permit, which was adopted by the State Water Resources Control Board as Water Quality Order 2012-0006-DWQ on July 17, 2012, is required for soil disturbance activities that would be greater than 1 acre. Compliance with the General Construction Permit requires the development and implementation of a site-specific Storm Water Pollution Prevention Plan (SWPPP) by a Qualified SWPPP Developer and requires BMPs to be employed during construction to control soil erosion. Selection of erosion control BMPs is based on minimizing disturbed areas, stabilizing disturbed areas, and protecting water quality. Preliminary erosion control measures for the proposed Project would include, but would not be limited to, the use of hydraulic mulch, soil binders, geotextiles and mats; hydro seeding, straw mulch, earth dikes, and velocity dissipation devices. Development of the proposed Project at Lift Station #1 would require the preparation and implementation of a Stormwater Prevention Plan (Mitigation Measure GEO-1). With this measure, potential soil erosion impacts would be reduced to below a level of significance.

Disturbance of backfilled soil on the submerged rooftops of the Twin Oaks Reservoirs would be minimized to protect the integrity of the structures. While coverage under the General Construction Permit may not be required, select BMPs would also be implemented at this site to reduce erosion.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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c. and d) Less Than Significant with Mitigation Incorporated. See Response to Item a.iii above.

e) No Impact. The proposed Project would not require installation of wastewater treatment systems. Temporary portable restrooms would be provided for construction workers. Therefore, no impact related to septic systems would occur.

f.) Less Than Significant. The Lift Station #1 Project site is underlain by Young Alluvial Valley Deposits. The VWD service area contains one geologic unit of high paleontological sensitivity: the Santiago formation which is located along the southern portion of the VWD service area’s western boundary (VWD, 2019). Because the Lift Station #1 Project would not be located within a geologic unit of high paleontological sensitivity, it is not expected to contain recoverable paleontological resources and impacts would be less than significant. Because solar arrays would be located on the rooftop of the submerged water storage reservoirs, the Twin Oaks Reservoir PV Project has no potential to effect paleontological resources.

Mitigation

Mitigation Measure GEO-1: Prepare Site-specific Geotechnical Investigation. Prior to construction of the proposed Projects, site-specific geotechnical investigations shall be conducted to determine whether geologic or other hazardous conditions exist and, if so, provide recommendations for construction that would reduce the potential for damage. Areas of liquefaction; static or ground shaking-induced landslides, lateral spreading, subsidence, liquefaction, soil collapse, expansive soils, and/or mudslide potential shall be identified as part of the geotechnical investigations. The investigations shall specifically address foundation and slope stability in liquefiable, landslide, expansive soils and mudslide areas proposed for construction. Recommendations made in conjunction with the geotechnical investigations shall be implemented during construction.

Mitigation Measure GEO-2: Prepare and Implement a Stormwater Pollution Prevention Plan. VWD or its approved construction contractor shall file a Notice of Intent (NOI) with the San Diego Regional Water Quality Control Board, to discharge in compliance with the statewide National Pollutant Discharge Elimination System (NPDES) Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-009-DWQ, as amended by Order 2012-0006- DWQ). A certified Qualified SWPPP Developer (QSD) shall prepare a Storm Water Pollution Prevention Plan (SWPPP) and implement associated Best Management Practices (BMPs) that are specifically designed to reduce

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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construction-related erosion. Impacts would be less than significant with mitigation incorporated.

Cumulative Impacts

The Project poses no potentially significant project specific geohazard or erosion impacts; therefore, potential cumulative impacts would not be cumulatively considerable.

VIII. GREENHOUSE GAS EMISSIONS.

Would the project:

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Conflict with an applicable plan or policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

An Air Quality and Greenhouse Gas Analysis (Birdseye Consulting Group, 2019a; Appendix A) was prepared for the proposed Project to assess potential air quality impacts and greenhouse gas emissions. The analysis contained in this section is based on the findings of that technical report.

Existing Setting

Certain gases in Earth’s atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining Earth’s surface temperature. A portion of the solar radiation that enters the atmosphere is absorbed by Earth’s surface, and a smaller portion of this radiation is reflected toward space. This infrared radiation (i.e., thermal heat) is absorbed by GHGs within the atmosphere; therefore, infrared radiation released from Earth that otherwise would have escaped back into space is instead “trapped,” resulting in a warming of the atmosphere. This phenomenon, known as the “greenhouse effect,” is responsible for maintaining a habitable climate on Earth.

Without the naturally occurring greenhouse effect, Earth would not be able to support life as we know it. However, GHG emissions associated with human activities are likely responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of Earth’s atmosphere and oceans, with corresponding effects on global circulation patterns and climate (IPCC 2014).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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GHGs are present in the atmosphere naturally; are released by natural and anthropogenic (human-caused) sources; and are formed from secondary reactions taking place in the atmosphere. The following are GHGs that are widely accepted as the principal contributors to human-induced global climate change:

- carbon dioxide (CO₂)
- nitrous oxide (N₂O)
- hydrofluorocarbons
- perfluorocarbons
- methane (CH₄)
- sulfur hexafluoride

Global warming potential (GWP) is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to CO₂. The concept of CO₂ equivalents (CO₂e) is used to account for the different GWP potentials of GHGs to absorb infrared radiation. The GWP of a GHG is based on several factors, including the relative effectiveness of a gas in absorbing infrared radiation, and the length of time (i.e., lifetime) that the gas remains in the atmosphere (“atmospheric lifetime”). The reference gas for GWP is CO₂; therefore, CO₂ has a GWP of 1. The other main GHGs that have been attributed to human activity are CH₄, which has a GWP of 21, and N₂O, which has a GWP of 310 (UNFCC 2013). For example, 1 ton of CH₄ has the same contribution to the greenhouse effect as approximately 21 tons of CO₂. GHGs with lower emissions rates than CO₂ still may contribute to climate change because they are more effective at absorbing outgoing infrared radiation than CO₂ (i.e., high GWP).

Impacts of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and TACs. The quantity of GHGs that it takes ultimately to result in climate change is not known precisely; the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature, or to a global, local, or micro-climate. From the standpoint of CEQA, GHG-related effects to global climate change are inherently cumulative.

Mandatory Greenhouse Gas Reporting Rule

On October 30, 2009, the Environmental Protection Agency (EPA) published the final version of the Mandatory Greenhouse Gas Reporting Rule in the Federal Register. In general, compliance with this national reporting requirement provides EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons (MT) or more of CO₂ annually. An estimated 85 percent of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule. Subsequent rulings have expanded the emissions sources required to report emissions data, and now include oil and natural gas industries, industrial wastewater treatment plants, and industrial landfills.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Executive Order S-3-05

The goal of this Executive Order, enacted on June 1, 2005, is to reduce California’s GHG emissions to year 2000 levels by 2010, 1990 levels by 2020, and 80 percent below the 1990 levels by the year 2050. In 2006, this goal was reinforced with the passage of Assembly Bill (AB) 32.

Senate Bill 32 (SB 32) and Assembly Bill 197 (AB)

SB 32 and AB 197 (enacted in 2016) are companion bills that set new statewide GHG reduction targets, make changes to the California Air Resource Board’s (CARB) membership, increase legislative oversight of CARB’s climate change–based activities, and expand dissemination of GHG and other air quality–related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state’s climate policies. AB 197 added two members of the Legislature to CARB as nonvoting members; requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and toxic air contaminants from reporting facilities; and requires CARB to identify specific information for GHG emissions reduction measures when updating the Scoping Plan.

Local Regulations and CEQA Requirements

As referenced, pursuant to the requirements of SB 97, the Resources Agency has adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted CEQA Guidelines provide general regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents but contain no suggested thresholds of significance for GHG emissions. Instead, lead agencies are given the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts. The general approach to developing a Threshold of Significance for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move the state towards climate stabilization. If a project would generate GHG emissions above the threshold level, its contribution to cumulative impacts would be considered significant. To date, the Bay Area Air Quality Management District (BAAQMD), the South Coast Air Quality Management District (SCAQMD), and the San Joaquin Air Pollution Control District (SJVAPCD) have adopted quantitative significance thresholds for GHGs. However, in March 2013 the Bay Area’s thresholds were overruled by

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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the Alameda County Superior Court (California Building Industry Association v. Bay Area Air Quality Management District), on the basis that adoption of the thresholds constitutes a “project” under CEQA but did not receive the appropriate environmental review. As a result, BAAQMD has elected to not recommend specific GHG thresholds for use in CEQA documents.

The South Coast Air Quality Management District (SCAQMD) threshold, which was adopted in December 2008, considers emissions of over 10,000 metric tons CO₂E /year to be significant. However, the SCAQMD’s threshold applies only to stationary sources and is expressly intended to apply only when the SCAQMD is the CEQA lead agency. Although not formally adopted, the SCAQMD has developed a draft quantitative threshold for all land use types of 3,000 metric tons CO₂E /year (SCAQMD, September 2010). Note that lead agencies retain the responsibility to determine significance on a case-by-case basis for each specific project.

City of San Marcos Climate Action Plan

The VWD does not have a Climate Action Plan (CAP). Further, the County of San Diego does not have an approved CAP. Thus, for the purpose of demonstrating consistency with local efforts to reduce GHG emissions, the project is evaluated for consistency with the approved City of San Marcos CAP.

The CAP is a long-range plan to reduce GHG emissions from community activities and City government operations within San Marcos to support the State’s efforts under Executive Order S-3-05 and AB 32 and to mitigate climate-related impacts. In 2012, the City of San Marcos completed a comprehensive update to its General Plan, which includes goals, policies, and implementation programs that will reduce GHG emissions from both City operations and the community as a whole. General Plan Policy COS-4.4 and Implementation Program COS-4.2 specifically required the City to develop and implement a CAP for reducing GHG emissions. The City of San Marcos adopted the current CAP on September 10, 2013 and the CAP is currently being updated to comply with the State’s SB32 requirements to reduce GHG emissions to 40 percent below the 1990 levels by 2030.

Specifically, the current CAP does the following:

- Summarizes the results of the City of San Marcos GHG Emissions Inventory Update, which identifies the major sources and quantities of GHG emissions produced within San Marcos and forecasts how these emissions may change over time.
- Identifies the quantity of GHG emissions that San Marcos will need to reduce to meet the city’s targets 15 percent below 2005 levels by the year 2020 and 28 percent below

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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2005 levels by 2030, consistent with AB 32 and working toward the long-term goal identified in Executive Order S-3-05.

- Sets forth City government and community GHG reduction measures, including performance standards which, if implemented, would collectively achieve the specified emissions reduction targets.
- Identifies proactive strategies that can be implemented to help San Marcos prepare for anticipated climate change impacts.
- Sets forth procedures to implement, monitor, and verify the effectiveness of the CAP measures and adapt efforts moving forward.
- Section 3.3 of the CAP addresses energy related emissions. As stated in the CAP, energy use accounted for 45 percent of San Marcos’ total GHG emissions in 2005. These emissions result from the combustion of fossil fuel, primarily coal, oil, and natural gas, which is used to heat, cool, and provide power to residential, commercial, and industrial buildings and other facilities.

The CAP provides energy measures in Table 3-3 that identify strategies that have the potential to reduce San Marcos’ GHG emissions by 23,436 MT CO₂e by 2020 and by 68,388 MT CO₂e by 2030. Measure E-5 is the installation of small on-site solar generating facilities. This measure alone is estimated to reduce GHG emissions by 3,315 MT CO₂E in 2020 and 6,382 MT CO₂E in 2030.

Appendix E.2 of the CAP references the fact that there are no published statewide thresholds of significance for measuring the impact of GHG emissions generated by a proposed project. For this reason, the CAP contains project-level efficiency thresholds of 2.76 MT CO₂e per service population for projects built by 2020 and a threshold of 1.93 MT CO₂e per service population for projects built after 2020. If a project’s emissions are less than or equal to these emission thresholds, the project’s GHG impacts are deemed less than significant and further mitigation is not needed.

CEQA Guidelines Section 15064.7 indicates that “each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects.” Through the CAP process, the City of San Marcos has determined that applicants must demonstrate that individual projects will achieve consistency with a project-level GHG efficiency threshold of 2.76 MT CO₂E per service population for projects built by 2020 and 1.93 MT CO₂E per service population for projects built after 2020. Projects meeting the applicable threshold are determined to have a less than significant GHG impact.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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This analysis includes a quantification of total modeled construction-related GHG emissions. Those emissions are then amortized and evaluated as a component of the proposed Project’s operational emissions over the 30-year project life. The intent of this analysis to put project-generated GHG emissions into the appropriate statewide context regarding whether the proposed Project’s contribution of GHG emissions would reach the level that would have a considerable incremental contribution to global climate change. The GHG emission modeling results are included in Appendix A.

a) Less Than Significant.

Because VWD and the County of San Diego do not have adopted thresholds, the GHG emissions are discussed in terms consistency with the approved City of San Marcos CAP.

Construction-Related Impact

Project construction would generate short-term GHG emissions. Construction-related GHG emissions would be generated by vehicle engine exhaust from construction equipment, haul trips, and construction worker trips. GHG emissions generated by the proposed Project would consist primarily of CO₂. Emissions of other GHGs, such as CH₄ and N₂O, are important with respect to global climate change; however, even when considering the higher GWPs of these other GHGs, their contribution to total GHG emissions is small compared with CO₂ emissions from the proposed Project’s emission sources (i.e., construction equipment and on-road vehicles). However, where appropriate emission factors were available, emissions of CH₄ and N₂O were included in the analysis of the proposed Project.

Based on CalEEMod results project construction would generate approximately 129 MT CO₂e over the entire construction period, which would last up to 12 months. These emissions would include heavy-duty construction equipment, haul trucks, and construction worker vehicles. Operations of the projects would generate 83.1 MT Co₂e (Table 5). Given the total GHG emissions that would be generated over the lives of the projects (212.1 MT) and VWD’s service area population (103,323 persons), both projects combined would result in GHG emissions of 0.002 MT CO₂e per service population. This is far below the CAP threshold of 1.93 MT CO₂e and impacts would not be significant.

b) Less Than Significant.

None of the measures listed in ARB’s Climate Change Scoping Plan (ARB 2008), which contains the main strategies that California would use to achieve emission reductions necessary to meet the goals of AB 32, relate directly to project construction activities.

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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TABLE 5. PROJECT GHG EMISSIONS AND CAP SIGNIFICANCE THRESHOLDS

Emission Source	30 Year Emissions (MT CO2e)	Annual Emissions (MT CO2e)
Construction	129.0	4.30
Energy Use	0.0	0.00
Water Use	63.0	2.10
Solid Waste Emissions	0.3	0.01
Mobile Emissions (CO2 & CH4)	18.0	0.60
Mobile Emissions (N2O)	1.8	0.06
Total Project GHG Emissions (Construction + Operations)	212.1	7.07
VWD Population (1)	103,323	
Project's Emissions Threshold Per Service Area Population	0.00205	
City of San Marcos CAP Threshold (2)	1.93	
Does Project Exceed CAP Threshold of 1.93 MT CO2e	<i>No</i>	
Is GHG Impact Significant	<i>No</i>	

(1) As of June 20, 2018 (<http://www.vwd.org/about-us>).

(2) City of San Marcos Climate Action Plan Thresholds (Appendix E), 2013.

The scoping plan includes some measures that indirectly would address GHG emissions levels associated with construction activity, such as the phasing in of cleaner technology for diesel engine fleets (including construction equipment) and development of a low-carbon fuel standard. However, successful implementation of these measures primarily would depend on development of laws and policies at the State level. Those policies formulated under the mandate of AB 32 that would apply to project construction-related activity, either directly or indirectly, presumably would be implemented during project construction, if those policies in fact are developed and adopted before the start of project construction.

More importantly, as shown on Table 5, the proposed Project would generate GHG emission far below the City's CAP efficiency thresholds and therefore is consistent with this Plan. The proposed Projects would not conflict with the CAP or other policy or regulation for the purpose of reducing GHG emissions. Impacts under this criteria would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Mitigation

No mitigation would be required.

Cumulative Impacts

Impacts of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and TACs. The quantity of GHGs that it takes ultimately to result in climate change is not known precisely; the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature, or to a global, local, or micro-climate. From the standpoint of CEQA, GHG-related effects to global climate change are inherently cumulative.

IX. HAZARDS AND HAZARDOUS MATERIALS.

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
for people residing or working in the project area?				
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Existing Setting

The SWRCB GeoTracker and the California Department of Toxic Substances Control (DTSC) EnviroStor database were searched to identify toxic releases, hazardous waste, or other violations that could affect the Project sites (SWRCB 2019; DTSC 2019). The Project sites are not listed as a hazardous waste site in either of these databases.

In addition, the EPA’s Envirofacts database was searched. Envirofacts is an assemblage of databases, including the Comprehensive Environmental Response, Compensation, and Liability Act (commonly known as Superfund) Information System database, which includes National Priorities List sites being assessed under the Superfund program, hazardous waste sites, and potentially hazardous waste sites. The project site is not listed in the Envirofacts database (EPA 2019).

Wildfire Risk and Response

PRC 4201-4204 and Government Code 51175-51189 require identification of fire hazard severity zones in California. CAL FIRE has established a fire hazard severity classification system. Fire hazard severity zones are measured qualitatively, based on vegetation, topography, weather, crown fire potential (a fire’s tendency to burn upwards into trees and tall brush), ember production, and movement within the area being consumed.

Fire prevention areas considered to be under State jurisdiction are referred to as State Responsibility Areas (SRA). In such areas, CAL FIRE is required to delineate three hazard ranges: moderate, high, and very high. The Twin Oaks Reservoir Project site is within the San Diego County SRA and has been identified by CAL FIRE as being in a Moderate Fire Hazard Severity Zone (CAL FIRE 2007).

Fire Protection Services for the Twin Oaks Reservoir is provided by the County of San Diego Deer Spring Fire District (County of San Diego, 2019). Deer Springs Fire Protection District (DSFPD) provides structural fire protection, rescue, Emergency Medical Service (EMS) with

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Emergency Medical Technicians (EMTs), inspection, and fire prevention programs from three fire stations. ALS ambulance service is provided through the Valley Center ALS Ambulance Service Area. The station nearest Twin Oaks Reservoir is DSFPD Station No. 2, located at 1321 Deer Springs Road, approximately 3 miles southeast.

a. Less Than Significant.

Construction

Project construction would involve the storage, use, and transport of small amounts of hazardous materials (e.g., asphalt, fuel, lubricants, and other substances) on local roadways and regional highways. Regulations governing hazardous materials transport are stated in Title 22 of the California Code of Regulations and the California Vehicle Code (Title 13 of the California Code of Regulations). The transportation of hazardous materials also is subject to other local and federal regulations that have been designed specifically to minimize the risk of upset during routine construction activities. The State agencies with primary responsibility for enforcing federal and State regulations, and for responding to hazardous materials transportation emergencies, are the California Highway Patrol and Caltrans. Together, these agencies determine container types to be used and license hazardous waste haulers for transportation of hazardous waste on public roads.

Operation

The solar panels and inverters would produce no waste during operation. Solar panels are in a solid and non-leachable state and should a solar panel break it would not be a source of pollution and would not result in pollutants in stormwater. Solar panels would be cleaned twice a year by spraying water on the panels to remove dust and other material buildup. Cleaning water would infiltrate into the ground or evaporate as it drips off the solar panels. No cleaning agents would be used during this process.

Overall, the project would result in less than significant hazards related to the routine transport, use, or disposal of hazardous materials.

b) Less Than Significant.

Construction

With the exception of construction-related materials such as fuels, lubricants, adhesives, and solvents, the proposed Project would not generate or require the use or storage of hazardous substances. As described in the previous response, hazardous materials used in construction of the facility would be done in compliance with federal and state regulations that limit potential risks related to upset and accident conditions. In addition, no extremely hazardous substances

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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would be used, stored, transported, or disposed of during project construction. Thus, impacts related to the release of hazardous materials during construction would be less than significant.

Operation

Also, as described in the previous response, operation of the solar facility would not utilize hazardous materials. The solar panels used in the proposed Project consist of sealed collections of solar cells that require no chemicals and produce no waste materials. There is not a battery backup component, thus minimizing the need for transporting, using, or disposing of the hazardous materials that may be associated with the project. As such, impacts associated with a hazard to the public or the environment from the release of hazardous materials would not occur from operation of the project.

c) Less Than Significant. High Tech High School/Middle School/Elementary School and San Marcos High School are both within one-quarter mile of the Lift Station #1 Project site on the north and south sides of W. San Marcos Boulevard. However, the proposed PV solar system would not generate hazardous emissions, handle acutely hazardous materials, substances or waste. Potential hazardous impacts would be less than significant.

d) No Impact. As verified by the California Department of Toxic Substances Control database, the Project sites are not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Thus, no impacts would occur.

e) Less Than Significant. The Lift Station #1 PV project site is approximately 4.1 miles east of McClellan-Palomar Airport, within Review Area 2 of the McClellan-Palomar Airport Influence Area (San Diego County Airport Land Use Commission, 2010). Review Area 2 consists of locations within the airspace protection and/or overflight notification areas that limits the heights of structures, particularly in areas of high terrain, are the only restrictions on land uses within Review Area 2. Because the PV solar project would be unmanned and would not require permanent on-site employees, the safety of persons working at the site would not be affected and implementation of the Project would not result in a public safety hazard within an airport land use plan

The Twin Oaks Reservoir Project site is approximately 7.8 miles north east of McClellan-Palomar Airport and is not within in an airport land use plan.

f) No Impact. The PV systems are being installed on District-owned sites which would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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g) Less Than Significant. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

The Twin Oaks Reservoir Project site is located in an area susceptible to wildfires and has been identified by CAL FIRE as being in a Moderate Fire Hazard Severity Zone.

During project construction, equipment and on-site diesel engine use could pose a risk for wildfire. Sparks could result from operation of construction equipment; heated mufflers; or accidental ignition of oils, lubricants, and other combustible materials could occur, resulting in a fire. Construction-related activities such as steel cutting and welding also would be potential sources of ignition. However, contractors would be required to comply with Sections 4427, 4428, 4431, and 4442 of the PRC; during construction, they would be responsible for monitoring and implementing safety measures to prevent wildfires, in strict adherence to applicable PRC requirements. Therefore, the impact would be less than significant.

Mitigation

No mitigation would be required.

X. HYDROLOGY AND WATER QUALITY.

Would the project:

- | | | | | |
|---|--------------------------|-------------------------------------|-------------------------------------|--------------------------|
| a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner which would: | | | | |
| i) result in substantial erosion or siltation on- or off-site; | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

	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;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional resources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) Less than Significant With Mitigation Incorporated. Operation of the proposed solar facilities would not require the regular use of water or produce any form of wastewater. Waste Discharge Requirements per the Regional Water Quality Control Board (RWQCB) are not applicable to the project. As further explained below, the project would result in less-than-significant impacts related to the violation of water quality standards.

Construction

Implementation of the project has the potential to generate stormwater pollutants during the construction phase. Stormwater runoff from the project site could contain pollutants such as soils and sediments that are released during grading and excavation activities, as well as chemical and petroleum-related pollutants due to spills or leaks from heavy equipment and machinery. Other common pollutants that may result from construction activities include solid or liquid chemical spills; concrete and related cutting or curing residues; wastes from paints, sealants, solvents, detergents, glues, acids, lime, plaster, and cleaning agents; and heavy metals from equipment.

Hazardous materials (such as fuels, solvents, and coatings, among others) associated with construction activities would be stored and used in accordance with manufacturer’s specifications and applicable hazardous material regulations. However, soil disturbance (from construction activities associated with site grading, mounting of the solar panels, equipment installation, electrical conduit trenching, and scraping for the access roads) could cause soil erosion and the eventual release of sediment into stormwater runoff.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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The National Pollutant Discharge Elimination System (NPDES) permit program was established to control water pollution by regulating point sources that discharge pollutants into Waters of the U.S. Pursuant to Section 402(p) of the Clean Water Act (CWA), which requires regulations for permitting of certain stormwater discharges, the SWRCB issued the statewide NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No 2009- 009-DWQ, as amended), which became effective on July 1, 2010.

Under this Construction General Permit, individual NPDES permits or Construction General Permit coverage must be obtained for discharges of stormwater from construction sites with a disturbed area of one or more acres and are required to either obtain individual NPDES permits for stormwater discharges or be covered by the Construction General Permit. Compliance with SWPPP requirements is incorporated into the project as Mitigation Measure GEO-2.

Pursuant to permit requirements, the applicant will be required to implement the BMPs outlined in the project’s SWPPP, which would be implemented by Mitigation Measure GEO-2, which would limit the potential of construction-related pollutants in stormwater runoff. Compliance with this requirement would ensure that temporary water quality impacts associated with construction activities would be less than significant.

Operation

During operations, the project would not require the use of chemicals, hazardous materials, or other pollutants that could impact waters. Panels would be washed twice per year by spraying demineralized water to remove dust and other material buildup from the panels. Cleaning water (approximately 2 gallons per solar panel per year) would infiltrate into the ground or evaporate as it drips off the solar panels. No cleaning agents would be used during this process.

The solar panels and inverters would produce no waste during operation. Solar panels are in a solid and non-leachable state. Thus, should any solar panels break, it would not be a source of pollution in stormwater. Therefore, operational-period impacts related to water quality would be less than significant.

b) Less than Significant. The proposed Project would require a temporary source of water during the construction process as well as for panel washing during operations which would be imported to the site and not pumped from groundwater. This limited use of water would not have the potential to substantially deplete groundwater supplies.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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The Lift Station #1 PV project would include solar panels mounted on driven piles. This would result in a minor increase in imperviousness at the site but would not significantly impede groundwater recharge. Due to the negligible amount of water required for the project and the lack of significant new impervious area, impacts related to the depletion of groundwater supplies or interference with groundwater recharge would be less than significant.

c) Less than Significant. The Project sites do not include a stream, river, or creek, and do not involve any substantial alteration to the drainage pattern of the area. Major grading is not required at the Lift Station #1 Project site and the driven piles that would be used to support the solar panels would not create an impervious surface that would substantially re-route storm flows; rather, water would flow around each pile and continue in the same direction that currently prevails. Furthermore, the piles would not result in a new source of erosion or siltation. Therefore, impacts related to alteration of the drainage pattern of the area or an increase in runoff that results in erosion, siltation, or flooding on- or offsite, would be less than significant.

d) Less Than Significant. The Project Sites are not in proximity to any coastline and therefore are not subject to inundation by tsunamis, flood or seiche.

e) Less Than Significant. The proposed Project would not conflict with implementation of a water quality control plan or sustainable groundwater management plan. The proposed Project would not result in conditions that would alter or contribute to conflicts with an applicable water quality control plan or sustainable groundwater management plan. No impact would occur.

XI. LAND USE AND PLANNING.

Would the project:

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Physically divide an established community? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Existing Setting

The Lift Station #1 PV Project site is located in the City of San Marcos. Stand-alone, ground-mounted *renewable energy* systems are allowed within the “I” zone subject to a Conditional

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Use Permit (City of San Marcos, 2019). The Twin Oaks Reservoirs Project site is located in the County of San Diego. Within the County of San Diego, a photovoltaic solar energy system for onsite use is allowed as an accessory use to an industrial use in all zones (County of San Diego, 2014).

Each project would be implemented in a manner to ensure full compliance with the applicable local zoning requirements.

a) No Impact. Both the Lift Station #1 and the Twin Oak Reservoir Project sites are located at existing VWD facilities and would not divide any established community.

b) No Impact. Both Projects, as currently proposed, are consistent with the general plan and zoning designations and would not conflict with any land use plan, policy or regulation adopted for the purposes of avoiding or mitigating an environmental effect.

Cumulative Impacts

The project conforms with the existing General Plan and zoning designations. This is an infill project with a slight increase in site intensity. Therefore, the Project’s contribution to potential cumulative impacts would not be considerable.

XII. MINERAL RESOURCES.

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Existing Setting

Pursuant to the California Surface Mining and Reclamation Act (SMARA) of 1975, the California Geological Survey (CGS) classifies land through a mineral inventory process intended to ensure that important mineral deposits are identified and protected for future extraction. The State Geologist classifies mineral areas, Mineral Resource Zones (MRZ) as one of four zones: Mineral Resource Zone 1 (MRZ 1; mineral resources not present); Mineral Resource Zone 2 (MRZ 2; mineral resources present); Mineral Resource Zone 3 (MRZ 3;

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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mineral resources potentially present); and Mineral Resource Zone 4 (MRZ 4; mineral resources inconclusive).

According to the Revised Mineral Land Classification Map for Western San Diego County, the Lift Station #1 Project site is located within an MRZ-4 zone, and the Twin Oaks Reservoir Project site is located within an MRZ-3 Zone (California, 1996).

a. and b) No Impact. The Lift Station #1 PV System and the Twin Oaks Reservoirs PV System would be located on disturbed sites within existing VWD facilities and, therefore, would not result in the loss of availability of known mineral resources.

Neither the San Marcos General Plan nor the San Diego County General Plan identify the project sites for the Lift Station #1 PV System or the Twin Oaks Reservoir PV System Project sites as being within a mineral recovery site.

For this reason, implementation of the proposed Project would not result in the loss of availability of a known mineral resource that would be of value to the region or the residents of the state. Additionally, implementation of the proposed Project would not 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.

Mitigation

No mitigation would be required.

Cumulative Impacts

The proposed Project would not affect mineral resources and, therefore, the project’s contribution to cumulative mineral resource impacts would not be considerable.

XIII. NOISE.

Would the project result in:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Generation of excessive groundborne vibration or groundborne noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Existing Setting

The Lift Station #1 PV Storage System would be located at an existing VWD facility within the City of San Marcos that is surrounded on the north and east by industrial uses, on the south by vacant land, across W. San Marcos Boulevard, and on the east by the surface parking lot of the Rock Church. The Twin Oaks Reservoir Project site would be located at the Twin Oaks Reservoir within the County of San Diego’s Twin Oaks Valley Community Planning area. The Twin Oaks Reservoir Project site is adjacent to the San Diego County Water Authority’s Twin Oaks Valley Water Treatment Plant and is surrounded by rural and agricultural uses to the west, and vacant land to the south and east.

The closest the sensitive receptors are residences located approximately 500 feet west of Lift Station #1 Project site and 600 feet south/southeast of the Twin Oaks Reservoir Project site.

Lift Station #1 PV System is located in the City of San Marcos and is subject to the City of San Marcos Noise Ordinance. According to the City of San Marcos General Plan Noise Element, land use compatibility noise exposure limits is 60 decibels (dB(A)) CNEL/Ldn for exterior spaces at a majority of land use designations throughout the City.

Twin Oaks Reservoirs is located within San Diego County and would be subject to the County of San Diego Noise Ordinance for the R-R zone. The exterior noise standards limit one-hour dB(A) from 7:00 am to 10:00 pm to 50 dB(A) and from 10:00 pm to 7:00 am to 45 dB(A). The Noise Ordinance states that it shall be unlawful for any person to operate or cause to be operated (1) between the hours of 7:00 p.m. and 7:00 a.m.; (2) on a Sunday or a holiday; or (3) that exceeds an average sound level of 75 decibels for more than eight hours during any 24-hour period, when measured at the boundary line of or on any occupied property.

a) Less Than Significant.

Construction

The proposed Project would create noise during the 4-month construction process. The construction noise would be short-term and periodic in nature and generated by construction equipment, including trucks, graders, bulldozers, concrete mixers and portable generators, and

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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pile drivers. Pile driving and grading equipment would cause the loudest noise levels. Minimal grading would be required for the proposed Project. Construction noise levels generated by commonly-used grading equipment (i.e., loaders, graders, and trucks) generate noise levels that are identified in Table 6.

TABLE 6: TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

Construction Equipment	Noise Level at 50 Feet (dBA, Lmax)	Noise Level at 50 Feet (dBA, Leq)
Chain Saw	83.7	76.7
Compactor (Ground)	83.2	76.2
Concrete Pump Truck	81.4	74.4
Concrete Saw	89.6	82.6
Dozer	81.7	77.7
Dump Truck	76.5	72.5
Excavator	80.7	76.7
Front End Loader	79.1	75.1
Generator	80.6	77.6
Grader	85.0	81.0
Jackhammer	88.9	81.9
Paver	77.2	74.2
Pile Driver	101.0	95.0
Pneumatic Tools	85.2	82.2
Pumps	80.9	77.9
Scraper	83.6	79.6
Tractor	84.0	80.0

Source: FHWA, 2006.

Noise impacts would be significant if they caused a violation of any adopted standards. The project construction would occur during the daytime hours (7:00 a.m. to 6:00 p.m. Monday through Friday), which is within the allowable City and County construction hours. Therefore, impacts from construction would be less than significant.

Operations

During operations, noise would be generated by inverters located within the solar field. Typically, inverters generate noise levels of less than 55 dBA at a distance of 3 meters. The closest offsite sensitive receptors are 500 feet west of Lift Station #1 Project site and 600 feet south/southeast of the Twin Oaks Reservoir Project site. At these distances, inverter noise

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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would not be audible and would be well below the maximum 45 dBA nighttime ambient noise level criteria established by the Noise Element and the municipal code.

Additionally, during operations the facility would be unmanned, with no daily site visits by staff. Occasional visits by maintenance personnel and twice-annual cleaning that would result in a negligible noise increase and would be short-term and transitory. Therefore, operational noise impacts would be less than significant.

b) Less Than Significant. Project construction activities at the Lift Station #1 Project site may generate temporary groundborne vibration from equipment movement and operation. The Federal Transit Administration (FTA) has developed criteria for human annoyance, and the California Department of Transportation (Caltrans) has developed criteria for potential structural damage to adjacent buildings. To determine vibration impacts for human annoyance and structural damage, these FTA and Caltrans criteria are commonly applied as an industry standard. The FTA recommends 72 velocity decibels (VdB) at residential uses to avoid human annoyance (FTA 2018). Caltrans recommends 0.3-inch-per-second peak particle velocity (PPV) at residential uses, to avoid structural damage to newer buildings (Caltrans 2013).

Based on FTA reference vibration levels, the vibration level associated with the use of a large bulldozer is 0.089 inches per second PPV (87 VdB) at 25 feet. The nearest vibration-sensitive uses to project construction activities are located 500 feet west of Lift Station #1 Project site and 600 feet south/southeast of the Twin Oaks Reservoir Project site. At these distances, the highest vibration levels that would be generated by project construction equipment would attenuate to less than 0.003 PPV and 59 VdB. The vibration that would be generated by equipment is not anticipated to be excessive. The short-term project construction and long-term operation would not result in the exposure of individuals to or the generation of excessive groundborne noise or vibration levels. Therefore, construction-related vibration impacts would be less than significant.

Long-term operational-related activities associated with the proposed Project would not include any major new sources of groundborne noise or vibration.

c) No impact. McClellan-Palomar airport is the closest airport to the Lift Station #1 and the Twin Oaks Reservoir Project site. It is located 4.5 miles west of the Lift Station #1 Project site, and 8.5 miles west of the Twin Oaks Reservoir Project site. Because of their separation from the nearest airport and because the proposed PV projects would be “unmanned”, except for maintenance activities, the Project would not expose people residing or working in the area to excessive noise levels. No impact would occur.

Mitigation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Mitigation would not be required.

Cumulative Impacts

Based on the low potential noise- generating equipment, the Project’s contribution to cumulative noise impacts would not be considerable.

XIV. POPULATION AND HOUSING.

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| <p>a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of road or other infrastructure)?</p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <p>b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?</p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Existing Setting

The Lift Station #1 and the Twin Oaks Reservoir project sites are developed with the existing VWD facilities and do not have any housing.

a) No Impact. The proposed Lift Station #1 PV System and the Twin Oaks Reservoir PV System would be unmanned facilities that would not induce substantial population growth in the area either directly or indirectly. Workers would be present onsite during short-term temporary construction activities. Once operational, the PV energy generating and the battery storage facilities would be unmanned, with workers anticipated only for intermittent maintenance activities. Energy generated at the proposed PV solar facilities would be used to operate District facilities at the project sites and therefore would not indirectly induce unplanned population growth through the provision of a new energy resource. No impact would occur.

b) No Impact. The proposed Lift Station #1 PV System and the Twin Oaks Reservoirs PV System would be located at existing VWD Facilities. Neither would displace any existing housing units or require the displacement of any people, necessitating the construction of replacement housing elsewhere. No impact would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Mitigation

No mitigation would be required.

Cumulative Impacts

The proposed Project would not displace any existing housing, nor would it develop new housing or result in an increased demand for existing housing. Therefore, Project’s contribution to cumulative impacts on population and housing would not be considerable.

XV. PUBLIC SERVICES.

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

a) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Existing Setting

Fire Protection

Fire Protection Services for the City of San Marcos are provided from four (4) fire stations located throughout the City. The closest station to the Lift Station #1 Project site is Fire Station No. 2, located at 1250 S Rancho Santa Fe Road approximately 1.25 miles southwest. Fire Protection Services for the Twin Oaks Reservoir is provided by the County of San Diego Deer Spring Fire District (County of San Diego, 2019). Deer Springs Fire Protection District (DSFPD) provides structural fire protection, rescue, Emergency Medical Service (EMS) with Emergency Medical Technicians (EMTs), inspection, and fire prevention programs from three fire stations. ALS ambulance service is provided through the Valley Center ALS Ambulance Service Area. The station nearest Twin Oaks Reservoir is DSFPD Station No. 2, located at 1321 Deer Springs Road, approximately 3 miles southeast.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Police Protection

Police services for the City of San Marcos and the unincorporated communities surrounding the city, including the Twin Oaks Valley Community. Both the Lift Station #1 and the Twin Oaks Reservoir Project sites would be served by the Sheriff’s San Marcos Station, located at 182 Santar Place in the northeast quadrant of the City.

Public Schools

The Lift Station #1 Project site is located within the boundaries of the San Marcos Unified School District and the Twin Oaks Reservoir Project site is located within the Vista Unified School District. The schools nearest the Lift Station #1 Project sites are High Tech High School/Middle School/Elementary School and San Marcos High School, both which are approximately 0.17 miles due east of the site on the north and south sides of W. San Marcos Boulevard. The school nearest the Twin Oaks Reservoir Project Site is Rancho Minerva Middle School located approximately 1.75 miles southeast.

Public Parks

A variety of public parks exist in and around the City of San Marcos and the Twin Oaks Valley Community including 16 major community parks and 18 mini parks.

Other Facilities (Library Service)

The San Diego County Library system serves over one million residents in the County’s unincorporated communities as well as unincorporated cities, including, but not limited to the City of San Marcos.

a) Fire Protection – Less Than Significant. The proposed Project would install an unmanned PV solar system at the Lift Station #1 and the Twin Oaks Reservoir Project Sites. There would be no permanent onsite staffing that could require the need for emergency services. In addition, the Projects includes comprehensive safety measures that comply with federal and state worker safety and fire protection codes and regulations that would be verified during the permitting process. These features would minimize the potential for fires to occur during project construction and operations. Therefore, impacts related to fire protection would be less than significant.

b, c, d and e) Police Services, Schools, Public Parks and Libraries - No Impact. Impacts to police services, schools, public parks and libraries are generated by project-related population increases. The proposed Lift Station #1 PV System and the Twin Oaks Reservoir PV System would be unmanned facilities that would not induce substantial population growth in the area. Workers would be present onsite during short-term temporary construction activities; however, it is expected that the construction workforce would be comprised of local

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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residents from within the County of San Diego and nearby cities and would not create a permanent change in the local population. Once operational, the PV energy generating facilities would only be staffed with workers for intermittent maintenance activities. The proposed Projects would place no demand on police services, schools, parks, or other public service facilities.

Based on these factors, the proposed Projects would not result in the need for new or physically altered governmental facilities and no substantial adverse physical impacts associated with such governmental facilities would result.

Cumulative Impacts

The proposed Lift Station #1 PV System and the Twin Oaks Reservoir PV System would be unmanned facilities that would not induce substantial population growth that could generate increased demand for public services. The proposed Projects would not require the construction of new or physically altered governmental facilities and no substantial adverse physical impacts would occur. Therefore, the project’s contribution to cumulative impacts related to public services would not be considerable.

XVI. RECREATION.

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| <p>a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?</p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <p>b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which have an adverse physical effect on the environment?</p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Existing Setting

The Lift Station #1 and Twin Oaks Reservoir Project sites are located at existing VWD facilities in the city of San Marcos and the Twin Oaks Valley Community. Nearby recreational resources include the parks and open space with the San Marcos Creek Specific Plan Area, located south of W. San Marcos Boulevard. The Walnut Grove Barn & Park and the Brengle Terrace Park are located in the vicinity of the Twin Oaks Reservoir.

a. and b) No Impact. Impacts to police services, schools, public parks and libraries are generated by project-related population increases. The proposed Lift Station #1 PV System

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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and the Twin Oaks Reservoir PV System would be unmanned facilities and would not include housing that could result in increased demand for park and recreational facilities. No recreational facilities are included in the Project nor would it require the expansion of existing recreational facilities that could have an adverse impact on the environment. Therefore, no impacts on parks and recreational facilities are anticipated.

Cumulative Impacts

The proposed Lift Station #1 PV System and the Twin Oaks Reservoir PV System would be unmanned facilities that would not impact existing recreational facilities, add recreational facilities or generate substantial increased demand for park and recreational facilities. Therefore, the Project’s contribution to cumulative impacts on park and recreational facilities would not be considerable.

XVII. TRANSPORTATION.

Would the project:

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Result in inadequate emergency access? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Existing Setting

The Lift Station #1 Project site is located on W. San Marcos Boulevard, a four-lane to six-lane arterial that is generally oriented in an east-west direction. San Marcos Boulevard extends eastward from Business Park Drive through the City of San Marcos and terminates at Mission Road. W. San Marcos Boulevard is classified in the City of San Marco General Plan Circulation Element as a six-lane Prime Arterial (City of San Marcos, 2012).

Twin Oaks Valley Road, located approximately 1,200 feet east of the Twin Oaks Reservoir Project site, is classified as a Prime Arterial on the City of San Marcos Circulation Element

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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and a Major Roadway north of the City boundary on the County Circulation Element. Twin Oaks Valley Road is generally constructed as a four-lane, divided roadway north of San Marcos Boulevard to Buena Creek Road and as a two-lane roadway from Buena Creek Road to Deer Springs Road and north past the Twin Oaks Reservoir Project site. Twin Oaks Valley Road connects with State Route 78 (SR-78) approximately five miles south of the project site. Deer Springs Road, located approximately two miles southeast of the project site, is classified as a Major Roadway on the County Circulation Element. Deer Springs Road is currently constructed as a two-lane, undivided roadway from Twin Oaks Valley Road easterly to I-15.

SR-78 provides regional access to San Marcos as a six-lane major freeway facility, generally oriented in an east-west direction. Regional project access is provided at the Las Posas Road and San Marcos Boulevard interchanges with SR-78.

In the vicinity of the Lift Station #1 Project site, sidewalks exist along the project frontage on W San Marcos Boulevard. The nearest North County Transit District (NCTD) bus stop is located on W. San Marcos Boulevard, just west of the intersection with Pacific Street.

No sidewalks are provided on N. Twin Oaks Valley Road in the vicinity of the Twin Oaks Reservoir Project site and no bus service is provided in this area.

a and b) Less Than Significant. The proposed Projects would not increase traffic capacity or otherwise cause a substantial increase in traffic relative to existing conditions, would not exceed individually or cumulatively a level of service standard, or conflict with a congestion management plan or other applicable plans, policies or ordinances established for the performance of the circulation system.

The proposed Lift Station #1 PV System and the Twin Oaks Reservoir PV System would be unmanned facilities that would not generate frequent daily vehicle trips as part of long-term operations. Construction trips would occur over a five-month period for the Lift Station #1 Project and over a nine-month period for the Twin Oaks Valley Reservoir Project.

Trip generation for each project is expected to entail:

- One-time mobilization and demobilization of heavy equipment (e.g., excavator, backhoe) at the start and end of earthwork or other construction stage, as needed.
- One-time delivery of the major PV and battery storage system equipment components.
- Up to 15 worker vehicles per day (average) during sequential phases of construction work (civil, erection, and electrical)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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No vehicle parking would occur on surface streets unless necessary to complete a specific construction task (e.g., electrical interconnection to the SDG&E power lines).

After commissioning and during the operational life of the Projects most routine inspections of the system would occur concurrently with VWD inspections and maintenance (i.e., with no incremental vehicle trips). Additional incremental vehicle trips specifically for inspection or cleaning of the solar panels would typically occur twice per year. Due to the fact that the operational/maintenance trips would not occur on a daily basis, and the number of trips would be minimal, impacts would be less than significant.

The proposed Projects would not result in a change in air traffic patterns including either an increase in traffic levels or a change in location that results in a substantial safety risk. The proposed Projects would install PV solar facilities at existing VWD facilities and do not include changes to the existing circulation network. No changes to air traffic patterns would result from the proposed Projects. Therefore, no project airport related impacts would result.

c and d) No Impact. The proposed Projects would not substantially increase driving hazards due to a design feature or incompatible uses. Access routes to and from the Project sites would not be changed and no changes to the existing circulation network are proposed. Therefore, project impact would be less than significant.

Adequate emergency vehicle access is available to the Project sites and would not be modified by the proposed Projects.

The proposed Project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities or otherwise decrease the performance or safety of such facilities. Access to and from the Project sites from W. San Marcos Boulevard and from Twin Oaks Valley Road would remain the same. No changes to existing bike lanes or sidewalks are proposed. No emergency access impacts would occur.

Mitigation Measures

No mitigation would be required.

Cumulative Impacts

The proposed Lift Station #1 PV System and the Twin Oaks Reservoir PV System would be unmanned facilities that would require short-term construction-related traffic and then a very low volume of utility truck and passenger vehicle trips for routine inspections and maintenance. Given the current and projected traffic volumes, and the low volume of new trips

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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associated the project, the proposed Project’s contribution to potential cumulative impact to transportation and traffic conditions would not be considerable.

XVIII. TRIBAL CULTURAL RESOURCES.

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

- | | | | | |
|---|--------------------------|-------------------------------------|--------------------------|--------------------------|
| <p>a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or</p> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.</p> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Existing Setting

The Lift Station #1 PV Project site has been previously graded, is disturbed and subsurface deposits are most likely not present. The Twin Oaks Reservoir PV project would be installed on the rooftops of two submerged water storage tanks. The storage tanks do not have the potential to contain Tribal cultural resources as defined in Public Resources Code 21074.

Native American Consultation

On July 8, 2019, VWD contacted the Kwaaymii Laguna Band of Mission Indians, the Pala Band of Mission Indians, the Rincon Band of Luiseno Indians, the Rincon Band of Mission Indians, the San Luis Rey Band of Mission Indians, and the Torres Martinez Desert Cahuilla Indians, requesting a response if the groups are interested in consulting regarding the proposed Project in accordance with AB-52.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Other tribal groups on the NAHC list will be notified of the availability of this IS/MND and may request consultation with VWD if interested.

A sacred lands search was requested from the Native American Heritage Commission (NAHC) on July 8, 2019. The purpose of the search was to ascertain whether additional resources or locations exist that may be of importance to Native Americans who traditionally have resided in the project area. The NAHC responded on July 23, 2019, stating that a review of the sacred land files was negative.

a. and b) Less Than Significant with Mitigation Incorporated. Tribal cultural resources are defined in Public Resources Code 21074 as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

- Included or determined to be eligible for inclusion in the California Register of Historical Resources; or
- Included in a local register of historical resources as defined in subdivision (k) of Public Resources Code Section 5020.1.

AB 52 consultation letters were sent out to six tribal councils based on a list provided by the Native American Heritage Commission. Copies of the letters have been included as Appendix B to this Initial Study. The Rincon Band of Luiseno Indians requested consultation via email dated August 6, 2019 and the San Luis Rey Band of Luiseno Indians requested consultation via letter on August 7, 2019. No other response letters have been received to date. The Project involves limited ground disturbing activity within existing VWD facilities. No structures listed or eligible for listing are present on the either the Lift Station #1 or the Twin Oaks Reservoir Project site. The Lift Station #1 Project site has been previously disturbed and graded. There are no known archaeological resources on the site and no known burial sites have been identified within the project site. Minimal grading could be required prior to installation of the project.

Although the likelihood of encountering isolated archaeological resources is very low, mitigation measures CUL-1, CUL-2, and CUL-3 are recommended for the Lift Station #1 PV Project, in the unlikely event the proposed construction activities encounter remains. Impacts to tribal resources would be less than significant.

The Twin Oaks Reservoir PV project would be installed on the rooftops of two submerged water storage tanks. The tanks do not have the potential to impact tribal cultural resources defined by Public Resources Code 21074. No impacts would occur, and no mitigation would be required.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Cumulative Impacts

The proposed Project would not contribute to any cumulative permanent adverse impacts on tribal cultural resources.

XIX. UTILITIES AND SERVICE SYSTEMS.

Would the project:

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

a) Less Than Significant. The proposed Projects would not require the relocation or construction of new or expanded wastewater treatment or stormwater drainage facilities. The PV systems would be unmanned, and would be located at existing VWD facilities, both of which contain electric power and telecommunication facilities. During construction, portable toilets would be used for construction crews and wastewater facilities would not be required during construction or operation. As demonstrated throughout this IS/MND, mitigation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
--	--------------------------------------	--	------------------------------------	--------------

measures have been incorporated into the Projects to ensure that potentially significant impacts would be reduced to below a level of significance.

b) Less Than Significant. The project would require minimal water use for cleaning the panels, which is approximately 2 gallons per panel per year. The proposed Project would install a total of 6,390 solar panels (790 at Lift Station #1 and 5,600 at the Twin Oaks Reservoir). Thus, it is expected that approximately 12,780 gallons of water would be required to wash the panels each year (6,360 panels x 2 gallons per panel/year = 12,782 gallons). Water would be delivered by truck for this purpose. The Project would not be served by a direct connection to any water system, or by an on-site well. Because of the limited water supply requirements for the Project, sufficient water supplies would be available.

c) Less Than Significant. No employees would be permanently stationed at the site, and the solar facility does not include restrooms. The proposed Project would not require or result in the construction of new wastewater treatment facilities or expansion of existing facilities. The Project would require minimal water use for cleaning the panels, which is approximately 2gallons per panel per year. Because the Project sites would not require a permanent on-site workforce, no toilet facilities would be required and there would be no demand for wastewater service

d) Less Than Significant. Solid waste disposal in the City is provided by a private franchise hauler, EDCO Waste and Recycling (EDCO). Waste collected by EDCO is hauled to the Escondido Resource Recovery Transfer Station where it is then transported to the Sycamore Sanitary Landfill in Santee. The Escondido Transfer Station has a daily capacity of 2,500 tons and the Sycamore Sanitary Landfill has a daily permitted capacity of 3,965 tons/day of solid waste with an anticipated closure date of 2031.

The proposed Project consists of short-term waste generation limited to minor quantities of construction debris, most of which would be recyclable. The Sycamore Landfill has the capacity to accommodate the limited solid waste during construction process.

The panels would eventually need to be disposed of (decommissioned). Most parts of the proposed solar systems are recyclable. Panels typically consist of silicon, glass, and a metal frame. Panel structures typically consist of aluminum and concrete. These materials can be recycled. Concrete from deconstruction would be recycled through local recyclers. Metal and scrap equipment and parts that do not have free flowing oil would be sent for salvage. Equipment containing any free- flowing oil would be managed as hazardous waste and be evaluated before disposal at a properly-permitted disposal facility. Oil and lubricants removed

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
--	--------------------------------------	--	------------------------------------	--------------

from equipment would be managed as used oil and disposed in accordance with applicable hazardous waste disposal requirements.

e) No Impact. The Project would comply with all federal, state, and local statutes and regulation related to solid waste. The project would consist of short-term construction activities (with short-term waste generation limited to minor quantities of construction debris) and thus would not result in long- term solid waste generation. Solid wastes produced during the construction phase of this project, or during future decommissioning activities would be disposed of in accordance with all applicable statutes and regulations. Accordingly, anticipated impacts from the proposed Project related to landfill capacity and compliance with applicable regulations would be less than significant.

Mitigation

No mitigation would be required.

Cumulative Impacts

The proposed Project would not contribute to any cumulative permanent adverse impacts on utilities.

XX. WILDFIRE.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Substantially impair an adopted emergency response plan or emergency evacuation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Expose people or structures to significant risks, including downslope or downstream | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
--	--------------------------------	--	------------------------------	-----------

flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

a) No Impact. The proposed Project does not include any long-term or short-term modifications to the street system (i.e., road or lane closures, etc.). The Projects would not impact an emergency response plan or emergency evacuation plan.

b) No Impact. The proposed Projects would be installed at existing VWD facilities within area that are relatively flat. The proposed solar facilities would be unmanned with maintenance workers on-site only for intermittent maintenance activities. Therefore, the proposed Project would not expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. No impacts would occur.

c) No Impact. The proposed Projects would be installed at existing VWD facilities where infrastructure, powerlines and other utilities are already in place. Utility improvements required to collect energy generated by the solar arrays and transfer it to the SDG&E grid would be installed within the boundaries of VWD properties and would have no impact on fire risks.

d) No impact. The proposed Project would not include any habitable structures and would change the slope of the Project sites. Project implementation would not expose people or structures to significant risks because of runoff, post-fire slope instability, or drainage changes. The impact would be less than significant.

Mitigation

No mitigation would be required.

Cumulative Impacts

The proposed Project would not contribute to any cumulative permanent adverse impacts on utilities.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE.

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| <p>a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially</p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?				<input checked="" type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current project, and the effects of probable future projects.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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7.0 PREPARERS

The following professional staff participated in the preparation of this IS/MND.

CIP Engineering - Vallecitos Water District

Robert Scholl, P.E. – Senior Engineer, Development Services

BRG Consulting, Inc.

Erich R. Lathers, Principal-in-Charge

Christina J. Willis, Project Manager and Principal Investigator

Rachel Rowe, Environmental Planner and GIS Analyst

John Addenbrooke, Document Production Manager

Birdseye Consulting Group (Air Quality/GHG)

Ryan Birdseye, Principal

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8.0 MITIGATION MONITORING AND REPORTING PROGRAM

Vallecitos Water District District-Wide Solar Program

The Vallecitos Water District will adopt this Mitigation Monitoring and Reporting Program (MMRP) in accordance with Public Resources Code (PRC) Section 21081.6 and Section 15097 of the California Environmental Quality Act (CEQA) Guidelines. The purpose of the MMRP is to ensure that the District-Wide Solar Program, which is the subject of the Mitigated Negative Declaration (MND), complies with all applicable environmental mitigation requirements. The mitigation measures for the project will be adopted by the Vallecitos Water District, in conjunction with the adoption of the MND. The mitigation measures have been integrated into this MMRP. Within this document, the approved mitigation measures are organized and referenced by subject as presented on Table 7. The specific mitigation measures are identified, as well as the method and timing of verification and the responsible party that will ensure that each action is implemented.

Public Resources Code Section 21081.6 requires the Lead Agency, for each project that is subject to CEQA, to monitor performance of the mitigation measures included in any environmental document to ensure that implementation does, in fact, take place. The Vallecitos Water District is the designated lead agency for the MMRP. The Vallecitos Water District is responsible for review of all monitoring reports, enforcement actions, and document disposition. The Vallecitos Water District will rely on information provided by the monitor as accurate and up to date and will field check mitigation measure status as required.

A record of the MMRP will be monitored at Vallecitos Water District, 201 Vallecitos De Oro, San Marcos, CA 92069. All mitigation measures contained in the MND shall be made conditions of the project as may be further described below:

TABLE 7. MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Method of Verification	Timing of Verification				Responsible Party	Completed	
		Design	Pre Const.	During Const.	Post Const.		Initials	Date
LIFT STATION #1 PV								
<p>Mitigation Measure CUL-1 Construction Monitoring for Unanticipated Discoveries.</p> <p>The project’s grading and construction plans and specifications shall state that full-time monitoring by a qualified archaeologist shall be conducted during the initial grubbing and ground disturbance at the Lift Station #1 PV Project site. The project archaeologist, in coordination with the VWD, may re-evaluate the necessity for monitoring after the initial five feet of excavations have been completed. In the event that archaeological resources are inadvertently discovered during ground-disturbing activities, work must be halted within 50 feet of the find until it can be evaluated by a qualified archaeologist. Construction activities could continue in other areas. If the discovery proves to be significant, additional work, such as data recovery excavation or fossil recovery, may be warranted and would be discussed in consultation with the appropriate regulatory agency(ies).</p> <p>Native American tribes shall be given the opportunity to provide one or more certified cultural monitors for the Project during all excavation or earth-moving within the Project site in Holocene-aged deposits. The Construction Contractor shall give the tribe’s Preservation Officer (PO) or other designated representative two weeks’ notice and shall provide a copy of such notice to the VWD.</p>	Monitoring and Report Preparation		X	X		Vallecitos Water District		
<p>Mitigation Measure CUL-2: Human Remains.</p> <p>Procedures of conduct following the discovery of human remains on non-federal lands have been mandated by California Health and Safety Code §7050.5, California Public Resources Code §5097.98, and California Code of Regulations (CCR) §15064.5(e). Should human remains be encountered, all work in the immediate vicinity of the burial must cease, and any</p>	Monitoring		X	X		Vallecitos Water District		

TABLE 7. MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Method of Verification	Timing of Verification				Responsible Party	Completed	
		Design	Pre Const.	During Const.	Post Const.		Initials	Date
necessary steps to ensure the integrity of the immediate area must be taken. The San Diego County Coroner will be immediately notified. The Coroner must then determine whether the remains are Native American. If the Coroner determines the remains are Native American, the Coroner has 24 hours to notify the NAHC, who will, in turn, notify the person they identify as the most likely descendent (MLD) of any human remains. Further actions will be determined, in part, by the desires of the MLD. The MLD has 48 hours to make recommendations regarding the disposition of the remains following notification from the NAHC of the discovery. If the MLD does not make recommendations within 48 hours, the owner shall, with appropriate dignity, reinter the remains in an area of the property secure from further disturbance. Alternatively, if the owner does not accept the MLD’s recommendations, the owner or the descendent may request mediation by the NAHC.								
Mitigation Measure CUL-3: Avoid Potential Effects on Undiscovered Burials.								
The VWD shall implement the following measures to reduce or avoid impacts related to undiscovered burials. In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, all potentially damaging ground-disturbance in the area of the burial and a 100-foot radius shall halt and the San Diego County Coroner shall be notified immediately. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, then Federal laws governing the disposition of those remain would come into effect. Specifically, the Native American Graves Protection and Repatriation Act (NAGPR).	Monitoring and Report Preparation		X	X		Vallecitos Water District		

TABLE 7. MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Method of Verification	Timing of Verification				Responsible Party	Completed	
		Design	Pre Const.	During Const.	Post Const.		Initials	Date
<p>California law also recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. VWD shall ensure that the procedures for the treatment of Native American human remains contained in California Health and Safety Code Sections 7050.5 and 7052 and Public Resources Code Section 5097 are followed.</p>								
<p>Mitigation Measure GEO-1: Prepare Site-specific Geotechnical Investigation.</p>								
<p>Prior to construction of the proposed Projects, site-specific geotechnical investigations shall be conducted to determine whether geologic or other hazardous conditions exist and, if so, provide recommendations for construction that would reduce the potential for damage. Areas of liquefaction; static or ground shaking-induced landslides, lateral spreading, subsidence, liquefaction, soil collapse, expansive soils, and/or mudslide potential shall be identified as part of the geotechnical investigations. The investigations shall specifically address foundation and slope stability in liquefiable, landslide, expansive soils and mudslide areas proposed for construction. Recommendations made in conjunction with the geotechnical investigations shall be implemented during construction.</p>	Monitoring and Report Preparation		X			Vallecitos Water District		
<p>Mitigation Measure GEO-2: Prepare and Implement a Stormwater Pollution Prevention Plan.</p>								
<p>VWD or its approved construction contractor shall file a Notice of Intent (NOI) with the San Diego Regional Water Quality Control Board, to discharge in compliance with the statewide National Pollutant Discharge Elimination System (NPDES) Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-009-DWQ, as amended by Order 2012-0006- DWQ). A certified Qualified SWPPP Developer (QSD) shall prepare a Storm Water Pollution Prevention Plan (SWPPP) and implement associated</p>	Monitoring and Report Preparation		X			Vallecitos Water District		

TABLE 7. MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Method of Verification	Timing of Verification				Responsible Party	Completed	
		Design	Pre Const.	During Const.	Post Const.		Initials	Date
<p>Best Management Practices (BMPs) that are specifically designed to reduce construction-related erosion. Impacts would be less than significant with mitigation incorporated.</p>								
<p><i>TWIN OAKS RESERVOIRS PV</i></p>								
<p>Mitigation BIO-1: Conduct Pre-Construction Surveys for Raptors and Migratory Birds.</p> <ul style="list-style-type: none"> If construction activities at the Twin Oaks Reservoir PV Project site occur between February 1 and August 15, VWD shall have a qualified biologist conduct preconstruction surveys of trees located immediately south and west of the Project site for active nests of raptors and MBTA protected birds within 10 days of construction. Surveys for nesting raptors shall be conducted in accordance with established CDFW raptor survey protocols. If no active nests are found, PV solar array installation and other construction-related activities may proceed without further studies or mitigative actions. If active nests are found, the biologist will establish avoidance buffers around nests that are sufficient so that breeding is not likely to be disrupted or adversely affected by construction. An avoidance buffer will constitute an area where project-related activities (i.e., vegetation removal, earth moving, and construction) shall not occur. Typical avoidance buffers during the nesting season shall be 100 feet for nesting passerine birds and 500 feet for nesting raptors unless a qualified biologist, in consultation with USFWS and/or CDFW, determines that smaller buffers will be sufficient to avoid impacts on nesting raptors and/or other birds. A qualified biologist shall monitor any active nests during construction, to ensure that the species is not being harmed or harassed by noise or other activities stemming from project-related construction. Buffer shall be maintained by VWD until a qualified biologist, in consultation with USFWS and/or CDFW, has determined that young have 	Monitoring and Report Preparation		X			Vallecitos Water District		

TABLE 7. MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Method of Verification	Timing of Verification				Responsible Party	Completed	
		Design	Pre Const.	During Const.	Post Const.		Initials	Date
fledged and are no longer reliant on the nest or parental care for survival.								
<p>Mitigation Measure GEO-1: Prepare Site-specific Geotechnical Investigation.</p> <p>Prior to construction of the proposed Projects, site-specific geotechnical investigations shall be conducted to determine whether geologic or other hazardous conditions exist and, if so, provide recommendations for construction that would reduce the potential for damage. Areas of liquefaction; static or ground shaking-induced landslides, lateral spreading, subsidence, liquefaction, soil collapse, expansive soils, and/or mudslide potential shall be identified as part of the geotechnical investigations. The investigations shall specifically address foundation and slope stability in liquefiable, landslide, expansive soils and mudslide areas proposed for construction. Recommendations made in conjunction with the geotechnical investigations shall be implemented during construction.</p>	Monitoring and Report Preparation		X			Vallecitos Water District		

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A

**Air Quality and
Greenhouse Gas
Analysis**

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VALLECITOS WATER DISTRICT DISTRICT-WIDE SOLAR PROGRAM

AIR QUALITY STUDY

Prepared for:

BRG Consultants, Inc.

Prepared by:



July 2019

VALLECITOS WATER DISTRICT DISTRICT-WIDE SOLAR PROGRAM SAN MARCOS, CALIFORNIA

AIR QUALITY and GREENHOUSE GAS STUDY

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Appendix A CalEEMod Air Quality and Greenhouse Gas Emissions Model Results –
Summer/Annual, and N₂O from Mobile Emissions Sources

VALLECITOS WATER DISTRICT DISTRICT-WIDE SOLAR PROGRAM VISTA, CALIFORNIA

AIR QUALITY and GREENHOUSE GAS STUDY

This report is an analysis of the potential air quality and greenhouse gas impacts associated with the proposed Vallecitos Water District, District-Wide Solar Program. This report has been prepared by Birdseye Planning Group (BPG) under contract to BRG Consultants, Inc., to support preparation of the environmental documentation pursuant to the California Environmental Quality Act (CEQA). This study analyzes the potential for temporary impacts associated with construction activity and long-term impacts associated with operation of the proposed project.

PROJECT DESCRIPTION

The Vallecitos Water District's (VWD) District-Wide Solar Project (the Project or proposed project) consists of constructing and operating of fixed-tilt solar panel arrays at two existing VWD facilities; Lift Station #1 and the Twin Oaks Reservoir. Fixed-tilt photovoltaic solar panel arrays use photovoltaic (PV) technology to convert sunlight into direct current (DC) electricity. Alternating current (AC) wire and conduit will provide solar-generated electrical power to the VWD infrastructure located at each site. The project may also include the installation of an energy storage system at Lift Station #1. The scope of improvements proposed for each site is discussed below.

Lift Station #1. VWD proposes to install a PV solar generating and Battery Energy Storage System (BESS) at Lift Station #1 located at 1368 West San Marcos Boulevard in the City of San Marcos, California (Figure 1). The project site of the proposed Lift Station #1 PV and BESS consists of a concrete block pump house on the south end of the property adjacent to the main entrance, and an approximately 2.5 acre vacant and previously graded parcel north of the lift station facilities. The proposed project would install and operate a 269-kilowatt (kW) PV solar power generation facility sited within the western one-acre of the vacant parcel. Interconnection with the San Diego Gas & Electric (SDG&E) grid would be via an underground electrical line to an existing meter within the Lift Station complex. Project features include installation of fix-tilt trackers approximately 7.7 feet in height, installation of arrays providing approximately 790 solar panels, string inverters, underground conduits, and associated electrical equipment. The array field would be surrounded by a new 5,250 linear foot, 6-foot high chain link fence. The site is surrounded on the north and east by industrial uses, on the south by vacant land and on the east by a church. The project site is graded and completely disturbed.

Construction of the PV system is anticipated to last approximately 5 months and would include mobilization, site preparation and grading, construction and panel installation. Site preparation would include the clearing of vegetation and grading. Shallow trenching would occur to install

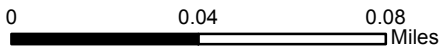


SOURCE: SanGIS, 2018; Vallecitos Water District Solar Energy & Battery Storage Feasibility Assessment Findings Report, 2018

Project Location - Lift Station #1 and Battery Storage

District-Wide Solar Program

Figure 1



cable conduit between the solar units, inverters and the step-up transformer. The arrays for the Lift Station #1 PV System would be installed with pile driven foundation systems that would extend 5 to 15 feet below the ground surface. During construction, water would be used for dust suppression and soils conditioning during ground disturbing activities.

After construction, the PV facilities would be fully automated. Maintenance would require staff to clean the panels and use of a water truck to supply the wash water. Maintenance staff would visit the site on an as-needed basis to inspect and address any repair requirements.

As referenced, VWD may also install a BESS at Lift Station #1. For purposes of discussion, it is assumed that the project would include installation of one modular BESS, with a capacity of up to 300 kW, within the proposed Lift Station #1 PV site. The modular battery storage system would be installed in an enclosure measuring 40 feet long, eight wide, and 9.5 feet high. The battery storage containers would be constructed on existing previously graded soil. The storage containers would rest on six footings (one on each corner of the container and two in the midsection). Excavation and earthwork activities would be required for placement of the footings and trenching for installation of the underground wiring and cables. Dust generation would be controlled by watering disturbed areas. When in operation, the proposed battery system would store and dispatch power to meet electrical demand. The proposed site plan is shown in Figure 2.

Twin Oaks Reservoir PV System. The Twin Oaks Reservoirs are located at 3566 N. Twin Oaks Valley Road) within the Twin Oaks Valley Community Planning area in unincorporated San Diego County (Figure 3). Twin Oaks Reservoir #1 and #2 are two in-ground circular potable water storage reservoirs located on a 29-acre site. Surrounding land uses include rural and agricultural uses to the west, and vacant land to the south and east. The reservoirs are buried prestressed concrete storage tanks with a 30-inch layer of soil covering 18-inch thick concrete roofs. Approximately 5.5 acres of open area are available on the rooftops which could support approximately 1.9 mega-watts (MW) of low profile, self-ballasted, fixed-tilt solar arrays with racking systems. Ballasting blocks would be used to hold the PV racking system in place to avoid installing anchors through the earthen cap into the concrete roof. The project would install fix-tilt trackers approximately 12 inches in height; installation of arrays providing approximately 5,600 solar panels, string inverters, underground conduits, and associated electrical equipment. Interconnection with the San Diego Gas & Electric (SDG&E) grid would be via an underground electrical line to an existing meter just south of the reservoirs.

Construction of the PV system is anticipated to take approximately 9 months to complete and would include mobilization, site preparation, construction and panel installation. Disturbed areas would be watered daily for construction-related dust suppression using water trucked to the site. The operation and maintenance for the Twin Owns Reservoir PV System would be similar to that described above for the Lift Station #1 PV System. The proposed site plan is shown in Figure 4.

For the purpose of this analysis, it is assumed that construction would occur over a period of 14 months with approximately one-half acre of land disturbed daily for site preparation, trenching, and installation of the conduit and solar panel racks. Operation and maintenance emissions are



SCALE: 1:700

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700 LARKSPUR LANDING CIRCLE, STE 140
LARKSPUR, CA 94039
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SYSTEM DETAILS:

MODULE SPECIFICATION	
Manufacturer:	Canadian Solar
PV Module:	CS6U-340M
Open Circuit Voltage (V):	46.2
Voltage Temp. Coeff. (1/C):	-2.11
Load Voltage (V):	37.98
Load Current (A):	8.97
Short-Circuit Current (A):	9.48
INVERTER SPECIFICATION	
Inverter Brand:	SOLECTRIA
Inverter Model:	PH-80TL-40C (81)
nom. AC Voltage (V):	480
Max. Input Current (A):	120
Min. Voltage Start-Up (V):	200
Max. Input Voltage (V):	1000
SYSTEM SPECIFICATION	
DC System Size (kW):	369.38
Total Number of Modules:	752
DC System Nameplate (kW):	200.00
Total Number of Inverters:	4
Array Grounding (Type):	2SC
Array TR (Deg):	20
CEC System Rating (kW):	248.41



NO.	REVISION / ISSUE	DATE
0.	INTERCONNECTION APPLICATION	27-Dec-17

PROJECT NAME:
VALLECITOS WD - LIFT STATION
1388 W San Marcos Blvd
San Marcos, CA 92078

SUPPLIER NAME:

PROJECT ID#:

LOCATION:
1388 W San Marcos Blvd
San Marcos, CA 92078

GPS COORDS:
33.1324259, -117.2004575

DRAWING TITLE: SITE PLAN

AUTOCAD FILE NAME: VALLECITOSWD-NEM_PV_12.27.17	SHEET: A001
PLOT FILE NAME: VALLECITOSWD-NEM_PV_12.27.17	PLOT DATE: 27-Dec-17
DRAWN BY: FJ	CHECKED BY: JP
SCALE:	PLOT TIME: 17:32

SOURCE: Terra Verde, 2017



Lift Station #1 and Battery Storage Site Plan
District-Wide Solar Program
Figure 2



Legend

Project Parcel

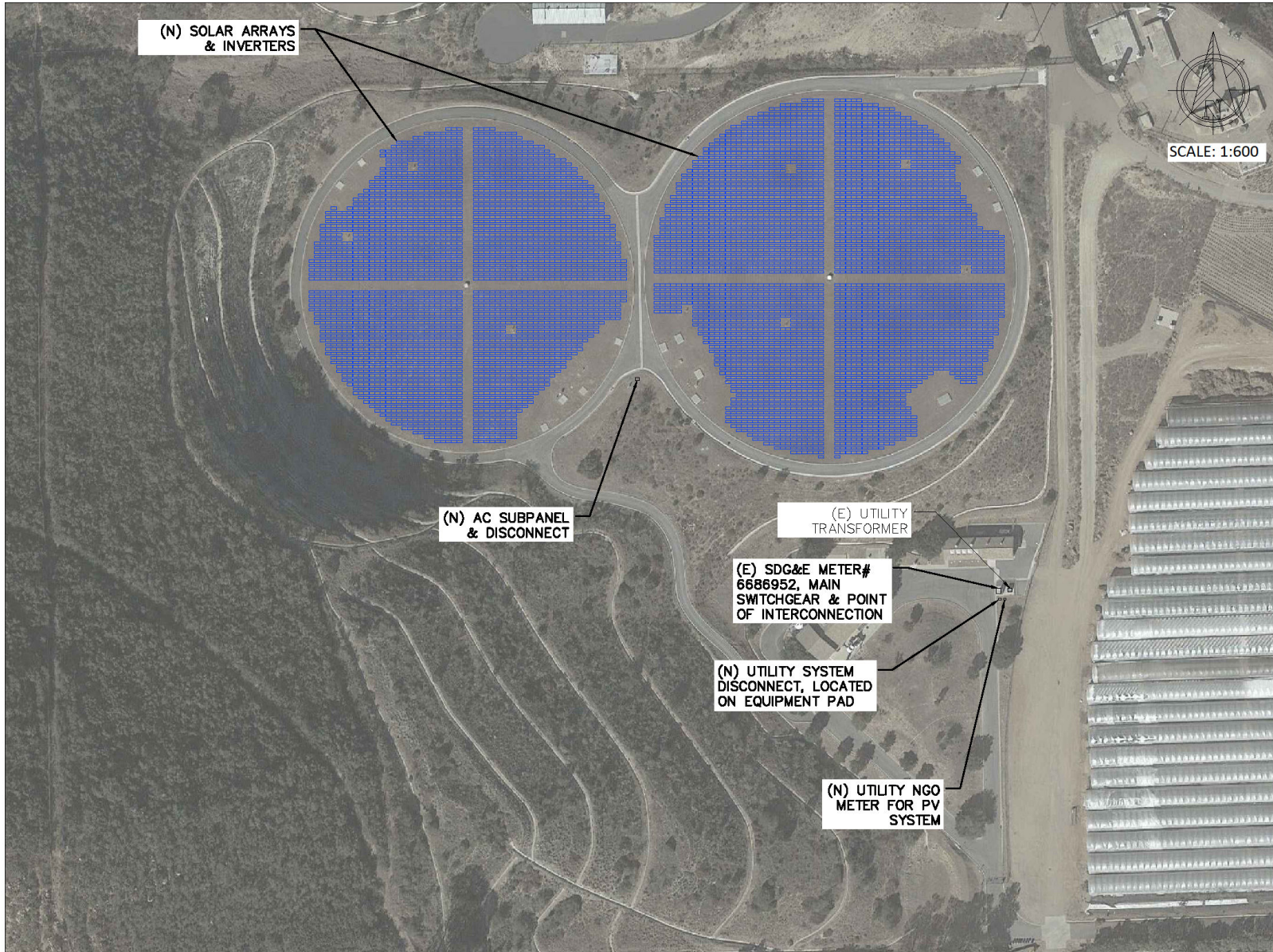
SOURCE: SanGIS, 2018; Vallecitos Water District Solar Energy & Battery Storage Feasibility Assessment Findings Report, 2018

BRG
BRG CONSULTING, INC.

N

0 0.05 0.1 Miles

Project Location - Twin Oaks Reservoir
District-Wide Solar Program
Figure 3



TerraVerde
Renewable Partners

700 LARKSPUR LANDING CIRCLE, STE 140
LARKSPUR, CA 94039
888-318-2597
WWW.TVRP.LLC.COM

SCALE: 1:600

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PV SYSTEM DETAILS:

MODULE SPECIFICATION	
Manufacturer	Canadian Solar
Module	CS60144M
Open Circuit Voltage (V)	46.2
Voltage Temp. Coeff. (%/°C)	-0.31
Load Voltage (V)	37.30
Load Current (A)	6.97
Short-Circuit Current (A)	7.45
INVERTER SPECIFICATION	
Inverter Brand	SOLEC-R1A
Inverter Model	PV5-80TL-480TS-1
Max. AC Voltage (V)	480
Max. Inlet Current (A)	10
Max. Output Voltage (V)	200
Max. Output Current (A)	400
SYSTEM SPECIFICATION	
DC System Size (kW)	1,693.92
Total Number of Modules	3568
AC System (in MWdc level)	1,599.00
Total Number of Inverters	25
Array Spacing (Deg)	80
Array Tilt (Deg)	10
CEC System Rating (kW)	1,727.85

NO.	REVISION / ISSUE	DATE
0.	INTERCONNECTION APPLICATION	28-Dec-17

PROJECT NAME:
VALLECITOS WATER DISTRICT - RESBCT
3896 El Paso Alto
San Marcos, CA 92069

SUPPLIER NAME:

PROJECT ID#:

LOCATION:
3896 El Paso Alto
San Marcos, CA 92069

GPS COORDS:
33.2107167, -117.177282

DRAWING TITLE:
SITE PLAN

AUTOCAD FILE NAME: VALLECITOSWD_RESBCT_PV_12.26.17	SHEET: A001
PLOT FILE NAME: VALLECITOSWD_RESBCT_PV_12.26.17	PLOT DATE: 28-Dec-17
DRAWN BY: FJ	CHECKED BY: JP
	PLOT TIME: 16:23

SOURCE: Terra Verde, 2017



Twin Oaks Reservoir Site Plan
District-Wide Solar Program
Figure 4

conservatively estimated assuming an aggregate of one vehicle trip daily to inspect and maintain both systems. It is assumed that project construction would begin in early 2020 and both systems would be fully operational in early 2021.

SETTING

California Air Resources Board

CARB, which became part of the California EPA (CalEPA) in 1991, is responsible for ensuring implementation of the California Clean Air Act (CCAA), meeting state requirements of the federal Clean Air Act and establishing California Ambient Air Quality Standards (CAAQs). It is also responsible for setting emission standards for vehicles sold in California and for other emission sources such as consumer products and certain off-road equipment. CARB also established passenger vehicle fuel specifications and oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county level. The CCAA is administered by CARB at the state level and by the Air Quality Management Districts at the regional level. Federal and state standards have been established for six criteria pollutants, including ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulates less than 10 and 2.5 microns in diameter (PM₁₀ and PM_{2.5}), and lead (Pb). California has also set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Both state and federal standards are summarized in Table 1. The federal "primary" standards have been established to protect the public health. The federal "secondary" standards are intended to protect the nation's welfare and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the general welfare.

Table 1
State and Federal Ambient Air Quality Standards

POLLUTANT	AVERAGE TIME	CALIFORNIA STANDARDS ¹		NATIONAL STANDARDS ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Ozone ⁸ (O ₃)	1 hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 hours	0.070 ppm (137µg/m ³)		0.070 ppm (137 µg/m ³)		
Carbon Monoxide (CO)	8 hours	9.0 ppm (10 mg/m ³)	Non-Dispersive Infrared Spectroscopy (NDIR)	9 ppm (10 mg/m ³)	--	Non-Dispersive Infrared Spectroscopy (NDIR)
	1 hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)		
Nitrogen Dioxide (NO ₂) ¹⁰	Annual Average	0.030 ppm (57 µg/m ³)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 hour	0.18 ppm (339 µg/m ³)		100 ppb (188 µg/m ³)		

Vallecitos Water District
District-Wide Solar Program Air Quality and Greenhouse Gas Study

POLLUTANT	AVERAGE TIME	CALIFORNIA STANDARDS ¹		NATIONAL STANDARDS ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Sulfur Dioxide (SO ₂) ¹¹	Annual Average	--	Ultraviolet Fluorescence	0.03 ppm (80 µg/m ³)	--	Pararosaniline
	24 hours	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)	--	
	3 hours	--		--	0.5 ppm (1300 µg/m ³)	
	1 hour	0.25 ppm (655 µg/m ³)		75 ppb (196 µg/m ³)	--	
Respirable Particulate Matter (PM ₁₀) ⁹	24 hours	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	150 µg/m ³	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		--	--	
Fine Particulate Matter (PM _{2.5}) ⁹	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	12 µg/m ³	15 µg/m ³	Inertial Separation and Gravimetric Analysis
	24 hours	--		35 µg/m ³	Same as Primary Standard	
Sulfates	24 hours	25 µg/m ³	Ion Chromatography	--	--	--
Lead ^{12, 13} (Pb)	30-day Average	1.5 µg/m ³	Atomic Absorption	--	--	High Volume Sampler and Atomic Absorption
	Calendar Quarter	--		1.5 µg/m ³	Same as Primary Standard	
	3-month Rolling Average	--		0.15 µg/m ³		
Hydrogen Sulfide (H ₂ S)	1 hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence	--	--	--
Vinyl Chloride ¹²	24 hours	0.010 ppm (26 µg/m ³)	Gas Chromatography	--	--	--

Notes:

ppm = parts per million

µg/m³ = micrograms per cubic meter

mg/m³ = milligrams per cubic meter

Source: California Air Resources Board 2017

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM₁₀, PM_{2.5}, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM_{2.5} primary standard was lowered from 15 µg/m³ to 12.0 µg/m³. The existing national 24-hour PM_{2.5} standards (primary and secondary) were retained at 35 µg/m³, as was the annual secondary standard of 15 µg/m³. The existing 24-hour PM₁₀ standards (primary and secondary) of 150 µg/m³ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO₂ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14. In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

San Diego Air Pollution Control District

The SDAPCD was created to protect the public from the harmful effects of air pollution, achieve and maintain air quality standards, foster community involvement and develop and implement cost-effective programs that meet state and federal mandates while considering environmental and economic impacts. Specifically, the SDAPCD is responsible for monitoring air quality and planning, implementing, and enforcing programs designed to attain and maintain state and federal ambient air quality standards in the district. Programs developed include air quality rules and regulations that regulate stationary source emissions, including area sources, point sources, and certain mobile source emissions. The SDAPCD is also responsible for establishing permitting requirements for stationary sources and ensuring that new, modified or relocated stationary sources do not create net emissions increases; and thus, are consistent with the region's air quality goals. The SDAPCD provides significance thresholds in Regulation II, Rule 20.2, Table 20-2-1. "AQIA Trigger Levels." These trigger levels were established for stationary sources of air pollution and are commonly used for environmental evaluations. The SDAPCD enforces air quality rules and regulations through a variety of means, including inspections, educational or training programs, or fines, when necessary.

Regional Climate and Local Air Quality

San Diego Air Basin. The weather of San Diego County is profoundly influenced by the Pacific Ocean and its semi-permanent high-pressure systems that result in dry, warm summers and mild, occasionally wet winters. The average minimum temperature for January ranges from the mid-40s to the high-50s degrees Fahrenheit (4 to 15 degrees Celsius) across the county. July maximum temperatures average in the mid-80s to the high-90s degrees Fahrenheit (high-20s to the high-30s degrees Celsius). Most of the county's precipitation falls from November to April, with infrequent (approximately 10 percent) precipitation during the summer. The average seasonal precipitation along the coast is approximately 10 inches (254 millimeters); the amount increases with elevations as moist air is lifted over the mountains.

The interaction of ocean, land, and the Pacific High-Pressure Zone maintains clear skies for much of the year and drives the prevailing winds. Local terrain is often the dominant factor inland and winds in inland mountainous areas tend to blow upwards in the valleys during the day and down the hills and valleys at night.

In conjunction with the onshore/offshore wind patterns, there are two types of temperature inversions (reversals of the normal decrease of temperature with height), which occur within the region that affect atmospheric dispersive capability and that act to degrade local air quality. In the summer, an inversion at about 1,100 to 2,500 feet (335 to 765 meters) is formed over the entire coastal plain when the warm air mass over land is undercut by a shallow layer of cool marine air flowing onshore. The prevailing sunny days in this region further exacerbate the

smog problem by inducing additional adverse photochemical reactions. During the winter, a nightly shallow inversion layer (usually at about 800 feet or 243 meters) forms between the cooled air at the ground and the warmer air above, which can trap vehicular pollutants. The days of highest Carbon Monoxide (CO) concentrations occur during the winter months.

The predominant onshore/offshore wind pattern is sometimes interrupted by so-called Santa Ana conditions, when high pressure over the Nevada-Utah region overcomes the prevailing westerly wind direction. This draws strong, steady, hot, and dry winds from the east over the mountains and out to sea. Strong Santa Ana winds tend to blow pollutants out over the ocean, producing clear days. However, at the onset or breakdown of these conditions or if the Santa Ana is weak, prevailing northwesterly winds are reestablished which send polluted air from the Los Angeles basin ashore in the SDAB. "Smog transport from the South Coast Air Basin (the metropolitan areas of Los Angeles, Orange, San Bernardino, and Riverside counties) is a key factor on more than half the days San Diego exceeds clean air standards" (San Diego Air Pollution Control District, 2010).

Pollutants

The SDAPCD is required to monitor air pollutant levels to ensure that air quality standards are met and, if they are not met, to develop strategies to meet the standards. Depending on whether the standards are met or exceeded, the local air basin is classified as being in "attainment" or "non-attainment." San Diego County is listed as a federal non-attainment area for ozone (eight hour) and a state non-attainment area for ozone (one hour and eight-hour standards), PM₁₀ and PM_{2.5}. As shown in Table 2, the SDAB is in attainment for the state and federal standards for nitrogen dioxide, carbon monoxide, sulfur dioxide and lead. Characteristics of ozone, carbon monoxide, nitrogen dioxide, and suspended particulates are described below.

Ozone. Ozone is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_x) and reactive organic gases (ROG)¹. Nitrogen oxides are formed during the combustion of fuels, while reactive organic compounds are formed during combustion and evaporation of organic solvents. Because ozone requires sunlight to form, it mostly occurs in concentrations considered serious between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

¹ Organic compound precursors of ozone are routinely described by a number of variations of three terms: hydrocarbons (HC), organic gases (OG), and organic compounds (OC). These terms are often modified by adjectives such as total, reactive, or volatile, and result in a rather confusing array of acronyms: HC, THC (total hydrocarbons), RHC (reactive hydrocarbons), TOG (total organic gases), ROG (reactive organic gases), TOC (total organic compounds), ROC (reactive organic compounds), and VOC (volatile organic compounds). While most of these differ in some significant way from a chemical perspective, from an air quality perspective two groups are important: non-photochemically reactive in the lower atmosphere, or photochemically reactive in the lower atmosphere (HC, RHC, ROG, ROC, and VOC).

**Table 2
San Diego County Attainment Status**

Criteria Pollutant	Federal Designation	State Designation
Ozone (one hour)	Attainment*	Non-Attainment
Ozone (eight hour)	Non-Attainment	Non-Attainment
Carbon Monoxide	Attainment	Attainment
PM ₁₀	Unclassifiable**	Non-Attainment
PM _{2.5}	Attainment	Non-Attainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	No Federal Standard	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Visibility	No Federal Standard	Unclassified

* The federal 1-hour standard of 12 ppm was in effect from 1979 through June 1, 2005. The revoked standard is referenced here because it was used for such a long period and because this benchmark is addressed in State Implementation Plans (SIPs).

** At the time of designation, if the available data does not support a designation of attainment or non-attainment, the area is designated as unclassifiable.

Source: San Diego Air Pollution Control District. June 2016. <http://www.sandiegocounty.gov/content/sdc/apcd/en/air-quality-planning/attainment-status.html>

Carbon Monoxide. Carbon monoxide is a local pollutant that is found in high concentrations only near the source. The major source of carbon monoxide, a colorless, odorless, poisonous gas, is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes. Carbon monoxide’s health effects are related to its affinity for hemoglobin in the blood. At high concentrations, carbon monoxide reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity and impaired mental abilities.

Nitrogen Dioxide. Nitrogen dioxide (NO₂) is a by-product of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO₂, creating the mixture of NO and NO₂ commonly called NO_x. Nitrogen dioxide is an acute irritant. A relationship between NO₂ and chronic pulmonary fibrosis may exist, and an increase in bronchitis in young children at concentrations below 0.3 parts per million (ppm) may occur. Nitrogen dioxide absorbs blue light and causes a reddish-brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of PM₁₀ and acid rain.

Suspended Particulates. PM₁₀ is particulate matter measuring no more than 10 microns in diameter, while PM_{2.5} is fine particulate matter measuring no more than 2.5 microns in diameter. Suspended particulates are mostly dust particles, nitrates and sulfates. Both PM₁₀ and PM_{2.5} are by-products of fuel combustion and wind erosion of soil and unpaved roads and are directly emitted into the atmosphere through these processes. Suspended particulates are also created in the atmosphere through chemical reactions. The characteristics, sources, and

potential health effects associated with the small particulates (those between 2.5 and 10 microns in diameter) and fine particulates (PM_{2.5}) can be very different. The small particulates generally come from windblown dust and dust kicked up from mobile sources. The fine particulates are generally associated with combustion processes as well as being formed in the atmosphere as a secondary pollutant through chemical reactions. Fine particulate matter is more likely to penetrate deeply into the lungs and poses a health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the small and fine particulate matter that is inhaled into the lungs remains there. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

Toxic Air Contaminants/Diesel Particulate Matter. Hazardous air pollutants, also known as toxic air pollutants (TACs) or air toxics, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. Examples of toxic air pollutants include:

- benzene, which is found in gasoline;
- perchloroethylene, which is emitted from some dry-cleaning facilities; and
- methylene chloride, which is used as a solvent.

Transportation related emissions are focused on particulate matter constituents within diesel exhaust and TAC constituents that comprise a portion of total organic gas (TOG) emissions from both diesel and gasoline fueled vehicles. Diesel engine emissions are comprised of exhaust particulate matter and TOGs which are collectively defined for the purpose of an HRA, as Diesel Particulate Matter (DPM). DPM and TOG emissions from both diesel and gasoline fueled vehicles is typically composed of carbon particles and carcinogenic substances including polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene. Diesel exhaust also contains gaseous pollutants, including volatile organic compounds and oxides of nitrogen (NO_x). Information on TAC and DPM is provided herein for reference only. As proposed, the project would be comprised of commercial uses serving a primarily automobile dependent customer base. While the project is located in proximity to a freeway, customers would be on-site for short periods of time and proposed uses would not generate DPM or TACs in concentrations that would pose a health risk or justify further evaluation in a health risk assessment.

State Implementation Plan/Air Quality Management Plan/Regional Air Quality Strategy

The federal Clean Air Act Amendments (CAAA) mandate that states submit and implement a State Implementation Plan (SIP) for areas not meeting air quality standards. SIPs are comprehensive plans that describe how an area will attain national and state ambient air quality standards. SIPs are a compilation of new and previously submitted plans, programs (i.e., monitoring, modeling and permitting programs), district rules, state regulations and federal controls and include pollution control measures that demonstrate how the standards will be met through those measures.

State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB forwards SIP revisions to the USEPA for approval and publication in the Federal Register. Thus, the Regional Air Quality Strategy (RAQS) and Air Quality Management Plan (AQMP) prepared by SDAPCD and referenced herein become part of the SIP as the material relates to efforts ongoing in San Diego to achieve the national and state ambient air quality standards. The most recent SIP element for San Diego County was submitted in December 2016. The document identifies control measures and associated emission reductions necessary to demonstrate attainment of the 2008 Federal 8-hour ozone standard by July 20, 2018.

The San Diego RAQS was developed pursuant to California Clean Air Act (CCAA) requirements. The RAQS was initially adopted in 1991 and was updated in 1995, 1998, 2001, 2004, 2009 and 2016. The RAQS can be found at the following: <http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/2016%20RAQS.pdf>. The RAQS identifies feasible emission control measures to provide progress in San Diego County toward attaining the State ozone standard. The pollutants addressed in the RAQS are volatile organic compounds (VOC) and oxides of nitrogen (NOx), precursors to the photochemical formation of ozone (the primary component of smog). The RAQS was initially adopted by the San Diego County Air Pollution Control Board on June 30, 1992, and amended on March 2, 1993, in response to ARB comments. At present, no attainment plan for particulate matter less than 10 microns in diameter (PM₁₀) or particulate matter less than 2.5 microns in diameter (PM_{2.5}) is required by the state regulations; however, SDAPCD has adopted measures to reduce particulate matter in San Diego County. These measures range from regulation against open burning to incentive programs that introduce cleaner technology. These measures can be found in a report titled "*Measures to Reduce Particulate Matter in San Diego County*" December 2005 and can be found at: <http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/PM-Measures.pdf>.

The RAQS relies on information from CARB and San Diego Association of Governments (SANDAG), including mobile and area source emissions, as well as information regarding projected growth in the County, to estimate future emissions and then determine strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends as well as land use plans developed by the cities and the County as part of the development of the individual General Plans. As such, projects that propose development consistent with the growth anticipated by the general plans would be consistent with the RAQS. In the event that a project would propose development which is less dense than anticipated within the General Plan, the project would likewise be consistent with the RAQS. If a project proposes development that is greater than that anticipated in the General Plan and SANDAG's growth projections, the project might conflict with the RAQS and SIP; and thus, have a potentially significant impact on air quality.

Under state law, the SDAPCD is required to prepare an AQMP for pollutants for which the SDAB is designated non-attainment. Each iteration of the SDAPCD's AQMP is an update of the previous plan and has a 20-year horizon. Currently the SDAPCD has implemented a 2012 8-hour National Ozone Implementation/Maintenance Plan, a 2007 8-hour Ozone Plan, and a 2004 Carbon Monoxide Plan. The SDAPCD adopted the 2008 8-hour Ozone Attainment Plan for San Diego County on December 16, 2016. CARB adopted the ozone plan as a revision to the California SIP on March 23, 2017. The ozone plan was submitted to the USEPA for review on April 12, 2017. Comments from the USEPA are pending. These plans are available for download on the ARB website located at the following URL:
<http://www.arb.ca.gov/planning/sip/planarea/sansip.htm>.

Sensitive Receptors

Sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing and convalescent facilities. These are areas where the occupants are more susceptible to the adverse effects of exposure to air pollutants. Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with an adequate margin of safety, to protect public health and welfare as well that segment of the public most susceptible to respiratory distress, such as children under 14; the elderly over 65; persons engaged in strenuous work or exercise; and people with cardiovascular and chronic respiratory diseases. The closest properties defined herein as sensitive receptors are residences located approximately 500 feet west of Lift Station #1 and 600 feet south/southeast of Twin Oaks Reservoir site.

Monitored Air Quality

The SDAPCD monitors air quality conditions at locations throughout the SDAB. For this analysis, data from the Camp Pendleton monitoring station located west of the site were used to characterize existing pollutant concentrations in the vicinity of the project site. This is not the closest monitoring station to the project area; however, the Camp Pendleton station has a complete data set; and thus, provides a more comprehensive overview of air quality in North County region. A summary of the data recorded at the Camp Pendleton monitoring station from 2015 through 2017 is presented in Table 3.

AIR QUALITY IMPACT ANALYSIS

Methodology and Significance Thresholds

Air quality modeling was performed in general accordance with the methodologies outlined in the SDAPCD 2009 RAQS to identify both construction and operational emissions associated with the proposed project. All emissions were calculated using the California Emissions

**Table 3
 Ambient Air Quality Data**

Pollutant	2015	2016	2017
Ozone, ppm – First High 8-Hour Average (2015 Standard)	0.076	0.073	0.081
Number of days of above 2015 standard (>0.070 ppm)	2	4	2
Nitrogen Dioxide, ppm – First High National	60.0	72.0	73.0
Nitrogen Dioxide, ppm – First High State	60.0	72.0	73.0
Days above the State standard (>0.18 ppm)	0	0	0
Days above the national standard (>100 ppb)	0	0	0
Particulate Matter <10 microns, $\mu\text{g}/\text{m}^3$ First High Federal	30	*	*
Particulate Matter <10 microns, $\mu\text{g}/\text{m}^3$ First High State	31	*	*
Estimated number of days greater than national 24-hour standard (>150 $\mu\text{g}/\text{m}^3$)	0	*	*
Estimated number of days greater than state standard (>50 $\mu\text{g}/\text{m}^3$)	0	*	*
Particulate Matter <2.5 microns, $\mu\text{g}/\text{m}^3$ First High National	*	*	*
Particulate Matter <2.5 microns, $\mu\text{g}/\text{m}^3$ First High State	41.2	28.8	26.0
Number of samples of Federal exceedances (>12 $\mu\text{g}/\text{m}^3$)	*	*	*

Camp Pendleton 21441 West B Street

Note – PM10 data obtained from Escondido – 600 East Valley Parkway Monitoring Station

**Data insufficient to determine the value*

Source: California Air Resources Board, 2015, 2016, 2017 Annual Air Quality Data Summaries available at <http://www.arb.ca.gov/adam/topfour/topfour1.php>

Estimator Model (CalEEMod) software version 2016.3.2 which incorporates current air emission data, planning methods and protocol approved by CARB.

Construction activities would require the use of equipment that would generate criteria air pollutant emissions. For modeling purposes, it was assumed that all construction equipment used would be diesel-powered. Construction emissions associated with development of the proposed project were quantified by estimating the types of equipment, including the number of individual pieces of equipment, that would be used on-site during each of the construction phases as well as off-site haul trips to remove demolition debris. Construction emissions are analyzed using the regional thresholds established by the SDAPCD and published under Rule 20-2.

Operational emissions include mobile source emissions, energy emissions and area source emissions. Mobile source emissions are generated by motor vehicle trips associated with operation of the project. Emissions attributable to energy use include electricity and natural gas consumption for space and water heating. Area source emissions are generated by landscape maintenance equipment, use of consumer products and painting. To determine whether a

regional air quality impact would occur, the increase in emissions would be compared with the SDAPCD recommended regional thresholds for operational emissions.

Thresholds of Significance. Based on California Environmental Quality Act (CEQA) Appendix G Significance Determination Thresholds, a project would have a significant air quality impact if it would:

- a) *Conflict with or obstruct implementation of the applicable air quality plan;*
- b) *Violate any air quality standard or contribute substantially to an existing or projected air quality violation;*
- c) *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);*
- d) *Expose sensitive receptors to substantial pollutant concentrations;*
- e) *Create objectionable odors affecting a substantial number of people.*

A significant adverse air quality impact may occur when a project individually or cumulatively interferes with progress toward the attainment of the ozone standard by generating emissions that equal or exceed the established long-term quantitative thresholds for pollutants or exceed a state or federal ambient air quality standard for any criteria pollutant.

The SDAPCD does not provide quantitative thresholds for determining the significance of construction or mobile source-related projects. However, the SDAPCD does specify Air Quality Impact Analysis (AQIA) trigger levels for new or modified stationary sources (SDAPCD Rules 20.1 through 20.3) If these incremental levels are exceeded, an AQIA must be performed. Although these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes, these levels may be used to evaluate the increased emissions from these projects. For CEQA purposes, the screening level thresholds can be used to demonstrate that a project's total emissions would not result in a significant impact to air quality. Because the AQIA screening thresholds do not include VOCs, the screening level for VOCs used in this analysis are from the South Coast Air Quality Management District (SCAQMD), which generally has stricter emissions thresholds than SDAPCD. The thresholds shown below are used in this analysis to determine whether the solar program has the potential to violate an air quality standard or contribute substantially to an existing or projected air quality violation:

- Carbon Monoxide (CO) - 550 pounds/day;
- Nitrogen Oxides (NO_x) - 250 pounds/day;
- Particulate Matter (PM₁₀) - 100 pounds/day;
- Particulate Matter (PM_{2.5}) - 67 pounds/day;
- Sulfur Oxides (SO_x) - 250 pounds/day; and
- Volatile Organic Compounds(VOCs)/Reactive Organic Gases(ROGs) - 75 pounds/day.

Construction Emissions

Project construction would generate temporary air pollutant emissions. These impacts are associated with fugitive dust (PM₁₀ and PM_{2.5}) from soil disturbance and exhaust emissions (NO_x and CO) from heavy construction vehicles. For the purpose of estimating emissions, it was assumed that the projects would be constructed consecutively over the course of one year beginning in early 2020. As noted, construction would generally consist of site preparation/grading, trenching, installation of conduit, construction of the solar panel racking system and installation of the panels.

Site preparation and grading would involve the greatest concentration of heavy equipment use and the highest potential for fugitive dust emissions. The project would be required to comply with SDAPCD Rules 52 and 54 which identify measures to reduce fugitive dust and is required to be implemented at all construction sites located within the SDAB. Therefore, the following conditions, which are required to reduce fugitive dust in compliance with SDAPCD Rules 52 and 54, were included in CalEEMod for site preparation and grading phases of construction.

- 1. Minimization of Disturbance.** Construction contractors should minimize the area disturbed by clearing, grading, earth moving, or excavation operations to prevent excessive amounts of dust.
- 2. Soil Treatment.** Construction contractors should treat all graded and excavated material, exposed soil areas and active portions of the construction site, including unpaved on-site roadways to minimize fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization materials, and/or roll compaction as appropriate. As referenced, watering would be implemented for dust control. Watering will be performed as often as necessary, and at least twice daily, preferably in the late morning and after work is done for the day. Note – it was assumed watering would occur two times daily for modeling purposes.
- 3. Soil Stabilization.** Construction contractors should monitor all graded and/or excavated inactive areas of the construction site at least weekly for dust stabilization. Soil stabilization methods, such as water and roll compaction, and environmentally safe dust control materials shall be applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area shall be seeded and watered until landscape growth is evident, or periodically treated with environmentally safe dust suppressants, to prevent excessive fugitive dust.
- 4. No Grading During High Winds.** Construction contractors should stop all clearing, grading, earth moving, and excavation operations during periods of high winds (20 miles per hour or greater, as measured continuously over a one-hour period).

5. **Street Sweeping.** Construction contractors should sweep all on-site driveways and adjacent streets and roads at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.

Construction is assumed to begin in early 2020 and be completed by late-2020. Table 4 summarizes the estimated maximum daily emissions of pollutants occurring during the construction period. As shown in Table 4, construction of the proposed project would not exceed the SDAPCD regional construction emission thresholds for daily emissions. Thus, the project construction would not conflict with the SIP, RAQS or AQMP, violate an air quality standard or contribute to an existing or projected violation, result in a cumulatively considerable increase in ozone or particulate matter emissions or expose receptors to substantial pollutant concentrations (thresholds a-d).

Table 4
Estimated Maximum Mitigated Daily Construction Emissions

Construction Phase	Maximum Emissions (lbs/day)					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2020 Maximum lbs/day	1.6	16.3	12.1	0.02	1.3	0.9
<i>SCAPCD Regional Thresholds</i>	<i>75</i>	<i>250</i>	<i>550</i>	<i>250</i>	<i>100</i>	<i>67</i>
Threshold Exceeded 2019	No	No	No	No	No	No

Construction-Related Toxic Air Contaminant Impacts

The greatest potential for toxic air contaminant emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of “individual cancer risk”. The California Office of Environmental Health Hazard Assessment (OEHHA) health risk guidance states that a residential receptor should be evaluated based on a 30-year exposure period. “Individual Cancer Risk” is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the short-term construction schedule, the proposed project would not result in a long-term (i.e., 30 or 70 year) exposure to a substantial source of toxic air contaminant emissions; and thus, would not be exposed to the related individual cancer risk. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project.

Construction-Related Odor Impacts

Potential sources of odor during construction activities include equipment exhaust and activities such as paving. The objectionable odors that may be produced during the construction process would occur periodically and end when construction is completed. No significant

impact related to odors would occur during construction of the proposed project per threshold (e) referenced above.

Long-Term Regional Impacts

Regional Pollutant Emissions

Table 5 summarizes emissions associated with operation of the proposed project. Operational emissions would be comprised of vehicle trips (mobile sources) to inspect and maintain the PV system. Operation of the project would not generate area emissions or emissions related to energy consumption. For modeling purpose, it was assumed that cumulatively, the projects would generate one vehicle trip daily over the course of a year. This method likely overestimates actual emissions; however, the approach is intended to provide comparative data for the purpose of CEQA compliance. As shown in Table 5, emissions associated with operation of the project would not exceed the SDAPCD thresholds for ROG, NO_x, CO, SO_x, PM₁₀ or PM_{2.5}. Therefore, the project’s regional air quality impacts (including impacts related to criteria pollutants, sensitive receptors and violations of air quality standards per threshold c-d) would be less than significant.

**Table 5
 Estimated Operational Emissions**

	Estimated Emissions (lbs/day)					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
<i>Proposed Project</i>						
Area	0.01	0.0	0.01	0.0	0.0	0.0
Energy	0.0	0.0	0.0	0.0	0.0	0.0
Mobile	0.01	0.01	0.01	0.01	0.01	0.01
Maximum lbs/day	0.02	0.01	0.02	0.01	0.01	0.01
<i>SCAPCD Thresholds</i>	75	250	550	250	100	67
Threshold Exceeded?	No	No	No	No	No	No

See Appendix for CalEEMod version. 2016.3.2 computer model output. Summer emissions shown.

Objectionable Odors

The project would be a PV electrical generating facility. The project will not include uses that cause odorous emissions. **No impact** would occur per threshold (e).

Local Carbon Monoxide Emissions

As previously discussed, carbon monoxide is a colorless, odorless, poisonous gas that may be found in high concentrations near areas of high traffic volumes. CO emissions are a function of vehicle idling time, meteorological conditions, and traffic flow. The SDAB is in attainment of

state and federal CO standards; thus, CO data is no longer collected and not all monitoring stations have CO data available. The maximum 8-hour average CO level recorded in 2012 (the last year data were recorded) at the Escondido East Valley Parkway site (the site closest to the project area) was 3.61 parts per million (ppm). Concentrations were below the 9-ppm state and federal 8-hour standard.

Although CO is not a regional air quality concern in SDAB, elevated CO levels can occur at or near intersections that experience severe traffic congestion. A localized air quality impact is considered significant if the additional CO emissions resulting from the project create a “hot spot” where the California 1-hour standard of 20.0 ppm or the 8-hour standard of 9 ppm is exceeded. This can occur at severely congested intersections during cold winter temperatures. Screening for possible elevated CO levels is recommended for severely congested intersections experiencing levels of service E or F with project traffic where a significant project traffic impact may occur.

Because of more stringent requirements for cleaner vehicles, equipment, and fuels, CO levels across California have dropped substantially. Statewide, all air basins are attainment or maintenance areas for CO. Therefore, recent screening procedures for CO hotspots have been developed based on current methodologies. The Sacramento Metropolitan Air Quality Management District (SMAQMD) developed a screening threshold in 2011, which states that any project involving an intersection with 31,600 vehicles per hour or more will require detailed analysis. In 2010, the Bay Area Air Quality Management District developed a screening threshold that states that any project affecting an intersection with 44,000 vehicles per hour would require detailed analysis. This analysis conservatively assesses potential CO hot spots using the lower SMAQMD screening threshold of 31,600 vehicles per hour. Additionally, Sacramento and San Diego have the same federal and State CO attainment designations; and thus, experience similar concentrations of CO. Screening volumes are appropriate for evaluating CO impacts in the SDAB. This screening volume has also been utilized by the South Coast Air Quality Management District, which also has the same CO designation.

The proposed project would cumulatively generate approximately one trip each day. The addition of one trip will not adversely affect traffic operations in the vicinity of each site. Based on these findings, receptors would not be exposed to substantial pollutant concentrations (threshold d) related to CO hotspots. No further evaluation with respect to CO hotspots is required.

SIP/AQMP/RAQS Consistency

As noted, the RAQS relies on information from CARB and SANDAG, including projected growth in the County, mobile, area and all other source emissions to project future emissions and determine from those data, the strategies necessary for the reduction of stationary source emissions through regulatory controls. Projects that propose development that is consistent with the growth anticipated by the general plan is consistent with the SIP, AQMP and RAQS. The proposed project involves the installation of two new PV generating facilities. The project

would not induce growth or cause the local population to increase beyond what is planned within the region. The project would be consistent with the SIP, AQMP and RAQS and significance threshold (a - air quality plans) referenced above. Impacts related to this threshold would be less than significant.

GREENHOUSE GAS EMISSIONS

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO₂), methane (CH₄), nitrous oxides (N₂O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

GHGs are emitted by both natural processes and human activities. Of these gases, CO₂ and CH₄ are emitted in the greatest quantities from human activities. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas CH₄ results from off-gassing associated with agricultural practices and landfills. Man-made GHGs, many of which have greater heat-absorption potential than CO₂, include fluorinated gases and sulfur hexafluoride (SF₆) (California Environmental Protection Agency [CalEPA], 2006). Different types of GHGs have varying global warming potentials (GWPs). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO₂) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as “carbon dioxide equivalent” (CO₂E), and is the amount of a GHG emitted multiplied by its GWP. Carbon dioxide has a GWP of one. By contrast, methane (CH₄) has a GWP of 28, meaning its global warming effect is 28 times greater than carbon dioxide on a molecule per molecule basis (IPCC, 2014).

Total U.S. GHG emissions were 6,587 MMT CO₂E in 2015 (U.S. EPA, April 2017). Total U.S. emissions decreased over 2014 levels primarily as a result of less fossil fuel combustion. However, emissions vary annually. For example, emissions increased by 3.2 percent from 2009 to 2010. The increase was due in part to (1) an increase in economic output resulting in greater energy consumption across all sectors; and (2) warmer summer conditions resulting in an increase in electricity demand for air conditioning (U.S. EPA, April 2012). In 2015, electricity production and transportation accounted for 29 percent and 27 percent of CO₂ emissions from fossil fuel combustion, respectively. The residential and commercial end-use sectors accounted for 22 percent and 19 percent of CO₂ emissions from fossil fuel combustion, respectively, during 2010 (U.S. EPA, April 2012).

Based upon the California Air Resources Board (ARB) 2017 Scoping Plan (ARB, 2017), California produced 440.4 MMT CO₂E in 2015. The major source of GHG in California is transportation, contributing 37 percent of the state’s total GHG emissions. The industrial sector is the second

largest source, contributing 21 percent of the state's GHG emissions. California emissions result in part to its geographic size and large population compared to other states. However, a factor that reduces California's per capita fuel use and GHG emissions, as compared to other states, is its relatively mild climate. The ARB has projected statewide unregulated GHG emissions for the year 2020 is projected to be 509 MMT CO₂E (ARB, May 2014). These projections are based on Business As Usual (BAU) conditions and represent the emissions that would be expected to occur in the absence of any GHG reduction actions.

California Regulations

In 2005, former Governor Schwarzenegger issued Executive Order (EO) S-3-05, establishing statewide GHG emissions reduction targets. EO S-3-05 states that by 2020, emissions shall be reduced to 1990 levels; and by 2050, emissions shall be reduced to 80 percent of 1990 levels (CalEPA, 2006). In response to EO S-3-05, CalEPA created the Climate Action Team (CAT), which in March 2006 published the Climate Action Team Report (the "2006 CAT Report") (CalEPA, 2006). The 2006 CAT Report recommended various strategies that the state could pursue to reduce GHG emissions. These strategies could be implemented by various state agencies to ensure that the emission reduction targets in EO S-3-05 are met and can be met with existing authority of the state agencies. The strategies include the reduction of passenger and light duty truck emissions, the reduction of idling times for diesel trucks, an overhaul of shipping technology/infrastructure, increased use of alternative fuels, increased recycling, and landfill methane capture.

Assembly Bill 32 and CARB's Scoping Plan

To further the goals established in EO S-3-05, the Legislature passed Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020. Under AB 32, CARB is responsible for and is recognized as having the expertise to carry out and develop the programs and requirements necessary to achieve the GHG emissions reduction mandate of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions from specified sources. This program is used to monitor and enforce compliance with established standards. CARB also is required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 authorized CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

In 2007, CARB approved a limit on the statewide GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 MMT CO₂E). CARB's adoption of this limit is in accordance with Health and Safety Code, Section 38550.

Further, in 2008, CARB adopted the Scoping Plan in accordance with Health and Safety Code, Section 38561. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990

levels by 2020. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction features by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs, as well as building and appliance standards;
2. Achieving a statewide renewable energy mix of 33%;
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions;
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

In the Scoping Plan (CARB 2008), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 28.5% from the otherwise projected 2020 emissions level (i.e., those emissions that would occur in 2020) absent GHG reducing laws and regulations (referred to as Business-As-Usual (BAU)). To calculate this percentage reduction, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document (CARB 2011a), CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7% (down from 28.5%) from the BAU conditions. When the 2020 emissions level projection was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewables Portfolio Standard (RPS) (12% to 20%), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16% (down from 28.5%) from the BAU conditions.

In 2014, CARB adopted the First Update to the Climate Change Scoping Plan: Building on the Framework (First Update; CARB 2014). The stated purpose of the First Update is to “highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to

80% below 1990 levels by 2050” (CARB 2014). The First Update found that California is on track to meet the 2020 emissions reduction mandate established by AB 32 and noted that California could reduce emissions further by 2030 to levels needed to stay on track to reduce emissions to 80% below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

In conjunction with the First Update, CARB identified “six key focus areas comprising major components of the state’s economy to evaluate and describe the larger transformative actions that will be needed to meet the state’s more expansive emission reduction needs by 2050” (CARB 2014). Those six areas are (1) energy, (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure), (3) agriculture, (4) water, (5) waste management, and (6) natural and working lands. The First Update identifies key recommended actions for each sector that will facilitate achievement of EO S-3-05’s 2050 reduction goal (CARB 2014).

Based on CARB’s research efforts presented in the First Update, it has a “strong sense of the mix of technologies needed to reduce emissions through 2050” (CARB 2014). Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies. As part of the First Update, CARB recalculated the state’s 1990 emissions level using more recent GWPs identified by the IPCC. Using the recalculated 1990 emissions level (431 MMT CO₂E) and the revised 2020-emissions-level projection identified in the 2011 Final Supplement, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15% (instead of 28.5% or 16%) from the BAU conditions (CARB 2014).

In January 2017, CARB released, *The 2017 Climate Change Scoping Plan Update* (Second Update; CARB 2017b), for public review and comment. This update proposes CARB’s strategy for achieving the state’s 2030 GHG target as established in Senate Bill (SB) 32 (discussed below), including continuing the Cap-and-Trade Program through 2030, and includes a new approach to reduce GHGs from refineries by 20%. The Second Update incorporates approaches to cutting short-lived climate pollutants (SLCPs) under the Short-Lived Climate Pollutant Reduction Strategy (a planning document that was adopted by CARB in March 2017), acknowledges the need for reducing emissions in agriculture, and highlights the work underway to ensure that California’s natural and working lands increasingly sequester carbon. During development of the Second Update, CARB held a number of public workshops in the Natural and Working Lands, Agriculture, Energy, and Transportation sectors to inform development of the 2030 Scoping Plan Update (CARB 2016). The Second Update has not been considered by CARB’s Governing Board at the time this analysis was prepared.

Executive Order S-01-07 was enacted on January 18, 2007. The order mandates that a Low Carbon Fuel Standard (“LCFS”) for transportation fuels be established for California to reduce the carbon intensity of California’s transportation fuels by at least 10 percent by 2020.

Other regulations affecting state and local GHG planning and policy development are summarized as follows:

Assembly Bill 939 and Senate Bill 1374

Assembly Bill 939 (AB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills.

Senate Bill 1368

Senate Bill 1368 (SB 1368) is the companion Bill of AB 32 and was adopted September, 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007 and for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-cycle, natural gas-fired plant. Furthermore, the legislation states that all electricity provided to the State, including imported electricity, must be generated by plants that meet the standards set by California Public Utilities Commission (CPUC) and California Energy Commission (CEC).

Senate Bill 97

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is an environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify and adopt those guidelines by January 1, 2010. Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the state CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed sections of the CEQA Guidelines and incorporated GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance were provided and no specific mitigation measures were identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or

dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.

- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that “to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation.”
- OPR’s emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project’s energy use and energy efficiency potential.

Senate Bills 1078, 107, and X1-2 and Executive Orders S-14-08 and S-21-09

Senate Bill 1078 (SB 1078) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) changed the target date to 2010. Executive Order S-14-08 was signed on November 2008 and expands the State’s Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

California Code of Regulations (CCR) Title 24, Part 6

CCR Title 24, Part 6: California’s Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California’s energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008 and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. All buildings for which an application for a building permit is submitted on or after July 1, 2014 must follow the 2013 standards. The 2013 commercial standards are estimated to be 30 percent more efficient than the 2008 standards; 2013 residential

standards are at least 25 percent more efficient. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

Senate Bill 375

SB 375 (2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 required CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional metropolitan planning organizations are then responsible for preparing a Sustainable Communities Strategy (SCS) within their Regional Transportation Plan (RTP). The goal of the SCS is to establish a forecasted development pattern for the region that, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If a SCS is unable to achieve the GHG reduction target, a metropolitan planning organization must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to California Government Code, Section 65080(b)(2)(K), a sustainable communities strategy does not (1) regulate the use of land; (2) supersede the land use authority of cities and counties; or (3) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process. In 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. The targets for the San Diego Association of Governments (SANDAG) are a 7% reduction in emissions per capita by 2020 and a 13% reduction by 2035.

SANDAG completed and adopted its 2050 RTP/SCS in October 2011. In November 2011, CARB, by resolution, accepted SANDAG's GHG emissions quantification analysis and determination that, if implemented, the 2050 RTP/SCS would achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region.

After SANDAG's 2050 RTP/SCS was adopted, a lawsuit was filed by the Cleveland National Forest Foundation and others. The matter is pending before the California Supreme Court (Case No. S223603) for determination of whether an Environmental Impact Report for a regional transportation plan must include an analysis of the plan's consistency with the GHG reduction goals reflected in EO S-3-05 to comply with CEQA.

Although the Environmental Impact Report for SANDAG's 2050 RTP/SCS is pending before the California Supreme Court, in 2015, SANDAG adopted the next iteration of its RTP/SCS in accordance with statutorily mandated timelines, and no subsequent litigation challenge was filed. More specifically, in October 2015, SANDAG adopted San Diego Forward: The Regional Plan.

Like the 2050 RTP/SCS, this planning document meets CARB's 2020 and 2035 reduction targets for the region (SANDAG 2015). In December 2015, CARB, by resolution, accepted SANDAG's GHG emissions quantification analysis and determination that, if implemented, the RTP/SCS would achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region.

Senate Bill X7-7

Senate Bill X7-7 (SB X7-7), enacted on November 9, 2009, mandates water conservation targets and efficiency improvements for urban and agricultural water suppliers. SB X7-7 requires the Department of Water Resources (DWR) to develop a task force and technical panel to develop alternative best management practices for the water sector. Additionally, SB X7-7 required the DWR to develop criteria for baseline uses for residential, commercial, and industrial uses for both indoor and landscaped area uses. The DWR was also required to develop targets and regulations that achieve a statewide 20 percent reduction in water usage.

California Green Building Standards

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every few years by the Building Standards Commission and the California Energy Commission (CEC) (and revised if necessary) (California Public Resources Code, Section 25402(b)(1)). The regulations receive input from members of industry, as well as the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (California Public Resources Code, Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (California Public Resources Code, Section 25402(d)) and cost effectiveness (California Public Resources Code, Sections 25402(b)(2) and (b)(3)). These standards are updated to consider and incorporate new energy efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2016 Title 24 standards are the currently applicable building energy efficiency standards and became effective on January 1, 2017. In general, single-family homes built to the 2016 standards are anticipated to use approximately 28% less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards, and nonresidential buildings built to the 2016 standards will use an estimated 5% less energy than those built to the 2013 standards (CEC 2015a).

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as "CALGreen," and establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code

requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential, and state-owned buildings and schools and hospitals. The CALGreen 2016 standards became effective on January 1, 2017. The mandatory standards require the following (24 CCR Part 11):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings;
- Mandatory reduction in outdoor water use through compliance with a local water efficient landscaping ordinance or the California Department of Water Resources' Model Water Efficient Landscape Ordinance;
- Diversion of 65% of construction and demolition waste from landfills;
- Mandatory inspections of energy systems to ensure optimal working efficiency;
- Inclusion of electric vehicle charging stations or designated spaces capable of supporting future charging stations; and
- Low-pollutant-emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle board.

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15% improvement in energy requirements, stricter water conservation, 65% diversion of construction and demolition waste, 10% recycled content in building materials, 20% permeable paving, 20% cement reduction, and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30% improvement in energy requirements, stricter water conservation, 75% diversion of construction and demolition waste, 15% recycled content in building materials, 30% permeable paving, 25% cement reduction, and cool/solar-reflective roofs (24 CCR Part 11).

The California Public Utilities Commission, CEC, and CARB also have a shared, established goal of achieving zero net energy (ZNE) for new construction in California. The key policy timelines include the following: (1) all new residential construction in California will be ZNE by 2020, and (2) all new commercial construction in California will be ZNE by 2030 (CPUC 2013).² As most recently defined by the CEC in its 2015 Integrated Energy Policy Report (CEC 2015b), a ZNE code building is "one where the value of the energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building" using the CEC's Time Dependent Valuation metric.

Title 20. Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. Performance of appliances must be certified through the CEC to demonstrate compliance with standards. New appliances

² It is expected that achievement of the ZNE goal will occur through revisions to the Title 24 standards.

regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing for each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance, and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

Executive Order B-30-15

EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing statewide GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80% below 1990 levels by 2050 as set forth in EO S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to CARB's Scoping Plan to express the 2030 target in terms of MMT CO₂E. EO B-30-15 also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction target.

Senate Bill 32 and Assembly Bill 197

SB 32 and AB 197 (enacted in 2016) are companion bills that set new statewide GHG reduction targets, make changes to CARB's membership, increase legislative oversight of CARB's climate change-based activities, and expand dissemination of GHG and other air quality-related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state's climate policies. AB 197 added two members of the Legislature to CARB as nonvoting members; requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and toxic air contaminants from reporting facilities; and requires CARB to identify specific information for GHG emissions reduction measures when updating the Scoping Plan.

Local Regulations and CEQA Requirements

As referenced, pursuant to the requirements of SB 97, the Resources Agency has adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted CEQA Guidelines provide general regulatory guidance on

the analysis and mitigation of GHG emissions in CEQA documents, but contain no suggested thresholds of significance for GHG emissions. Instead, lead agencies are given the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts. The general approach to developing a Threshold of Significance for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move the state towards climate stabilization. If a project would generate GHG emissions above the threshold level, its contribution to cumulative impacts would be considered significant. To date, the Bay Area Air Quality Management District (BAAQMD), the South Coast Air Quality Management District (SCAQMD), and the San Joaquin Air Pollution Control District (SJVAPCD) have adopted quantitative significance thresholds for GHGs. However, in March 2013 the Bay Area's thresholds were overruled by the Alameda County Superior Court (*California Building Industry Association v. Bay Area Air Quality Management District*), on the basis that adoption of the thresholds constitutes a "project" under CEQA, but did not receive the appropriate environmental review. As a result, BAAQMD has elected to not recommend specific GHG thresholds for use in CEQA documents.

The South Coast Air Quality Management District (SCAQMD) threshold, which was adopted in December 2008, considers emissions of over 10,000 metric tons CO₂E /year to be significant. However, the SCAQMD's threshold applies only to stationary sources and is expressly intended to apply only when the SCAQMD is the CEQA lead agency. Although not formally adopted, the SCAQMD has developed a draft quantitative threshold for all land use types of 3,000 metric tons CO₂E /year (SCAQMD, September 2010). Note that lead agencies retain the responsibility to determine significance on a case-by-case basis for each specific project.

City of San Marcos Climate Action Plan

The VWD does not have a Climate Action Plan (CAP). Further, the County of San Diego does not have an approved CAP. Thus, for the purpose of demonstrating consistency with local efforts to reduce GHG emissions, the project is evaluated for consistency with the approved City of San Marcos CAP.

The CAP is a long-range plan to reduce GHG emissions from community activities and City government operations within San Marcos to support the State's efforts under Executive Order S-3-05 and AB 32 and to mitigate climate-related impacts. In 2012, the City of San Marcos completed a comprehensive update to its General Plan, which includes goals, policies, and implementation programs that will reduce GHG emissions from both City operations and the community as a whole. General Plan Policy COS-4.4 and Implementation Program COS-4.2 specifically required the City to develop and implement a CAP for reducing GHG emissions. The City of San Marcos adopted the current CAP on September 10, 2013.

Specifically, the CAP does the following:

- Summarizes the results of the City of San Marcos GHG Emissions Inventory Update, which identifies the major sources and quantities of GHG emissions produced within San Marcos and forecasts how these emissions may change over time.
- Identifies the quantity of GHG emissions that San Marcos will need to reduce to meet the city's targets 15 percent below 2005 levels by the year 2020 and 28 percent below 2005 levels by 2030, consistent with AB 32 and working toward the long-term goal identified in Executive Order S-3-05.
- Sets forth City government and community GHG reduction measures, including performance standards which, if implemented, would collectively achieve the specified emissions reduction targets.
- Identifies proactive strategies that can be implemented to help San Marcos prepare for anticipated climate change impacts.
- Sets forth procedures to implement, monitor, and verify the effectiveness of the CAP measures and adapt efforts moving forward.

Section 3.3 of the CAP addresses energy related emissions. As stated in the CAP, energy use accounted for 45 percent of San Marcos' total GHG emissions in 2005. These emissions result from the combustion of fossil fuel, primarily coal, oil, and natural gas, which is used to heat, cool, and provide power to residential, commercial, and industrial buildings and other facilities. The CAP provides energy measures in Table 3-3 that identify strategies that have the potential to reduce San Marcos' GHG emissions by 23,436 MT CO₂e by 2020 and by 68,388 MT CO₂e by 2030. Measure E-5 is the installation of small on-site solar generating facilities. This measure alone is estimated to reduce GHG emissions by 3,315 MT CO₂E in 2020 and 6,382 MT CO₂E in 2030.

Appendix E.2 of the CAP references the fact that there are no published statewide thresholds of significance for measuring the impact of GHG emissions generated by a proposed project. CEQA Guidelines Section 15064.7 indicates that "each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects." Through the CAP process, the City of San Marcos has determined that applicants must demonstrate that individual projects will achieve consistency with a project-level GHG efficiency threshold of 2.76 MT CO₂E per service population for projects built by 2020 and 1.93 MT CO₂E per service population for projects built after 2020. Projects meeting the applicable threshold are determined to have a less than significant GHG impact.

CLIMATE CHANGE IMPACT ANALYSIS

Thresholds of Significance

Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions in March 2010. These guidelines are used in evaluating the cumulative significance of GHG emissions from the proposed project. According to the adopted CEQA Guidelines, impacts related to GHG emissions from the proposed project would be significant if the project would:

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

The majority of individual projects do not generate sufficient GHG emissions to create a project-specific impact through a direct influence on climate change; therefore, the issue of climate change typically involves an analysis of whether a project's contribution towards an impact is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15355).

For future projects, the significance of GHG emissions is evaluated based on locally adopted quantitative thresholds, or consistency with a regional GHG reduction plan (such as a Climate Action Plan). The proposed project is evaluated herein based on the City of San Marcos service population standard of 1.93 MT CO₂E as the project will be in operation after 2020.

Methodology

GHG emissions associated with construction and operation of the proposed project and existing development have been estimated using California Emissions Estimator Model (CalEEMod) version 2016.3.2.

Construction Emissions

Construction of the proposed project would generate temporary GHG emissions primarily associated with the operation of construction equipment and truck trips. Site preparation and grading typically generate the greatest emission quantities because the use of heavy equipment is greatest during this phase of construction. Emissions associated with the construction period were estimated based on the projected maximum amount of equipment that would be used onsite at one time. Air districts such as the SCAQMD have recommended amortizing construction-related emissions over a 30-year period to calculate annual emissions. Complete CalEEMod results and assumptions can be viewed in the Appendix.

Operational Emissions

Default values for various land uses in CalEEMod version 2016.3.2 are based on the California Energy Commission (CEC) sponsored California Commercial End Use Survey (CEUS) and Residential Appliance Saturation Survey (RASS) studies. CalEEMod provides operational emissions of CO₂, N₂O and CH₄. This methodology has been subjected to peer review by numerous public and private stakeholders, and in particular by the CEC; and therefore, is considered reasonable and reliable for use in GHG impact analysis pursuant to CEQA. It is also recommended by CAPCOA (January 2008).

Emissions associated with area sources (i.e., consumer products, landscape maintenance, and architectural coating) were calculated in CalEEMod based on standard emission rates from CARB, USEPA, and district supplied emission factor values (CalEEMod User Guide, 2016). Emissions from waste generation were also calculated in CalEEMod and are based on the IPCC's methods for quantifying GHG emissions from solid waste using the degradable organic content of waste (CalEEMod User Guide, 2016). Waste disposal rates by land use and overall composition of municipal solid waste in California was primarily based on data provided by the California Department of Resources Recycling and Recovery (CalRecycle).

The project would require water for cleaning the panels. This water would be trucked to the site. No wastewater would be generated by the project. However, it is recognized that some water would be used; thus, emissions from water and wastewater usage calculated in CalEEMod were based on the default electricity intensity from the CEC's 2006 Refining Estimates of Water-Related Energy Use in California using the average values for Northern and Southern California. Emissions from mobile sources were quantified assuming an aggregate total of two daily trips for the project.

Estimate of GHG Emissions

Construction Emissions. Construction activities generate GHG emission through the combustion of gasoline and diesel fuels in the engines of on- and off-road construction equipment and commuting vehicles used by construction workers. Every phase of the construction process, including demolition, grading, paving, and building, emits GHGs in volumes proportional to the quantity and type of construction equipment used. GHG emissions associated with each phase of project construction are calculated by multiplying the total fuel consumed by the construction equipment and worker trips by applicable emission factors. Default values provided in CalEEMod 2016.3.2 are typically used in the absence of project-specific construction information

Construction emissions are calculated for each phase of construction based on the construction equipment and other factors determined as needed to complete construction by the target completion year. As such, each year has varying quantities of GHG emissions. As recommended by the South Coast Air Quality Management District (SCAQMD and the Association of Environmental Professionals (2010), total construction GHG emissions are

amortized over 30 years and added to operational GHG emissions (SCAQMD 2009). The site is vacant; thus, no demolition was assumed during construction. For grading purposes, it was assumed that cut/fill would be balanced on-site. The project construction is modeled assuming construction would begin in early 2020 and be completed in late 2020. CalEEMod defaults for construction phasing equipment, worker trips, and vendor trips were used.

Based on CalEEMod results, construction activity for the project would generate an estimated 129 metric tons of carbon dioxide equivalent (CO₂E), as shown in Table 6. Amortized over a 30-year period (the assumed life of the project), construction of the proposed project would generate 4.3 metric tons of CO₂E per year.

Table 6
Estimated Construction Related Greenhouse Gas Emissions

Year	Annual Emissions (metric tons CO₂E)
2020	129
Total	129
Amortized over 30 years	4.3 metric tons per year

See Appendix for CalEEMod software program output for new construction.

Operational Indirect and Stationary Direct Emissions

Long-term emissions relate to energy use, solid waste, water use, and transportation. Each source is discussed below and includes the emissions associated with the anticipated emissions that would result from the proposed project.

Energy Use. GHGs are emitted where electricity and natural gas are used as energy sources. GHGs are generated during the generation of electricity from fossil fuels off-site in power plants. These emissions are considered indirect but are calculated in association with a building's operation. Emissions were only calculated for the direct combustion of natural gas. Building energy use is typically divided into energy consumed by the built environment and energy consumed by uses that are independent of the construction of the building such as plug-in appliances. In California, Title 24 governs energy consumed by the built environment, mechanical systems, and some types of fixed lighting. The proposed project would not create demand for natural gas or electricity. Thus, as shown in Table 7, the overall net increase in energy use (i.e., natural gas and electricity) at the project site would result in zero metric tons of CO₂E per year.

**Table 7
 Estimated Annual Energy-Related Greenhouse Gas Emissions**

Emission Source	Annual Emissions (CO ₂ E)
<i>Proposed Project</i>	
Electricity	0 metric tons
Natural Gas	0 metric tons
Total	0 metric tons

See Appendix for CalEEMod software program output (demolition and new construction).

Water Use Emissions. The amount of water used and wastewater generated by a project has indirect GHG emissions associated with it. These emissions are a result of the energy used to supply, distribute, and treat the water and wastewater. In addition to the indirect GHG emissions associated with energy use, wastewater treatment can directly emit both CH₄ and N₂O. GHG emissions associated with supplying and treating the water and wastewater are calculated for this project based on the indoor and outdoor water use consumption data for each land use subtype. Based on information in the Pacific Institute’s *Waste Not, Want Not: The Potential for Urban Water Conservation in California 2003* (as cited in CAPCOA, 2013), a percentage of total water consumption was dedicated to landscape irrigation. This percentage was used as an estimate of water demand needed to clean and maintain the panels. Water demand was conservatively estimated to generate approximately 2.1 MT CO₂E annually.

Solid Waste Emissions. The disposal of solid waste produces GHG emissions from anaerobic decomposition in landfills, incineration, and transportation of waste. To calculate the GHG emissions generated by solid waste disposal, the total volume of solid waste was calculated using waste disposal rates identified by California Department of Resources Recycling and Recovery. The methods for quantifying GHG emissions from solid waste are based on the Intergovernmental Panel on Climate Change method, using the degradable organic content of waste. GHG emissions associated with the project’s waste disposal were calculated using these parameters.

For solid waste generated onsite, it was assumed that the project would be involved in a municipal recycling program that would achieve a 75% diversion rate, as required by AB 341. The CalEEMod results indicate that the project would result in approximately 82 metric tons of CO₂E per year associated with solid waste disposed within landfills. Assuming 75% of the solid waste is recycled, CO₂E emissions would be 20 MT annually.

Transportation Emissions. Mobile source GHG emissions were estimated assuming 2 daily trips for inspection and maintenance purposes. Table 9 shows the estimated mobile emissions of GHGs for the project based on the estimated annual VMT of 1,525. As shown in Table 9, the project would generate approximately 0.6 metric tons of CO₂E associated with new vehicle trips.

**Table 8
 Estimated Annual
 Solid Waste and Water Use Greenhouse Gas Emissions**

Emission Source	Annual Emissions (CO₂E)
Water	2.1 metric tons
Solid Waste	0.01 metric tons
Total Water and Solid Waste	2.11 metric tons

See Appendix for CalEEMod software program output (demolition and new construction).

¹Based on a 75% diversion rate, as required by the California Integrated Waste Management Act (AB 341).

**Table 9
 Estimated Annual Mobile Emissions of Greenhouse Gases**

Emission Source	Annual Emissions (CO₂E)
<i>Proposed Project</i>	
Mobile Emissions (CO ₂ & CH ₄)	0.6 metric tons
Mobile Emissions (N ₂ O) ¹	0.06 metric tons
Total	0.66 metric tons

See Appendix for calculations.

Combined Construction, Stationary and Mobile Source Emissions

Table 10 combines the net new construction, operational, and mobile GHG emissions associated with the proposed project. As discussed above, temporary emissions associated with construction activity (approximately 397 metric tons CO₂E) are amortized over 30 years (the anticipated life of the project).

The combined annual emissions is conservatively estimated to be approximately 7.07 metric tons per year in CO₂E. This total represents less than 0.001% of California’s total 2015 emissions of 440.4 million metric tons. The majority of the project’s GHG emissions are associated with the construction phase. The project will reduce overall energy demand associated with operation of the existing facilities which serve existing customers in the Twin Oaks Valley Road and San Marcos Boulevard area of the City of San Marco and unincorporated San Diego County. Based on the size of the service areas and number of people living in those areas, it is presumed that total GHG emissions would be well under the 1.93 MT CO₂E annual standard per the service population.

**Table 10
 Combined Annual Greenhouse Gas Emissions**

Emission Source	Annual Emissions (CO ₂ E)
Construction	4.3 metric tons
Operational	0 metric tons
Energy	0.01 metric tons
Solid Waste	2.1 metric tons
Water	
Mobile	0.66 metric tons
Total	7.07 metric tons

See Appendix for CalEEMod software program output (demolition and new construction).

GHG Cumulative Significance. The proposed project would be well under the annual service population standard of 1.98 MT CO₂E. Further, the project would be consistent with CAP Measure E-5 which specifies the installation of small on-site solar generating facilities as a method for reducing city-wide GHG emissions. Thus, installation and operation of the proposed solar generating facilities would not have a significant or adverse effect on global climate change. Impacts would be less than significant (thresholds a and b).

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Appendix A

CalEEMod Air Quality and Greenhouse Gas Emissions Model Results -
Summer/ Annual, and N₂O from Mobile Emissions Sources

VWD Solar Program - San Diego County, Summer

VWD Solar Program
San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.50	Acre	0.50	21,780.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	40
Climate Zone	13			Operational Year	2021
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction phases modified to reflect durations assuming projects are constructed simultaneously.

Grading - Assumes 0.5 acre disturbed daily.

Vehicle Trips - Conservatively assumes 2 maintenance trips would occur during the week.

Construction Off-road Equipment Mitigation -

Waste Mitigation -

VWD Solar Program - San Diego County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	200.00
tblConstructionPhase	NumDays	2.00	4.00
tblConstructionPhase	NumDays	1.00	4.00
tblConstructionPhase	PhaseEndDate	6/8/2020	10/30/2020
tblConstructionPhase	PhaseEndDate	1/20/2020	1/24/2020
tblConstructionPhase	PhaseEndDate	1/16/2020	1/21/2020
tblConstructionPhase	PhaseStartDate	1/21/2020	1/27/2020
tblConstructionPhase	PhaseStartDate	1/17/2020	1/21/2020
tblGrading	AcresOfGrading	0.00	0.50
tblGrading	AcresOfGrading	2.00	0.50
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	WD_TR	1.89	2.00

2.0 Emissions Summary

VWD Solar Program - San Diego County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1300e-003	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.5800e-003	6.1600e-003	0.0166	5.0000e-005	4.5300e-003	5.0000e-005	4.5700e-003	1.2100e-003	4.0000e-005	1.2500e-003		5.5742	5.5742	3.0000e-004		5.5817
Total	2.7100e-003	6.1600e-003	0.0167	5.0000e-005	4.5300e-003	5.0000e-005	4.5700e-003	1.2100e-003	4.0000e-005	1.2500e-003		5.5744	5.5744	3.0000e-004	0.0000	5.5818

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1300e-003	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.5800e-003	6.1600e-003	0.0166	5.0000e-005	4.5300e-003	5.0000e-005	4.5700e-003	1.2100e-003	4.0000e-005	1.2500e-003		5.5742	5.5742	3.0000e-004		5.5817
Total	2.7100e-003	6.1600e-003	0.0167	5.0000e-005	4.5300e-003	5.0000e-005	4.5700e-003	1.2100e-003	4.0000e-005	1.2500e-003		5.5744	5.5744	3.0000e-004	0.0000	5.5818

VWD Solar Program - San Diego County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2020	1/15/2020	5	10	
2	Site Preparation	Site Preparation	1/16/2020	1/21/2020	5	4	
3	Grading	Grading	1/21/2020	1/24/2020	5	4	
4	Building Construction	Building Construction	1/27/2020	10/30/2020	5	200	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0.5

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

VWD Solar Program - San Diego County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	9.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

VWD Solar Program - San Diego County, Summer

3.2 Demolition - 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	lb/day										lb/day					
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457		1,147.2352	1,147.2352	0.2169		1,152.6578
Total	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457		1,147.2352	1,147.2352	0.2169		1,152.6578

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0367	0.0247	0.2835	8.5000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		84.2747	84.2747	2.5200e-003		84.3376
Total	0.0367	0.0247	0.2835	8.5000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		84.2747	84.2747	2.5200e-003		84.3376

VWD Solar Program - San Diego County, Summer

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457	0.0000	1,147.2352	1,147.2352	0.2169		1,152.6578
Total	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457	0.0000	1,147.2352	1,147.2352	0.2169		1,152.6578

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0367	0.0247	0.2835	8.5000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		84.2747	84.2747	2.5200e-003		84.3376
Total	0.0367	0.0247	0.2835	8.5000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		84.2747	84.2747	2.5200e-003		84.3376

VWD Solar Program - San Diego County, Summer

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	lb/day										lb/day					
Fugitive Dust					0.1326	0.0000	0.1326	0.0143	0.0000	0.0143			0.0000			0.0000
Off-Road	0.6853	8.4307	4.0942	9.7400e-003		0.3353	0.3353		0.3085	0.3085		943.4872	943.4872	0.3051		951.1158
Total	0.6853	8.4307	4.0942	9.7400e-003	0.1326	0.3353	0.4679	0.0143	0.3085	0.3228		943.4872	943.4872	0.3051		951.1158

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0184	0.0124	0.1417	4.2000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		42.1374	42.1374	1.2600e-003		42.1688
Total	0.0184	0.0124	0.1417	4.2000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		42.1374	42.1374	1.2600e-003		42.1688

VWD Solar Program - San Diego County, Summer

3.3 Site Preparation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0597	0.0000	0.0597	6.4400e-003	0.0000	6.4400e-003			0.0000			0.0000
Off-Road	0.6853	8.4307	4.0942	9.7400e-003		0.3353	0.3353		0.3085	0.3085	0.0000	943.4872	943.4872	0.3051		951.1158
Total	0.6853	8.4307	4.0942	9.7400e-003	0.0597	0.3353	0.3950	6.4400e-003	0.3085	0.3150	0.0000	943.4872	943.4872	0.3051		951.1158

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0184	0.0124	0.1417	4.2000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		42.1374	42.1374	1.2600e-003		42.1688
Total	0.0184	0.0124	0.1417	4.2000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		42.1374	42.1374	1.2600e-003		42.1688

VWD Solar Program - San Diego County, Summer

3.4 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	lb/day										lb/day					
Fugitive Dust					0.8853	0.0000	0.8853	0.4281	0.0000	0.4281			0.0000			0.0000
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457		1,147.2352	1,147.2352	0.2169		1,152.6578
Total	0.8674	7.8729	7.6226	0.0120	0.8853	0.4672	1.3525	0.4281	0.4457	0.8738		1,147.2352	1,147.2352	0.2169		1,152.6578

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0367	0.0247	0.2835	8.5000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		84.2747	84.2747	2.5200e-003		84.3376
Total	0.0367	0.0247	0.2835	8.5000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		84.2747	84.2747	2.5200e-003		84.3376

VWD Solar Program - San Diego County, Summer

3.4 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3984	0.0000	0.3984	0.1926	0.0000	0.1926			0.0000			0.0000
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457	0.0000	1,147.2352	1,147.2352	0.2169		1,152.6578
Total	0.8674	7.8729	7.6226	0.0120	0.3984	0.4672	0.8656	0.1926	0.4457	0.6383	0.0000	1,147.2352	1,147.2352	0.2169		1,152.6578

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.0367	0.0247	0.2835	8.5000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		84.2747	84.2747	2.5200e-003		84.3376
Total	0.0367	0.0247	0.2835	8.5000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		84.2747	84.2747	2.5200e-003		84.3376

VWD Solar Program - San Diego County, Summer

3.5 Building 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	lb/day										lb/day					
Off-Road	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806		1,102.978 1	1,102.978 1	0.3567		1,111.8962
Total	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806		1,102.978 1	1,102.978 1	0.3567		1,111.896 2

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0150	0.4510	0.1149	1.1000e-003	0.0271	2.2100e-003	0.0293	7.8000e-003	2.1100e-003	9.9100e-003		117.6160	117.6160	8.6800e-003		117.8330
Worker	0.0330	0.0223	0.2551	7.6000e-004	0.0739	5.2000e-004	0.0745	0.0196	4.8000e-004	0.0201		75.8472	75.8472	2.2600e-003		75.9039
Total	0.0480	0.4733	0.3700	1.8600e-003	0.1010	2.7300e-003	0.1037	0.0274	2.5900e-003	0.0300		193.4633	193.4633	0.0109		193.7368

VWD Solar Program - San Diego County, Summer

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806	0.0000	1,102.978 1	1,102.978 1	0.3567		1,111.8962
Total	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806	0.0000	1,102.978 1	1,102.978 1	0.3567		1,111.896 2

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0150	0.4510	0.1149	1.1000e-003	0.0271	2.2100e-003	0.0293	7.8000e-003	2.1100e-003	9.9100e-003		117.6160	117.6160	8.6800e-003		117.8330
Worker	0.0330	0.0223	0.2551	7.6000e-004	0.0739	5.2000e-004	0.0745	0.0196	4.8000e-004	0.0201		75.8472	75.8472	2.2600e-003		75.9039
Total	0.0480	0.4733	0.3700	1.8600e-003	0.1010	2.7300e-003	0.1037	0.0274	2.5900e-003	0.0300		193.4633	193.4633	0.0109		193.7368

4.0 Operational Detail - Mobile

VWD Solar Program - San Diego County, Summer

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.5800e-003	6.1600e-003	0.0166	5.0000e-005	4.5300e-003	5.0000e-005	4.5700e-003	1.2100e-003	4.0000e-005	1.2500e-003		5.5742	5.5742	3.0000e-004		5.5817
Unmitigated	1.5800e-003	6.1600e-003	0.0166	5.0000e-005	4.5300e-003	5.0000e-005	4.5700e-003	1.2100e-003	4.0000e-005	1.2500e-003		5.5742	5.5742	3.0000e-004		5.5817

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	1.00	0.00	0.00	1,525	1,525
Total	1.00	0.00	0.00	1,525	1,525

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193

VWD Solar Program - San Diego County, Summer

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	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

VWD Solar Program - San Diego County, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		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

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		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

6.0 Area Detail

6.1 Mitigation Measures Area

VWD Solar Program - San Diego County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.1300e-003	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Unmitigated	1.1300e-003	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Total	1.1200e-003	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Total	1.1200e-003	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

VWD Solar Program - San Diego County, Summer

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

VWD Solar Program - San Diego County, Annual

**VWD Solar Program
San Diego County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.50	Acre	0.50	21,780.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	40
Climate Zone	13			Operational Year	2021
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction phases modified to reflect durations assuming projects are constructed simultaneously.

Grading - Assumes 0.5 acre disturbed daily.

Vehicle Trips - Conservatively assumes 2 maintenance trips would occur during the week.

Construction Off-road Equipment Mitigation -

Waste Mitigation -

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Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	200.00
tblConstructionPhase	NumDays	2.00	4.00
tblConstructionPhase	NumDays	1.00	4.00
tblConstructionPhase	PhaseEndDate	6/8/2020	10/30/2020
tblConstructionPhase	PhaseEndDate	1/20/2020	1/24/2020
tblConstructionPhase	PhaseEndDate	1/16/2020	1/21/2020
tblConstructionPhase	PhaseStartDate	1/21/2020	1/27/2020
tblConstructionPhase	PhaseStartDate	1/17/2020	1/21/2020
tblGrading	AcresOfGrading	0.00	0.50
tblGrading	AcresOfGrading	2.00	0.50
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	WD_TR	1.89	2.00

2.0 Emissions Summary

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-2-2020	4-1-2020	0.3177	0.3177
2	4-2-2020	7-1-2020	0.3326	0.3326
3	7-2-2020	9-30-2020	0.3326	0.3326
		Highest	0.3326	0.3326

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	2.1000e-004	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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.9000e-004	8.2000e-004	2.1300e-003	1.0000e-005	5.7000e-004	1.0000e-005	5.8000e-004	1.5000e-004	1.0000e-005	1.6000e-004	0.0000	0.6294	0.6294	3.0000e-005	0.0000	0.6302
Waste						0.0000	0.0000		0.0000	0.0000	8.1200e-003	0.0000	8.1200e-003	4.8000e-004	0.0000	0.0201
Water						0.0000	0.0000		0.0000	0.0000	0.0000	2.1630	2.1630	9.0000e-005	2.0000e-005	2.1706
Total	4.0000e-004	8.2000e-004	2.1300e-003	1.0000e-005	5.7000e-004	1.0000e-005	5.8000e-004	1.5000e-004	1.0000e-005	1.6000e-004	8.1200e-003	2.7924	2.8005	6.0000e-004	2.0000e-005	2.8210

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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	2.1000e-004	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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.9000e-004	8.2000e-004	2.1300e-003	1.0000e-005	5.7000e-004	1.0000e-005	5.8000e-004	1.5000e-004	1.0000e-005	1.6000e-004	0.0000	0.6294	0.6294	3.0000e-005	0.0000	0.6302
Waste						0.0000	0.0000		0.0000	0.0000	2.0300e-003	0.0000	2.0300e-003	1.2000e-004	0.0000	5.0300e-003
Water						0.0000	0.0000		0.0000	0.0000	0.0000	2.1630	2.1630	9.0000e-005	2.0000e-005	2.1706
Total	4.0000e-004	8.2000e-004	2.1300e-003	1.0000e-005	5.7000e-004	1.0000e-005	5.8000e-004	1.5000e-004	1.0000e-005	1.6000e-004	2.0300e-003	2.7924	2.7945	2.4000e-004	2.0000e-005	2.8059

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.00	0.22	60.00	0.00	0.53

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2020	1/15/2020	5	10	
2	Site Preparation	Site Preparation	1/16/2020	1/21/2020	5	4	
3	Grading	Grading	1/21/2020	1/24/2020	5	4	
4	Building Construction	Building Construction	1/27/2020	10/30/2020	5	200	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0.5

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
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

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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
Demolition	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	9.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 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	4.3400e-003	0.0394	0.0381	6.0000e-005		2.3400e-003	2.3400e-003		2.2300e-003	2.2300e-003	0.0000	5.2038	5.2038	9.8000e-004	0.0000	5.2284
Total	4.3400e-003	0.0394	0.0381	6.0000e-005		2.3400e-003	2.3400e-003		2.2300e-003	2.2300e-003	0.0000	5.2038	5.2038	9.8000e-004	0.0000	5.2284

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3.2 Demolition - 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	1.8000e-004	1.4000e-004	1.3400e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3624	0.3624	1.0000e-005	0.0000	0.3627
Total	1.8000e-004	1.4000e-004	1.3400e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3624	0.3624	1.0000e-005	0.0000	0.3627

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	4.3400e-003	0.0394	0.0381	6.0000e-005		2.3400e-003	2.3400e-003		2.2300e-003	2.2300e-003	0.0000	5.2038	5.2038	9.8000e-004	0.0000	5.2284
Total	4.3400e-003	0.0394	0.0381	6.0000e-005		2.3400e-003	2.3400e-003		2.2300e-003	2.2300e-003	0.0000	5.2038	5.2038	9.8000e-004	0.0000	5.2284

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3.2 Demolition - 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	1.8000e-004	1.4000e-004	1.3400e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3624	0.3624	1.0000e-005	0.0000	0.3627
Total	1.8000e-004	1.4000e-004	1.3400e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3624	0.3624	1.0000e-005	0.0000	0.3627

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					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3700e-003	0.0169	8.1900e-003	2.0000e-005		6.7000e-004	6.7000e-004		6.2000e-004	6.2000e-004	0.0000	1.7118	1.7118	5.5000e-004	0.0000	1.7257
Total	1.3700e-003	0.0169	8.1900e-003	2.0000e-005	2.7000e-004	6.7000e-004	9.4000e-004	3.0000e-005	6.2000e-004	6.5000e-004	0.0000	1.7118	1.7118	5.5000e-004	0.0000	1.7257

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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	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	4.0000e-005	3.0000e-005	2.7000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0725	0.0725	0.0000	0.0000	0.0725
Total	4.0000e-005	3.0000e-005	2.7000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0725	0.0725	0.0000	0.0000	0.0725

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					1.2000e-004	0.0000	1.2000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3700e-003	0.0169	8.1900e-003	2.0000e-005		6.7000e-004	6.7000e-004		6.2000e-004	6.2000e-004	0.0000	1.7118	1.7118	5.5000e-004	0.0000	1.7257
Total	1.3700e-003	0.0169	8.1900e-003	2.0000e-005	1.2000e-004	6.7000e-004	7.9000e-004	1.0000e-005	6.2000e-004	6.3000e-004	0.0000	1.7118	1.7118	5.5000e-004	0.0000	1.7257

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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	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	4.0000e-005	3.0000e-005	2.7000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0725	0.0725	0.0000	0.0000	0.0725
Total	4.0000e-005	3.0000e-005	2.7000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0725	0.0725	0.0000	0.0000	0.0725

3.4 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					1.7700e-003	0.0000	1.7700e-003	8.6000e-004	0.0000	8.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7300e-003	0.0158	0.0153	2.0000e-005		9.3000e-004	9.3000e-004		8.9000e-004	8.9000e-004	0.0000	2.0815	2.0815	3.9000e-004	0.0000	2.0914
Total	1.7300e-003	0.0158	0.0153	2.0000e-005	1.7700e-003	9.3000e-004	2.7000e-003	8.6000e-004	8.9000e-004	1.7500e-003	0.0000	2.0815	2.0815	3.9000e-004	0.0000	2.0914

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3.4 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	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	7.0000e-005	5.0000e-005	5.4000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1450	0.1450	0.0000	0.0000	0.1451
Total	7.0000e-005	5.0000e-005	5.4000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1450	0.1450	0.0000	0.0000	0.1451

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					8.0000e-004	0.0000	8.0000e-004	3.9000e-004	0.0000	3.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7300e-003	0.0158	0.0153	2.0000e-005		9.3000e-004	9.3000e-004		8.9000e-004	8.9000e-004	0.0000	2.0815	2.0815	3.9000e-004	0.0000	2.0913
Total	1.7300e-003	0.0158	0.0153	2.0000e-005	8.0000e-004	9.3000e-004	1.7300e-003	3.9000e-004	8.9000e-004	1.2800e-003	0.0000	2.0815	2.0815	3.9000e-004	0.0000	2.0913

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3.4 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	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	7.0000e-005	5.0000e-005	5.4000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1450	0.1450	0.0000	0.0000	0.1451
Total	7.0000e-005	5.0000e-005	5.4000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1450	0.1450	0.0000	0.0000	0.1451

3.5 Building 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					
Off-Road	0.0862	0.8852	0.7388	1.1400e-003		0.0522	0.0522		0.0481	0.0481	0.0000	100.0605	100.0605	0.0324	0.0000	100.8695
Total	0.0862	0.8852	0.7388	1.1400e-003		0.0522	0.0522		0.0481	0.0481	0.0000	100.0605	100.0605	0.0324	0.0000	100.8695

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3.5 Building 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	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	1.5200e-003	0.0456	0.0121	1.1000e-004	2.6500e-003	2.2000e-004	2.8800e-003	7.7000e-004	2.1000e-004	9.8000e-004	0.0000	10.5545	10.5545	8.1000e-004	0.0000	10.5747
Worker	3.3200e-003	2.4600e-003	0.0241	7.0000e-005	7.2200e-003	5.0000e-005	7.2700e-003	1.9200e-003	5.0000e-005	1.9700e-003	0.0000	6.5239	6.5239	2.0000e-004	0.0000	6.5288
Total	4.8400e-003	0.0481	0.0362	1.8000e-004	9.8700e-003	2.7000e-004	0.0102	2.6900e-003	2.6000e-004	2.9500e-003	0.0000	17.0783	17.0783	1.0100e-003	0.0000	17.1035

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	0.0862	0.8852	0.7388	1.1400e-003		0.0522	0.0522		0.0481	0.0481	0.0000	100.0604	100.0604	0.0324	0.0000	100.8694
Total	0.0862	0.8852	0.7388	1.1400e-003		0.0522	0.0522		0.0481	0.0481	0.0000	100.0604	100.0604	0.0324	0.0000	100.8694

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3.5 Building 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	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	1.5200e-003	0.0456	0.0121	1.1000e-004	2.6500e-003	2.2000e-004	2.8800e-003	7.7000e-004	2.1000e-004	9.8000e-004	0.0000	10.5545	10.5545	8.1000e-004	0.0000	10.5747
Worker	3.3200e-003	2.4600e-003	0.0241	7.0000e-005	7.2200e-003	5.0000e-005	7.2700e-003	1.9200e-003	5.0000e-005	1.9700e-003	0.0000	6.5239	6.5239	2.0000e-004	0.0000	6.5288
Total	4.8400e-003	0.0481	0.0362	1.8000e-004	9.8700e-003	2.7000e-004	0.0102	2.6900e-003	2.6000e-004	2.9500e-003	0.0000	17.0783	17.0783	1.0100e-003	0.0000	17.1035

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

VWD Solar Program - San Diego County, Annual

	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	1.9000e-004	8.2000e-004	2.1300e-003	1.0000e-005	5.7000e-004	1.0000e-005	5.8000e-004	1.5000e-004	1.0000e-005	1.6000e-004	0.0000	0.6294	0.6294	3.0000e-005	0.0000	0.6302
Unmitigated	1.9000e-004	8.2000e-004	2.1300e-003	1.0000e-005	5.7000e-004	1.0000e-005	5.8000e-004	1.5000e-004	1.0000e-005	1.6000e-004	0.0000	0.6294	0.6294	3.0000e-005	0.0000	0.6302

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	1.00	0.00	0.00	1,525	1,525
Total	1.00	0.00	0.00	1,525	1,525

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193

5.0 Energy Detail

Historical Energy Use: N

VWD Solar Program - San Diego County, Annual

5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas 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						
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		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

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	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	2.1000e-004	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	2.1000e-004	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

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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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.0000e-004					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	2.0000e-004	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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.0000e-004					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	2.0000e-004	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

VWD Solar Program - San Diego County, Annual

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.1630	9.0000e-005	2.0000e-005	2.1706
Unmitigated	2.1630	9.0000e-005	2.0000e-005	2.1706

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.595741	2.1630	9.0000e-005	2.0000e-005	2.1706
Total		2.1630	9.0000e-005	2.0000e-005	2.1706

VWD Solar Program - San Diego County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.595741	2.1630	9.0000e-005	2.0000e-005	2.1706
Total		2.1630	9.0000e-005	2.0000e-005	2.1706

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

VWD Solar Program - San Diego County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.0300e-003	1.2000e-004	0.0000	5.0300e-003
Unmitigated	8.1200e-003	4.8000e-004	0.0000	0.0201

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.04	8.1200e-003	4.8000e-004	0.0000	0.0201
Total		8.1200e-003	4.8000e-004	0.0000	0.0201

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8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.01	2.0300e-003	1.2000e-004	0.0000	5.0300e-003
Total		2.0300e-003	1.2000e-004	0.0000	5.0300e-003

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

VWD Solar Program - San Diego County, Annual

Greenhouse Gas Emission Worksheet
N2O Mobile Emissions

Solar Program

From URBEMIS 2015 Vehicle Fleet Mix Output:

Annual VMT: 1,525

Vehicle Type	Percent Type	CH4 Emission Factor (g/mile)*	CH4	N2O Emission Factor (g/mile)*	N2O
			Emission (g/mile)**		Emission (g/mile)**
Light Auto	53.3%	0.04	0.02132	0.04	0.02132
Light Truck < 3750 lbs	4.0%	0.05	0.002	0.06	0.0024
Light Truck 3751-5750 lbs	18.3%	0.05	0.00915	0.06	0.01098
Med Truck 5751-8500 lbs	12.6%	0.12	0.01512	0.2	0.0252
Lite-Heavy Truck 8501-10,000 lbs	1.8%	0.12	0.00216	0.2	0.0036
Lite-Heavy Truck 10,001-14,000 lbs	0.5%	0.09	0.00045	0.125	0.000625
Med-Heavy Truck 14,001-33,000 lbs	1.7%	0.06	0.00102	0.05	0.00085
Heavy-Heavy Truck 33,001-60,000 lbs	6.2%	0.06	0.00372	0.05	0.0031
Other Bus	0.1%	0.06	0.00006	0.05	0.00005
Urban Bus	0.1%	0.06	0.00006	0.05	0.00005
Motorcycle	0.4%	0.09	0.00036	0.01	0.00004
School Bus	0.9%	0.06	0.00054	0.05	0.00045
Motor Home	0.1%	0.09	0.00009	0.125	0.000125
Total	100.0%		0.05605		0.06879

Total Emissions (metric tons) =

Emission Factor by Vehicle Mix (g/mi) x Annual VMT(mi) x 0.000001 metric tons/g

Conversion to Carbon Dioxide Equivalency (CO2e) Units based on Global Warming Potential (GWP)

CH4 25 GWP
 N2O 298 GWP
 1 ton (short, US) = 0.90718474 metric ton

Annual Mobile Emissions:

	Total Emissions	Total CO2e units
N2O Emissions:	0.0001 metric tons N2O	0.03 metric tons CO2e

Project Total:	0.03 metric tons CO2e
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References

* from Table C.4: Methane and Nitrous Oxide Emission Factors for Mobile Sources by Vehicle and Fuel Type (g/mile).
 in California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.
 Assume Model year 2000-present, gasoline fueled.
 ** Source: California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.
 *** From URBEMIS 2007 results for mobile sources

B

NAHC

Correspondence

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NATIVE AMERICAN HERITAGE COMMISSION

Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691 Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: <http://www.nahc.ca.gov>



July 23, 2019

Robert Scholl
Vallecitos Water District

VIA Email to: rscholl@vwd.org

RE: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, District-Wide Solar Project, San Diego County

Dear Mr. Scholl:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) (“Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.”)

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe’s areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
 - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
 - Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
 - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.
2. The results of any archaeological inventory survey that was conducted, including:
- Any report that may contain site forms, site significance, and suggested mitigation measures.
- All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.
3. The result of any Sacred Lands File (SLF) check conducted through the NAHC was negative.
4. Any ethnographic studies conducted for any area including all or part of the APE; and
5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: steven.quinn@nahc.ca.gov.

Sincerely,



Steven Quinn
Associate Governmental Program Analyst

Attachment

**Native American Heritage Commission
Tribal Consultation List
San Diego County
7/23/2019**

Agua Caliente Band of Cahuilla Indians

Jeff Grubbe, Chairperson
5401 Dinah Shore Drive
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Cahuilla

Inaja-Cosmit Band of Indians

Rebecca Osuna, Chairperson
2005 S. Escondido Blvd.
Escondido, CA, 92025
Phone: (760) 737 - 7628
Fax: (760) 747-8568

Diegueno

Barona Group of the Capitan Grande

Edwin Romero, Chairperson
1095 Barona Road
Lakeside, CA, 92040
Phone: (619) 443 - 6612
Fax: (619) 443-0681
cloyd@barona-nsn.gov

Diegueno

Jamul Indian Village

Erica Pinto, Chairperson
P.O. Box 612
Jamul, CA, 91935
Phone: (619) 669 - 4785
Fax: (619) 669-4817
epinto@jiv-nsn.gov

Diegueno

Campo Band of Diegueno Mission Indians

Ralph Goff, Chairperson
36190 Church Road, Suite 1
Campo, CA, 91906
Phone: (619) 478 - 9046
Fax: (619) 478-5818
rgoff@campo-nsn.gov

Diegueno

Jamul Indian Village

Lisa Cumper, Tribal Historic
Preservation Officer
P.O. Box 612
Jamul, CA, 91935
Phone: (619) 669 - 4855
lcumper@jiv-nsn.gov

Diegueno

Ewiiapaayp Tribe

Robert Pinto, Chairperson
4054 Willows Road
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
wmicklin@leaningrock.net

Diegueno

Kwaaymii Laguna Band of Mission Indians

Carmen Lucas,
P.O. Box 775
Pine Valley, CA, 91962
Phone: (619) 709 - 4207

Diegueno
Kwaaymii

Ewiiapaayp Tribe

Michael Garcia, Vice Chairperson
4054 Willows Road
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
michaelg@leaningrock.net

Diegueno

La Jolla Band of Luiseno Indians

Fred Nelson, Chairperson
22000 Highway 76
Pauma Valley, CA, 92061
Phone: (760) 742 - 3771

Luiseno

Iipay Nation of Santa Ysabel

Virgil Perez, Chairperson
P.O. Box 130
Santa Ysabel, CA, 92070
Phone: (760) 765 - 0845
Fax: (760) 765-0320

Diegueno

La Posta Band of Diegueno Mission Indians

Gwendolyn Parada, Chairperson
8 Crestwood Road
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
LP13boots@aol.com

Diegueno

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This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed District-Wide Solar Project, San Diego County.

**Native American Heritage Commission
Tribal Consultation List
San Diego County
7/23/2019**

**La Posta Band of Diegueno
Mission Indians**

Javaughn Miller, Tribal
Administrator
8 Crestwood Road Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

**Manzanita Band of Kumeyaay
Nation**

Angela Elliott Santos, Chairperson
P.O. Box 1302 Diegueno
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957

**Mesa Grande Band of Diegueno
Mission Indians**

Michael Linton, Chairperson
P.O. Box 270 Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 782 - 3818
Fax: (760) 782-9092
mesagrandeband@msn.com

Pala Band of Mission Indians

Robert Smith, Chairperson
35008 Pala Temecula Road Cupeno
Pala, CA, 92059 Luiseno
Phone: (760) 891 - 3500
Fax: (760) 742-3189
rsmith@palatribe.com

Pauma Band of Luiseno Indians

Temet Aguilar, Chairperson
P.O. Box 369 Luiseno
Pauma Valley, CA, 92061
Phone: (760) 742 - 1289
Fax: (760) 742-3422
bennaecalac@aol.com

**Pechanga Band of Luiseno
Indians**

Mark Macarro, Chairperson
P.O. Box 1477 Luiseno
Temecula, CA, 92593
Phone: (951) 770 - 6000
Fax: (951) 695-1778
epreston@pechanga-nsn.gov

Rincon Band of Luiseno Indians

Jim McPherson, Tribal Historic
Preservation Officer
One Government Center Lane Luiseno
Valley Center, CA, 92082
Phone: (760) 749 - 1051
Fax: (760) 749-5144
vwhipple@rincontribe.org

Rincon Band of Luiseno Indians

Bo Mazzetti, Chairperson
One Government Center Lane Luiseno
Valley Center, CA, 92082
Phone: (760) 749 - 1051
Fax: (760) 749-5144
bomazzetti@aol.com

**San Luis Rey Band of Mission
Indians**

San Luis Rey, Tribal Council
1889 Sunset Drive Luiseno
Vista, CA, 92081
Phone: (760) 724 - 8505
Fax: (760) 724-2172
cjmojado@slrmissionindians.org

**San Pasqual Band of Diegueno
Mission Indians**

Allen Lawson, Chairperson
P.O. Box 365 Diegueno
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
allenl@sanpasqualtribe.org

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This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed District-Wide Solar Project, San Diego County.

Native American Heritage Commission
Tribal Consultation List
San Diego County
7/23/2019

**Soboba Band of Luiseno
Indians**

Scott Cozart, Chairperson
P. O. Box 487 Cahuilla
San Jacinto, CA, 92583 Luiseno
Phone: (951) 654 - 2765
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

**Sycuan Band of the Kumeyaay
Nation**

Cody J. Martinez, Chairperson
1 Kwaaypaay Court Kumeyaay
El Cajon, CA, 92019
Phone: (619) 445 - 2613
Fax: (619) 445-1927
ssilva@sycuan-nsn.gov

**Viejas Band of Kumeyaay
Indians**

John Christman, Chairperson
1 Viejas Grade Road Diegueno
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337

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SAN LUIS REY BAND OF MISSION INDIANS

1889 Sunset Drive • Vista, California 92081

760-724-8505 • FAX 760-724-2172

www.slrmissionindians.org

August 7, 2019

Robert Scholl, PE
Senior Engineer
Development Services
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069

VIA ELECTRONIC MAIL
rscholl@vwd.org

RE: Formal Request for Tribal Consultation Pursuant to the California Environmental Quality Act (CEQA), Public Resources Code section 21080.3.1, subds. (b), (d) and (e) for the Vallecitos Water District's District-Wide Solar Program (City of San Marcos)

Dear Mr. Scholl:

This letter constitutes a formal request for tribal consultation under the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code section 21080.3.1 subdivisions (b), (d) and (e)) and the County of San Diego's request to consult for purposes of Sacred Lands Consultation for the mitigation of potential project impacts to tribal cultural resource for the above referenced project. The San Luis Rey Band of Mission Indians requested formal notice and information for all projects within your agency's geographical jurisdiction and received notification on or about July 8, 2019 regarding the above referenced project. However, due to your notification letter's lack of identification of the project being subject to AB 52, your letter was not responded to sooner. In the future, please do not "presume" a decline to consult on behalf of the Tribe if you have not heard from the Tribe in 30 days as your letter states. The Tribe respectfully requests that additional clarifying information be relayed in the future regarding how the invitation to consult is being offered, such as pursuant to AB 52, and not as a general invitation to provide information.

The San Luis Rey Band of Mission Indians requests consultation on the following topics checked below, which shall be included in consultation if requested (Public Resources Code section 21080.3.2, subd. (a)):

- Alternatives to the project
- Recommended mitigation measures
- Significant effects of the project

The San Luis Rey Band of Mission Indians also requests consultation on the following discretionary topics checked below (Public Resources Code section 21080.3.2 (subd. (a)):

- Type of environmental review necessary
- Significance of tribal cultural resources, including any regulations, policies or standards used by your agency to determine significance of tribal cultural resources
- Significance of the project's impacts on tribal cultural resources
- Project alternatives and/or appropriate measures for preservation or mitigation that we may recommend, including, but not limited to:
 - (1) Avoidance and preservation of the resources in place, pursuant to Public Resources Code section 21084.3, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks or other open space, to incorporate the resources with culturally appropriate protection and management criteria;
 - (2) Treating the resources with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resources, including but not limited to the following:
 - a. Protecting the cultural character and integrity of the resource;
 - b. Protection the traditional use of the resource; and
 - c. Protecting the confidentiality of the resource.
 - (3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
 - (4) Protecting the resource.

Additionally, the San Luis Rey Band of Mission Indians requests to receive any cultural resources assessments or other assessments that have been completed on all or part of the project's potential "area of project effect" (APE), including, but not limited to:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:
 - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE;
 - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
 - If the probability is low, moderate, or high that cultural resources are located in the APE.

- Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the potential APE; and
 - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.
2. The results of any archaeological inventory survey that was conducted, including:
 - Any report that may contain site forms, site significance, and suggested mitigation measures.
All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code Section 6254.10.
 3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission. The request form can be found at http://www.nahc.ca.gov/slf_request.html. USGS 7.5-minute quadrangle name, township, range, and section required for the search.
 4. Any ethnographic studies conducted for any area including all or part of the potential APE; and
 5. Any geotechnical reports regarding all or part of the potential APE.

We would like to remind your agency that CEQA Guidelines section 15126.4, subdivision (b)(3) states that preservation in place is the preferred manner of mitigating impacts to archaeological sites. Section 15126.4, subd. (b)(3) of the CEQA Guidelines has been interpreted by the California Court of Appeal to mean that “feasible preservation in place must be adopted to mitigate impacts to historical resources of an archaeological nature unless the lead agency determines that another form of mitigation is available and provides superior mitigation of impacts.” *Madera Oversight Coalition v. County of Madera* (2011) 199 Cal.App.4th 48, disapproved on other grounds, *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439.

The San Luis Rey Band of Mission Indians expects to begin consultation within 30 days of your receipt of this letter. Please contact the San Luis Rey Band of Mission Indians lead contact person identified in our previous request for notification.

Name: Cami Mojado
Title: Cultural Resources Manager
Address: 1889 Sunset Drive, Vista, CA 92081
Office Phone Number: 760-724-8505
Direct Cell Phone Number: 760-917-1736
Office Fax Number 760-724-2172
Email Address: cjmojado@slrmissionindians.org

Sincerely,

A handwritten signature in black ink that reads "Merri Lopez-Keifer". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

Merri Lopez-Keifer
Chief Legal Counsel
San Luis Rey Band of Mission Indians

From: Cheryl Madrigal <CMadrigal@rincon-nsn.gov>
Sent: Tuesday, August 06, 2019 8:36 AM
To: Robert Scholl <rscholl@vwd.org>
Cc: Destiny Colocho <DColocho@rincon-nsn.gov>; Deneen Pelton <DPelton@rincon-nsn.gov>
Subject: Vallecitos Water District's District-Wide Solar Program

Dear Mr. Scholl,

This letter is written on behalf of the Rincon Band of Luiseño Indians. We have received your notification regarding the above referenced project and we thank you for the opportunity to consult on this project. The identified location is within the territory of the Luiseño people, and is also within Rincon's specific area of historic interest.

Embedded in the Luiseño territory are Rincon's history, culture and identity. Rincon has knowledge of cultural resources within close proximity to the two proposed project sites. We recommend that an archaeological record search be conducted for both sites and ask that a copy of the results be provided to the Rincon Band. We request consultation at this time in order to learn more about the project and any potential impacts to cultural resources.

If you have additional questions or concerns please do not hesitate to contact our office at your convenience at (760) 297-2635.

Thank you for the opportunity to protect and preserve our cultural assets.

Sincerely,

Cheryl Madrigal, M.A.

Interim Cultural Resources Manager
Museum Specialist

Cultural Resources Department
Wašxayam Pomkì Museum

Rincon Band of Luiseño Indians

1 West Tribal Road | Valley Center, CA 92082

Mailing address: One Government Center Ln. | Valley Center, CA 92082

Office: 760-297-2635 ext. 318 | Cell: 760-648-3000

Email: cmadrigal@rincon-nsn.gov



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