DRAFT MITIGATED NEGATIVE DECLARATION

for

Goleta Sanitary District Energy Storage Project One William Moffett Place Goleta, California 93117

Prepared For:

Goleta Sanitary District
One William Moffett Place
Goleta, California 93117

Prepared By:

Langan CA, Inc.
104 West Anapamu Street, Suite 204B
Santa Barbara, California 93101

Heather McDaniel McDevitt
CEQA Practice Director

October 2026
PN 781031301
SCH Number: [TBD]

TABLE OF CONTENTS

1.0 Introduction 8

1.1 Project Overview 8

1.2 Regulatory Background 8

1.3 Public Review Process 9

2 Project Description 10

2.1 Purpose and Need 10

2.2 Project Location 10

2.3 Existing Site Conditions 14

2.4 Project Design 16
2.4.1 Project Components 16
2.4.2 Civil Works and Utilities 17

2.5 Project Construction 18
2.5.1 Construction Equipment 18
2.5.2 Construction Phases and Schedule 19
2.5.3 Truck Load Estimates 20
2.5.4 Construction Best Management Practices (BMPs) 21

2.6 Required Permits and Approvals 22
2.6.1 Regional and Local Permits and Approvals 22
2.6.2 California Permits and Approvals 22
2.6.3 Federal Permits and Approvals 22

3 Environmental Impact Areas 23

3.1 Environmental Checklist 23

3.2 Determination 24

3.3 Environmental Checklist Discussion 25

3.4 Aesthetics 26

3.5 Agriculture and Forestry Resources 30

3.6 Air Quality 34

3.7 Biological Resources 48

3.8 Cultural Resources 62

3.9 Energy 92

3.10 Geology and Soils 95

3.11 Greenhouse Gas Emissions 105

3.12 Hazards and Hazardous Materials 109

3.13 Hydrology and Water Quality 114

3.14 Land Use and Planning 124

3.15 Mineral Resources 126

3.16 Noise *128*
3.17 Population Housing *135*
3.18 Public Services *137*
3.19 Recreation *141*
3.20 Transportation *144*
3.21 Tribal Cultural Resources *146*
3.22 Utilities/Service Systems *156*
3.23 Wildfire *160*
3.24 Mandatory Findings of Significance *163*

4 Mitigation Measures **165**

5 References and Preparers **175**

5.1 References *175*
5.2 Preparers *184*
5.2.1 Langan CA, Inc. 184
5.2.2 Goleta Sanitary District 184

LIST OF FIGURES

Figure 2-1 Project Location 12
Figure 2-2 Project Layout 13
Figure 3-1 Biological Resources 54
Figure 3-2 Previous Disturbance and Investigations of Goleta Sanitary District 83

LIST OF TABLES

Table 2.2-1: Adjoining Land Uses 11
Table 2.4-1: Solar Configuration and Rating 16
Table 2.5-1: Construction Offroad Equipment for the Proposed Project 18
Table 2.5-2: Proposed Project Construction Schedule 19
Table 2.5-3: Clearing & Grubbing Depths and Excavation Amounts 20
Table 3.1-1 Environmental Impact Areas Potentially Affected 23
Table 3.6-1: CAAQS, NAAQS, and SBCAPCD Attainment Status 37
Table 3.6-2: Summary of the SBCAPCD Significance Thresholds for Construction and Operational Emissions 41
Table 3.6-3: Construction Traffic Summary 42
Table 3.6-4: Construction Emissions 44
Table 3.6-5: Operational Emissions 45
Table 3.7-1: Summary of Existing Vegetation Communities and Land Cover Types 53
Table 3.8-1: Cultural Resources Recorded within a 0.5-mile Radius of the Proposed Project Site 68
Table 3.8-2: Previous Technical Studies Addressing the Proposed Project Site 74

Table 3.8-3: Historic Aerial Photograph Review....78
Table 3.8-4: Historic Topographic Map Review....80
Table 3.9-1: Construction Mobile Source Energy Use....93
Table 3.9-2: Operational Area and Mobile Source Energy Use....94
Table 3.10-1: Paleontological Resource Localities Near the Project Site (NHML 2025)....100
Table 3.11-1: Construction GHG Emissions....107
Table 3.11-2: Operational GHG Emissions....107
Table 3.11-3: Operational GHG Emissions Thresholds Impact....107
Table 3.16-1: Noise Impacts from Construction....133
Table 3.21-1. Native American Consultation Summary....149

TABLE OF APPENDICES

APPENDIX A – Air Quality Modeling
APPENDIX B - Biological Species List
APPENDIX C – (Confidential) Cultural Technical Study
APPENDIX D – Geotechnical Reports
APPENDIX E – Paleontological Records
APPENDIX F – (Confidential) Native American Cultural Resources
APPENDIX G – Mitigation Monitoring and Reporting Program (MMRP)

LIST OF ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
AIA	Airport Influence Area
AMSL	above mean sea level
approx.	approximately
APN	Assessor's Parcel Numbers
APCD	Air Pollution Control District
APSA	Aboveground Petroleum Storage Act
ATC	Authority to Construct
BACT	Best Available Control Technology
BMP	Best Management Practices
CA	California
CAA	Clean Air Act
CAP	Climate Action Plan
CAAQS	California Ambient Air Quality Standards
CalARP	California Accidental Release Prevention
CalEEMod	California Emissions Estimator Model®
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
CalFire	California Department of Forestry and Fire Protection
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCC	California Coastal Commission
CCIC	Central Coast Information Center
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CGS	California Geologic Survey
CH_4	methane
CHRIS	California Historical Resources Information System
CMU	concrete masonry unit
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Ranking
CSNC	Communities List and the California Sensitive Natural Communities
CUP	Conditional Use Permit
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dB	decibel
DTSC	Department of Toxic Substances Control

DWR	Department of Water Resources
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ESCP	erosion and sediment control plan
ESH	environmentally sensitive habitat
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
FOG	Fats, Oil, and Grease
FTA	Federal Transit Administration
FWHA	Federal Highway Administration
g	gravity
GHG	Greenhouse gas
GSA	Groundwater Sustainability Agencies
GSD	Goleta Sanitary District
GSP	Groundwater Sustainability Plan
gWh	gigawatt-hours
GWP	global warming potential
HHDT	heavy-heavy-duty trucks
HMBP	Hazardous Materials Business Plan
HP	horsepower
IPaC	Information for Planning and Consultation
IPCC	Intergovernmental Panel on Climate Change
kW	kilowatt
kWh	kilowatt-hours
LDA	light-duty automobiles
LDT	light-duty trucks
LRA	Local Responsibility Area
MCV2	Manual of California Vegetation, Second Edition
MGD	million gallons per day
MHDT	medium-heavy-duty trucks
MM	Mitigation Measure
MMcf	million cubic feet
MMRP	Mitigation Monitoring and Reporting Program
MND	Mitigated Negative Declaration
mph	miles per hour
MRZ	Mineral Resource Zone
MS4	Municipal Separate Storm Sewer System
msl	mean sea level
MWh	megawatt-hours
NAAQS	National Ambient Air Quality Standards (NAAQS)
NAHC	Native American Heritage Commission
NFIP	National Flood Insurance Program
NHMLA	Natural History Museum of Los Angeles County
NO_2	nitrogen dioxide
NOx	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places

OSHA	Occupational Safety and Health Association
PCS	power conversion system
PG&E	Pacific Gas & Electric
PM10, PM2.5	particulate matter
ppm	parts per million
PPV	peak particle velocity
PSD	Prevention of Significant Deterioration
PTO	Permit to Operate
PU	Public Works Utilities and Private Services Facilities zoning
PRC	Public Resources Code
PV	photovoltaic
R	refrigerants
RC	Riparian Corridor
RCRA	Resource Conservation and Recovery Act
ROC	reactive organic compounds
RTP-SCS	Regional Transportation Plan and Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SBCAG	Santa Barbara County Association of Governments
SBCAPCD	Santa Barbara County Air Pollution Control District
SBCoFD	Santa Barbara County Fire Protection District
SCE	Southern California Edison
SGMA	Sustainable Groundwater Management Act
SMARA	Surface Mining and Reclamation Act of 1975
SO_2	sulfur dioxide
sq ft	square feet
SSC	Species of Special Concern
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
UCSB	University of California, Santa Barbara
U.S.	United States
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USFP	Unit Strategic Fire Plan
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geologic Survey
UST	underground storage tank
UT	Public Utility
VMT	vehicle miles traveled
WOTUS	Waters of the United States
WRRF	Water Resources Recovery Facility
WTP	Wastewater Treatment Plant

1.0 INTRODUCTION

1.1 Project Overview

Goleta Sanitary District (GSD) owns and operates the Goleta Water Resource Recovery Facility (WRRF) located at One William Moffett Place in unincorporated Santa Barbara County, California. The WRRF is located easterly adjacent to the Santa Barbara Municipal Airport within a generally coastal area. GSD is a special services district that provides wastewater collection, treatment, reclamation and disposal services to residents and businesses within the Goleta Valley.

GSD currently relies on traditional utilities, including Southern California Edison (SCE) and Central Coast Community Energy, for energy production. In order achieve its long-term goal of energy neutrality while increasing its control over energy resilience and consumption costs, GSD proposes the construction and operation of a solar and battery energy storage project (the Project) within the WRRF footprint. The proposed system would include an 807-kW solar array, comprised of three installations, and a 1,632-kWh (408-kW, 4-hour) battery. New electrical duct banks would also be installed using directional borings within the WRRF for routing of electrical conductors associated with the system. The Project is expected to generate approximately 1,414,000 kWh (1.4 GWh) annually, meeting approximately 36% of the WRRF's electrical energy needs.

1.2 Regulatory Background

This Mitigated Negative Declaration has been prepared in accordance with the provisions of the California Environmental Quality Act (CEQA), as set forth in the California Public Resources Code (PRC) Sections 21000 to 21174. In accordance with the California Code of Regulations (CCR) Title 14 Section 15002(a) CEQA Guidelines, the basic purposes of CEQA are to inform public agency decisionmakers and the general public of the significant environmental effects of a project, identify possible ways to minimize the significant effects through the use of mitigation measures or alternatives to the Project, and disclose to the public the reasons why a government agency approve the project, if significant environmental effects are involved.

An MND for a project subject to CEQA is prepared when an environmental analysis of the project shows that there is no substantial evidence that the project may have a significant effect on the environment after mitigation[1]. As discussed in Section 3 – Environmental Checklist, the proposed Project is not expected to result in any significant adverse environmental impacts after mitigation. Therefore, an MND is the appropriate CEQA document.

[1] CEQA Guidelines Section 15070(b)

1.3 Public Review Process

Publication of this MND marks the beginning of a 30-day public review and comment period. During this period, the MND will be available to local, state, and federal agencies, as well as interested organizations and individuals for review. Written comments concerning the environmental review contained in this MND during the 30-day public review period should be sent to:

Steve D. Wagner, P.E.
General Manager/District Engineer
Goleta Sanitary District
One William Moffett Place, Goleta CA 93117
Phone: (805) 967-4519; Fax: (805) 964-3583
SWagner@GoletaSanitary.org

Comments are requested to be provided no later than **November 23rd, 2026,** at **5:00 p.m.**

Following conclusion of the public review period, GSD will consider the adoption of the MND for the Project at a regularly scheduled GSD meeting. GSD shall consider the MND together with any comments received during the public review process. Upon adoption of the MND, GSD may proceed with Project approval actions.

2 PROJECT DESCRIPTION

2.1 Purpose and Need

The purpose of the Project is to meet 36% of the energy demand at the Goleta Water Resource Recovery Facility (WRRF, "Project Site"), as well as support the Goleta Sanitary District's (GSD) long-term goal of achieving energy neutrality through reduced reliance on traditional utilities and ensuring enhanced energy resilience during main grid outages. The Project would allow GSD greater control over its energy production, consumption, and costs from Southern California Edison (SCE) and Central Coast Community Energy.

2.2 Project Location

The Project will be constructed at the Goleta Water Resource Recovery Facility (WRRF, "Project Site"), located at One William Moffett Place, Goleta, within unincorporated Santa Barbara County, California (the County). The 42.2-acre Goleta WRRF occupies Assessor's Parcel Numbers (APNs) 071-200-024, 071-200-022, 071-200-019, and 071-200-003. The WRRF is bounded to the west by Moffett Place, to the north by James Fowler Road, to the east by an engineered channel of San Pedro Creek, and to the south by the on/off ramp for Ward Memorial Boulevard (CA State Route 217 (Figure 2-1 – Project Location). The WRRF is located near the following jurisdictions:

- City of Goleta: approximately 75 feet southwest of the City of Goleta (city limit begins northeast of S. Fairview Avenue)
- City of Santa Barbara: approximately 75 feet south and west of the City of Santa Barbara, including the annexed Santa Barbara Municipal Airport land

The solar installation includes approximately 1,552 photovoltaic modules installed in three separate areas throughout the WRRF as shown on Figure 2-2 – Project Layout. The majority of the solar installation will be located within APN 071-200-024, with one solar array partially located within APN 071-200-019.

The first solar array (Western Solar Array) will be installed with steel piles on the large grassy area north of the reclamation water reservoir, near the western boundary of the site at Moffett Place.

The second solar array (Carport Solar Array) will be installed along an existing surface parking and walkway area south of the Administrative Building and south of the Power and Maintenance Building, using foundation columns and a T-structure.

The third solar array (Canopy Solar Array) will be installed along a slope south of the primary clarifiers (sedimentation tanks) using foundation columns and a T-structure.

A concrete pad will be constructed for the battery storage unit, located north of the existing Power and Maintenance Building within APN 071-200-019.

Surrounding Land Uses

Table 2.2-1 details the adjoining land uses to the Project.

Table 2.2-1: Adjoining Land Uses

Direction	Surrounding Land Use
North	Santa Barbara Municipal Airport (i.e., parking and runway)
West	Santa Barbara Municipal Airport (i.e., terminal and runway)
East	Vacant public utility area and San Pedro Creek
South	Goleta Pier and Goleta Beach Park Recreational Area

The Santa Barbara Municipal Airport is the prominent land use and facility in the surrounding area. The terminal building is located approximately 300 feet west of the WRRF and approximately 600 feet northwest of the Project Site boundary. Runways 15R-33L and 15L-33R, the closest of the Airport's runways in proximity to the Project Site, are located approximately 700 feet west of the Project Site's boundary.

Figure 2-1 Project Location

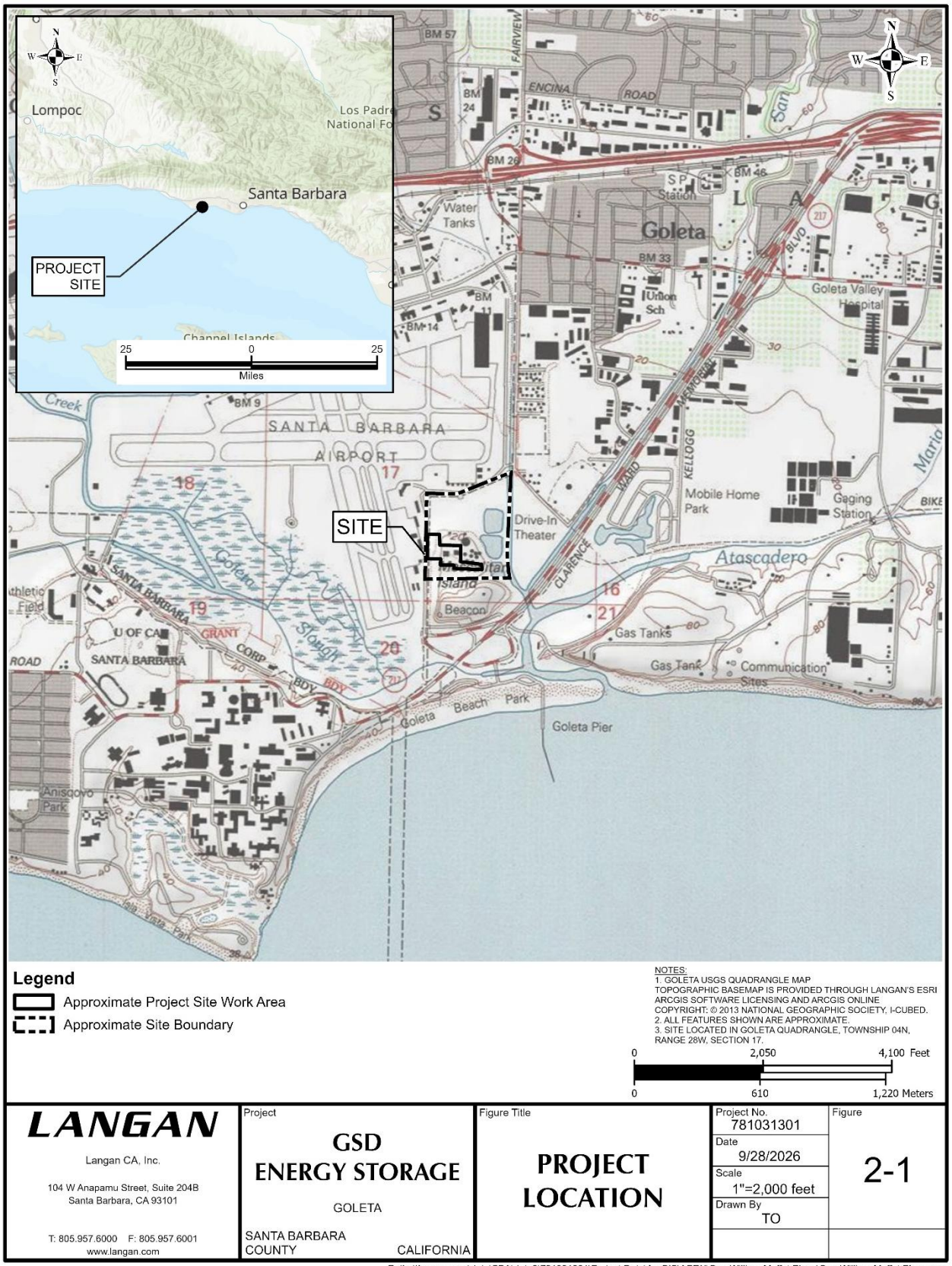
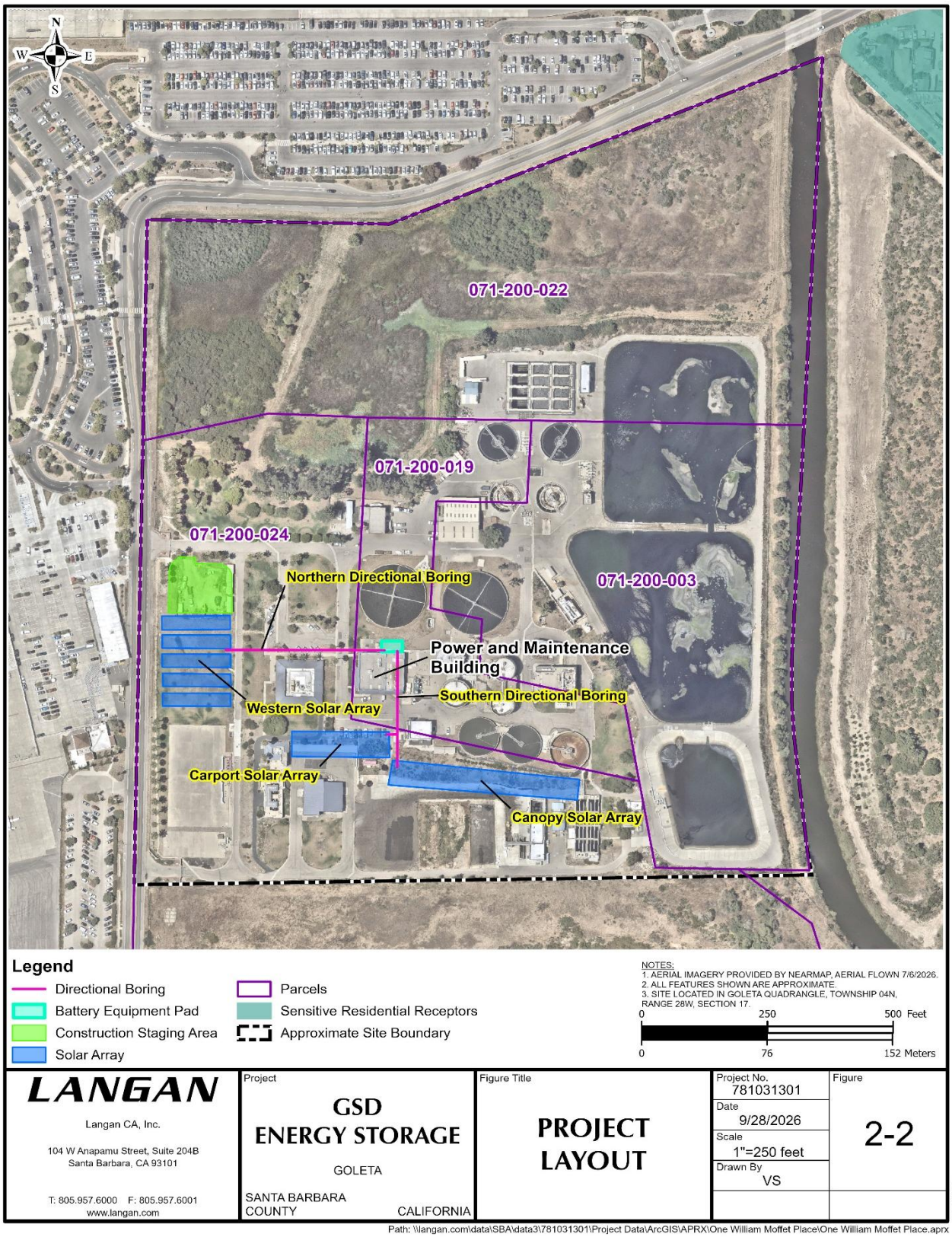


Figure 2-2 Project Layout



The nearest residential uses are located along South Fairview Avenue and Placencia Street, approximately 600 feet northeast of the WRRF and 1,500 feet northeast of the northern boundary of the proposed Project Site affected area.

Zoning and Land Use

The Project Site is zoned Public Works Utilities and Private Services Facilities (PU), which is applied to areas that are appropriate for the siting of large-scale public works, utilities and private service facilities. The PU zoning designation ensures adequate design requirements to ensure such facilities are compatible with surrounding land uses.

The Santa Barbara County land use designation for the Project Site is Public Utility (UT) under the Community Facilities land use class. Much like the zoning designation for the Project Location, UT land use designations are designated for facilities and service of a public utility and follow design requirements prescribed by the Santa Barbara County Zoning Ordinance.

In addition to the Santa Barbara County Comprehensive Plan, the Project also falls within the Eastern Goleta Valley Community Plan Area.

2.3 Existing Site Conditions

Current Facility Components

The Project is located at the Goleta Sanitary District (GSD) Water Resource Recovery Facility (WRRF) located at One William Moffett Place, Goleta, in unincorporated Santa Barbara County, California. The WRRF has an annual average daily flow design capacity of 9.6 million gallons per day (MGD) and has a permitted effluent average daily dry weather flow of 7.64 MGD. The WRRF is currently treating an average daily dry weather flow of 4.9 MGD. The treatment process at the WRRF consists of bar screens to remove large debris and aerated grit tanks. Wastewater subsequently flows into three primary clarifiers for solids removal prior to secondary treatment, which includes biofilters, three aeration basins, and four secondary clarifiers. As of 2026, a replacement anaerobic digester and a combined heat and power (CHP) system are under construction. A thermal heating and dryer system is also proposed to be added to the facility to achieve Class A biosolids.

List of Current Facility Components

- Influent Pump Station
- (3) Primary Clarifiers
- (2) Biofilters
- (4) Secondary Sedimentation Tanks
- Chlorine Contact Chamber
- (2) Solids Stabilization Basins
- Equalization Basin
- Reclamation Facility
- Reclamation Disinfection and Reservoir
- Chemical Storage Tanks
- (3) Anaerobic Digesters
- Biosolids Drying Beds
- Digester Gas Treatment Pad
- Effluent Diversion Structure
- Interstage Pump Station
- Administration Building
- Power and Maintenance Building
- Maintenance Office

- Collections Offices and Weld Shop
- Shower and Locker Building
- Aeration Basins and Blower Building
- Solids Handling Building
- Vehicle Storage Building
- Old Laboratory Building
- Headworks Building
- Secondary MCC Building

Topography, Geology and Soils

The Project site has an elevation of approximately 20 feet to 40 feet above mean sea level (msl) and is relatively flat to gently sloping. According to the USGS Web Soil Survey, the soils underlying the Project site primarily consist of Camarillo fine sandy loam zero to two percent slopes, and Xerorthents, cut and fill areas. The Camarillo soil series is characterized by very deep, somewhat poorly drained soils that formed in alluvium derived from sedimentary rocks. Xerorthents are derived from rock, concrete, asphalt or other debris or earthy fill, and are indicative of past ground disturbance and fill activities. According to the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP), the Project site is not considered Prime Farmland.

Based on regional geologic maps and a prior geotechnical report conducted for the Project Site (Ninyo & Moore 2021, Appendix D), the Project Site is underlain by fill and terrace deposits and at depth by the Monterrey Formation. Fill material consisting of very loose to medium dense silty sand was encountered in borings to a depth of eight feet below ground surface. Terrace deposits consisting of unconsolidated sandy soils, silty claystone, and silty sandstone were encountered to a depth of 63 feet. Monterey Formation bedrock consisting of clayey siltstone was encountered below the terrace deposits to the maximum depth drilled of 67 feet.

Climate

Goleta is located in southern Santa Barbara County and as such, has a mediterranean climate influenced by maritime winds from the Pacific Ocean with moderate average temperature. Goleta has a relatively large thermal span for a shoreline town, with the warmest temperature on record measuring at 109°F and the coldest temperature on record measuring at 20°F.

Archaeological Resources

In 1941, a large portion of the site was used to fill in the Goleta Slough in preparation for the airport currently known as the Santa Barbara Municipal Airport. One previously recorded cultural resource, CA-SBA-46, has been identified within the Project site. CA-SBA-46 contains both prehistoric and historic components and is the location of the former Barbareño Chumash village Helo'. Despite the disturbance to CA-SBA-46, intact cultural deposits have been identified within the last 80 years. Although not formally listed on either the California Register of Historic Resources or the National Register of Historic Resources, the site meets the criteria of historically or culturally significant pursuant to PRC Section 21083 and PRC Section 21083.2 and is therefore afforded protection and mitigation in accordance with Section 21084.

Biological Resources

The Project Site is located within the Goleta basin of the coastal plain and the Goleta Slough watershed. It is situated northwest of where San Jose Creek, San Pedro Creek, Atascadero Creek, and Goleta Slough converge. San Pedro Creek runs adjacent to the eastern boundary of the site in an engineered channel, while Atascadero Creek and San Jose Creek are approximately 500 and 700 feet east of the site, respectively. The surrounding areas include estuarine wetlands to the south and west, and freshwater wetlands to the east.

The Project Site is in the coastal zone and is fully developed with paved areas, buildings, concrete structures, and landscaping. The vegetation is primarily ornamental and non-native species like Bermuda grass and perennial rye grass. The site's proximity to the Goleta Slough attracts various bird species, some of which use the solids stabilization basins as low-quality aquatic habitat.

2.4 Project Design

2.4.1 Project Components

The following proposed components would be located entirely within the existing facility footprint, and no additional land will be required to accommodate the solar array and battery system. Figure 2-2 Project Layout provides the proposed layout outlining each component.

A description of each Project component is provided below.

2.4.1.1 Solar Array

The proposed system includes 807 kW of solar arrays encompassing an estimated 45,680 square feet of surface area. The solar arrays would be located on two undeveloped grassy areas that contain existing ornamental landscaping and one surface parking area. Configurations and solar ratings are provided in Table 2-4-1.

Table 2.4-1: Solar Configuration and Rating

Foundation Type	Name	Location	Estimated Module Area (sq ft)*	Estimated Solar Rating (kW)
Steel piles	Western Solar Array	Flat grassy area north of the reclamation reservoir	21,174	364
Drilled piers	Carport Solar Array	Parking area south of Administrative Building	7,486	152.88
Drilled piers	Canopy Solar Array	Slope below primary clarifiers	17,020	290.16

*The area represents a conservative approach for the affected areas that includes the support foundations and land beneath the panels that may remain ungraded and pervious.

The solar arrays would have an anti-reflective coating that implements specialized layers applied to minimize light reflection and maximize light absorption. The anti-reflective coating involves nanotechnology and nanoporous silica, creating a gradient of refractive index that cancels out reflective light waves.

2.4.1.2 Battery Energy Storage System

The 1,632-kWh/408-kW 4-hour Eos Z3 battery cube and associated power conversion system (PCS) would be located atop an approximate 900-square foot concrete pad (approximately 3 feet deep and 2,700 cubic feet in volume) newly constructed north of the existing Power and Maintenance Building. The Eos Z3 battery has been tested to UL 9540A requirements, which serves as the national standard for assessing fire propagation related to thermal runaway events in battery energy storage systems (BESS).

The BESS would enhance the effectiveness of the proposed solar array by storing excess renewable energy for later use, improving facility resiliency, reducing peak electrical demand, and supporting reliable operation of critical wastewater treatment infrastructure while maximizing the use of on-site renewable power.

2.4.1.3 Duct Bank Routing

Electrical routing would utilize 600 feet of new duct banks using directional borings connecting the solar arrays to the Power and Maintenance Building.

The Northern Directional Boring will be 300 feet in length and connect the Solar Array to the BESS.

The Southern Directional Boring will be 300 feet in length and connect the Carport Solar Array and Canopy Solar Array to the BESS.

The directional borings will minimize surface disturbance and eliminate trenching. Each boring will be approximately 8 inches in diameter and 3-12 feet in depth below the surface.

2.4.2 Civil Works and Utilities

All construction is proposed within the existing WRRF footprint. New pavement would be limited to the approximate 900-square-foot concrete pad for the battery storage unit and added pedestrian accessway to electrical room within the existing Power and Maintenance Building.

Clearing and grubbing and solar installation foundation columns would generally be restricted to maximum depths of two feet and 12 feet, respectively.

Clearing and grubbing for the battery pad foundation would be restricted to a maximum depth of up to 3 feet, with pile footings measuring 1-foot in diameter installed up to 20-feet.

The directional borings will minimize surface disturbance without the need for trenching. Each boring will be approximately 8 inches in diameter and 3-12 feet in depth below the surface. Grading would be limited to what is required around the proposed project extents and would match existing drainage patterns.

New site utilities include the installation of duct banks for the solar and battery system adjacent to existing duct bank routing. Existing facilities would not be removed, replaced or relocated.

2.5 Project Construction

Construction is proposed entirely within the existing facility footprint. Construction and laydown areas where materials, tools and equipment would be stored on the north side of the flat grassy area shown in Figure 2-2. Approximately four cubic yards of demolition materials are anticipated to be transported off-site. There are anticipated to be up to 24 construction workers on site during peak overlap construction phases of site preparation, directional borings, battery pad paving, and demolition. No additional parking would be required to accommodate the construction workers.

Construction of the Project will have limited impact to existing WRRF operations as construction components will be located in areas of the facility that are: 1) undeveloped; 2) unmaintained and/or; 3) nonessential to daily WRRF activities.

2.5.1 Construction Equipment

The specific type of equipment used during construction would be determined by the selected General Contractor. Table 2.5-1 lists the offroad equipment that may be used during construction.

Table 2.5-1: Construction Offroad Equipment for the Proposed Project

Phase No.	Phase Name	Equipment Type	Fuel Type	Engine Tier	# per Day	Hours per Day	HP	Load Factor
1	Site Preparation	Skid Steer Loader	Diesel	Tier 4 Final	1	8	74	0.37
		Excavator	Diesel	Tier 4 Final	2	8	162	0.41
		Rollers	Diesel	Tier 4 Final	1	8	130	0.38
		Rubber Tired Dozers	Diesel	Tier 4 Final	1	8	130	0.40
2	Directional Boring	Bore/Drill Rigs	Diesel	Tier 4 Final	1	8	130	0.41
		Excavator (Mini)	Diesel	Tier 4 Final	1	8	50	0.40
3	Battery Pad	Cement and Mortar Mixer	Diesel	Average	1	6	80	0.56
		Plate Compactors	Diesel	Average	1	6	74	0.42
		Skid Steer Loaders	Diesel	Average	1	8	74	0.36
4	Demolition	Skid Steer Loader	Diesel	Tier 4 Final	1	8	74	0.37
		Concrete Industrial Saw	Diesel	Average	1	8	33	0.73
5	Battery Unit Placement	Cranes	Diesel	Average	1	6	367	0.29
		Forklifts	Diesel	Average	1	6	82	0.20
6	Panel Installation	Bore/Drill Rigs	Diesel	Average	1	6	367	0.29
		Pumps	Diesel	Average	1	6	80	0.20
		Skid Steer Loader	Diesel	Tier 4 Final	1	8	84	0.37
		Welders	Diesel	Average	1	8	46	0.45
		Generator Sets	Diesel	Average	1	8	14	0.74
		Aerial Lifts	Diesel	Average	4	8	46	0.31

2.5.2 Construction Phases and Schedule

Construction is anticipated to occur over a seven-month period in the following six (6) phases:

- Construction Phase 1: Site Preparation
- Construction Phase 2: Directional Boring
- Construction Phase 3: Battery Pad
- Construction Phase 4: Demolition
- Construction Phase 5: Battery Unit Placement
- Construction Phase 6: Solar Array Installation

A preliminary construction schedule is provided in Table 2.5-2.

Table 2.5-2: Proposed Project Construction Schedule

Phase No.	Phase Name	Description	Workers Per Day	Start Date	End Date	Duration
1	Site Preparation (Involves clearing vegetation (grubbing and tree/stump removal) and removing stones and other unwanted material or debris prior to grading.)	Estimated ground/grub clearing of approximately 39,094 square feet: • 21,174 square feet for Western Solar Array; • 17,020 square feet for Canopy Solar Array; • 900 square feet battery pad area. The Carport Solar Array will not disturb the ground due to location of foundation columns.	8	March 12, 2027	April 22, 2027	1 month
2	Directional Boring	There will be 600 linear feet of underground duct bank installed using 8-inch diameter directional boring that only disturbs the surface at the end points of the borings.	6	March 12, 2027	April 22, 2027	1 month
3	Battery Pad (Involves the laying of concrete.)	Assumes pouring 900-square feet pad (50 cubic yards) for battery storage unit.	6	March 12, 2027	March 15, 2027	2 days
4	Demolition (Involves removing buildings or structures)	Remove approx. 108 square feet (approx. 4 cubic yards) of CMU wall inside existing building for addition of interior door.	4	March 15, 2027	March 17, 2027	2 days
5	Battery Unit Placement	Crane placement of battery storage units on the concrete pad.	8	April 14, 2027	April 15, 2027	2 days

Phase No.	Phase Name	Description	Workers Per Day	Start Date	End Date	Duration
6	Building Construction (solar array panel installation) (Involves the construction of foundation, structures.)	Installation of foundation Columns: • 80 columns for Western Solar Array • 6 columns for Carport Solar Array • 11 columns for Canopy Solar Array. Involves the placement of approximately 45,680 square feet of solar modules at a height of 2' to 17' above existing grade. Solar modules are mounted to post-type structures with no walls and no floor.	15	April 23, 2027	October 14, 2027	6 months

2.5.3 Truck Load Estimates

The estimated maximum depths of clearing and grubbing activities and estimated volume of excavated soil is provided in Table 2.5-3. Existing laydown areas on the WRRF front lawn will be utilized; approximately 133.2 cubic yards (cy) of excavated soil is anticipated to be disposed of offsite. Because the piles are driven rather than augered or excavated, the foundations themselves generate negligible spoils. The conduit runs are installed by directional boring, a trenchless method, so spoils are limited to drilling returns and cuttings rather than open-trench volumes. Given the negligible amount of construction waste expected for the demolition of the CMU wall, only one hauling trip is anticipated as part of normal site trash removal. A summary of truck type for construction activity is provided in Section 2.5.2.

Table 2.5-3: Clearing & Grubbing Depths and Excavation Amounts

Area of Improvement		Clearing and Grubbing Max Depths	Excavation Amounts
Solar Array		2 feet for clearing and grubbing 8 feet for tree removal	None
Foundation Columns:	Western Solar Array	9 inches (3/4 feet)	0.2 cubic yards (80 columns x .065 cubic feet/column = 5.2 cubic feet)
	Carport Solar Array	12 feet	9 cubic yards (6 columns x 38 cubic feet/column = 228 cubic feet)
	Canopy Solar Array	12 feet	16 cubic yards (11 columns x 38 cubic feet/column = 418 cubic feet)
Pad-mounted battery unit		2 feet for clearing and grubbing 3 feet for foundation excavation	100 cubic yards (3 feet? x 900 square feet = 2,700 cubic feet)

Directional boring for ductwork	None	8 cubic yards (8 inches diameter x 600 feet = 210 cubic feet)

Assumes 1 cubic yard = 27 cubic feet

The truck route during construction from U.S. Highway 101 to the WRRF will include:

- Exit California State Route 217 (CA-217) towards the Santa Barbara Municipal Airport and the University of California, Santa Barbara (UCSB) from U.S. Highway 101;
- Continue west on CA-217 to Exit 1 Sandspit Road;
- Turn right onto William Moffett Place; and
- Turn right into the GSD WRRF.

2.5.4 Construction Best Management Practices (BMPs)

The WRRF's existing Storm Water Pollution Prevention Plan (SWPPP) has been updated to include an erosion and sediment control plan (ESCP) that incorporates recommendations from the Geotechnical Evaluation prepared by Ninyo & Moore (Ninyo & Moore 2021) for the Biosolids and Energy Project at WRRF. As such, the proposed Project would incorporate the following BMPS, which are designed to minimize erosion.

- Methods such as geotextile fabrics, erosion control blankets, retention basins, drainage diversion structures, siltation basins, and/or spot grading will be used to reduce erosion and siltation into adjacent water bodies or storm drains during grading and construction activities.
- Entrances/exits to the construction site will be stabilized (i.e., using rumble plates, gravel beds, or other best available technology) to reduce transport of sediment offsite. Any sediment or other materials tracked offsite will be removed the same day as they are deposited during dry cleaning methods.
- Storm drain inlets will be protected from sediment-laden waters by the use of inlet protection devices, such as gravel bag barriers, filter fabric fences, block and gravel filers, and excavated inlet sediment traps.
- Construction staging and storage areas will be shown on the grading plans. These areas will be fenced, BMPs such as hay bales will be installed around the perimeter to prevent runoff from leaving the staging area, and entrances/exits will be stabilized.
- Exposed graded surfaces will be reseeded with ground cover vegetation to minimize erosion within 4 weeks of grading completion. This requirement will be noted on the design grading plans.
- Erosion and sediment control measures will be in place throughout grading and development of the site until all disturbed areas are permanently stabilized.
  Construction materials and waste will be stored, handled, and disposed of in a manner which minimizes the potential for storm water contamination. Bulk storage location of construction materials, and any measures proposed to contain the materials, will be shown on the design plans.

- A copy of the SWPPP will be maintained on the Project Site during grading and construction activities.

GSD will additionally implement BMPs to reduce fugitive dust and to follow the Santa Barbara County Grading Code Section 14.23, Dust Control by:

- Wetting, protecting, or containing all graded surfaces and materials, whether filled, excavated, transported, or stockpiled, in such a manner as to prevent the generation of dust.

2.6 Required Permits and Approvals

2.6.1 Regional and Local Permits and Approvals

The proposed Project is located within the permitting jurisdiction of the County of Santa Barbara, with the certified Local Coastal Program as the standard of review. Based on consultation with County planning staff, the Project will require a Conditional Use Permit (CUP) and Coastal Development Permit (CDP). There may also be ministerial local permits required, such as grading, stockpiling, building, electric, etc.

The proposed solar and battery microgrid is subject to applicable SBCAPCD prohibitory rules. Because the Project involves primarily solar PV panels, battery storage, and minimal mechanical or electrical equipment, operational emissions are expected to be negligible. Construction activities, such as site grading, excavation, and equipment installation, may generate temporary, minor emissions of fugitive dust (PM10) and exhaust from construction vehicles.

2.6.2 California Permits and Approvals

The Project is also located within the California Coastal Commission (CCC) appeals jurisdiction, meaning that any local permit decision may be appealed to CCC by either a member of the public or at least two commissioners.

2.6.3 Federal Permits and Approvals

Due to the location of the GSD WRRF adjacent to the Santa Barbara Municipal Airport, the proposed Project would also require a Notice of Proposed Construction (Form 7460-1).

3 ENVIRONMENTAL IMPACT AREAS

3.1 Environmental Checklist

The following environmental impact areas from CEQA Appendix G Checklist have been assessed to determine their potential to be adversely affected by the proposed Project. As indicated in Table 3.1-1, environmental topics marked with an "X" may be adversely affected by the proposed Project. The analyses associated with the determination of impacts are explained under each impact areas in the following sections.

Table 3.1-1 Environmental Impact Areas Potentially Affected

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

3.2 Determination

On the basis of this initial evaluation:

☐ I find the Proposed Project COULD NOT have a significant effect on the environment, and that a NEGATIVE DECLARATION has been prepared.

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

☐ I find that the Proposed Project MAY have a significant effect(s) on the environment, and an ENVIRONMENTAL IMPACT REPORT (EIR) is required.

☐ I find that the Proposed Project MAY have a "potentially significant 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: 1) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards; and 2) 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.

Signature: _____ Date: October 19, 2026

Steve D. Wagner, P.E.
General Manager/District Engineer
Goleta Sanitary District

3.3 Environmental Checklist Discussion

Determination of the level of significance an environmental impact poses is attributed to the following categories:

- Potentially Significant Impact: The impact would cause a substantial adverse effect on the environment and no mitigation measure(s) would be feasible or available to reduce the impact to a level that is less than significant.

- Less Than Significant with Mitigation Incorporated: The impact would cause a substantial adverse effect on the environment but has been reduced to a level of less than significant with incorporation of feasible mitigation measure(s). Mitigation measure(s) are identified as to how they reduce the effect of the impact to a level of less than significant.

- Less than Significant Impact: The impact would not cause a substantial adverse impact or change to the environment.

- No Impact: No adverse changes or impacts to the environment are expected.

A brief explanation follows each significance determination that provide informational and analytical support. All determinations take into account the whole action involved, including off-site impacts, cumulative impacts, indirect impacts, and construction and operational impacts.

3.4 Aesthetics

Environmental Issue Area	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. Aesthetics. Except as provided by PRC Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☑
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☑
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☑	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☑	☐

Regulatory Setting

California Scenic Highway Program

The California Scenic Highway Program, managed by the California Department of Transportation (Caltrans), protects scenic highway corridors from changes that would impact the visual aesthetics of lands surrounding highways. Caltrans coordinates with local government agencies, communities, and local citizens to comply with the California Scenic Highway Program and preserve the state's designated scenic resources.

Santa Barbara County Municipal Code

Santa Barbara County's municipal code contains various development standards to minimize impacts to the visual character of surrounding areas as well as ensure consistency with the Santa Barbara County Comprehensive Plan and applicable Community, Specific and Area Plans.

- Chapter 35.26 (Special Purpose Zones). Provides basic standards for site layout and building size within Special Purpose zones. Section 35.26.080 provides specific standards for Public Utility (PU) zoning designations, including outdoor storage and glare.

- Chapter 35.30 (General Standards for Development and Land Use). Addresses details of site planning and design to ensure that all development produces an environment of

stable and desirable character, is compatible with existing and future development and protects the use and enjoyment of neighboring properties. This chapter provides requirements pertaining to maximum structure heights, fencing/walls, outdoor lighting, and setbacks.

- Chapter 35.34 (Landscaping Standards). Establishes landscaping requirements to enhance the appearance development, provide shade, reduce heat and glare, control soil erosion, conserve water, screen potentially incompatible land uses, enhance the quality of neighborhoods, improve air quality and improve pedestrian and vehicular traffic and safety. Section 35.34.090 provides specific landscaping standards for the PU zoning designation.

Santa Barbara County Comprehensive Plan

The Land Use Element of the Santa Barbara Comprehensive Plan, amended in 2024, includes several Visual Resource Policies, detailed below.

1. All commercial, industrial, and planned developments shall be required to submit a landscaping plan to the County for approval.

2. In areas designated as rural on the land use plan maps, the height, scale, and design of structures shall be compatible with the character of the surrounding natural environment, except where technical requirements dictate otherwise. Structures shall be subordinate in appearance to natural landforms; shall be designed to follow the natural contours of the landscape; and shall be sited so as not to intrude into the skyline as seen from public viewing places.

3. In areas designated as urban on the land use plan maps and in designated rural neighborhoods, new structures shall be in conformance with the scale and character of the existing community. Clustered development, varied circulation patterns, and diverse housing types shall be encouraged.

4. Signs shall be of size, location, and appearance so as not to detract from scenic areas or views from public roads and other viewing points.

5. Utilities, including television, shall be placed underground in new developments in accordance with the rules and regulations of the California Public Utilities Commission, except where cost of undergrounding would be so high as to deny service.

Eastern Goleta Valley Community Plan

The Eastern Goleta Valley Community Plan, amended in 2025, includes several land use and development policies and implementation strategies to ensure a well-design contribution to the community, detailed below.

Objective VIS-EGV-1: Preserve and enhance the visual resources and public vistas of the built and natural environment.

Policies VIS-EGV-1.2 to VIS EGV-1.10: Emphasize development strategies that preserve and enhance public vistas and scenic local routes, as well as blend in with natural landforms.

Existing Conditions

The Project Site is currently occupied by the existing GSD WRRF, which consists of multiple buildings, sanitary equipment and operational components, paved areas, manicured landscaping, and retention basins. A full list of facility components is located in Section 2.3.

Environmental Determination

a) Have a substantial adverse effect on a scenic vista?

No Impact. The proposed Project site is located within the existing WRRF and the Project includes components that are largely smaller in height, scale and mass to current facilities. As such, the opportunities for views from vantage points adjacent to the site would remain similar to existing conditions. There would be no impact on scenic vistas as a result of the proposed Project.

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

No Impact. The proposed Project would have no adverse effect on scenic resources, including those located within a designated scenic highway. The Project Site is bounded by Moffett Place to the west and north and CA-217 to the east. There are no designated State Scenic Highways, County Scenic Highways, National Scenic Byways, Historic Parkways, or eligible State Scenic Highways near or within view of the proposed Project Site. The nearest scenic highway is U.S. Highway 101, located north of the City of Goleta, more than five miles from the Project Site. The nearest eligible highway is U.S. Highway 101, more than one mile due north of the proposed Project. The proposed Project includes solar arrays and battery storage, and would therefore not result in impacts to scenic resources located within a designated scenic highway.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less Than Significant Impact. The proposed Project would not substantially degrade the existing visual character or the visual quality of the Project site and its surroundings. The Project site is currently developed with the existing GSD WRRF, and the proposed Project would include equipment that is smaller in height and scale to those currently existing within the site. The solar array and battery components are not expected to be visible from nearby Goleta Beach Park, located approximately 0.3 miles south of the Project site, since the view is blocked by other WRRF structures and CA-217. Therefore, the proposed Project is not expected to substantially alter the existing visual character of the site or its surroundings.

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

Less Than Significant Impact. The proposed Project would not adversely affect day or nighttime views in the area in relation to substantial light or glare. The closest residential development is located 600 feet to the northeast of the WRRF and 1,500 feet northeast of the northern boundary of the proposed Project Site. The Santa Barbara Municipal Airport runways are approximately 700 feet west of the project site and the air traffic control tower (10 Burns Place) is approximately 4,150 feet northwest of the project site. Potential nighttime light sources would be exterior lighting, which would create a minimal increase to existing facility conditions and would be located far from receptors sensitive to additional light. Moreover, the solar array will be constructed with Public Utility (PU) zoning development standards for solar use that aim to minimize daytime glare to a level acceptable of such facilities and surrounding land uses.

Based on the project's materials and finishes, the project would not introduce reflective surfaces capable of producing substantial daytime glare. Prior to building permit issuance, the applicant will confirm that all exterior materials used on the enclosure and associated structures are matte, non-specular, or otherwise low-reflectivity to ensure no new substantial glare would occur.

The solar panels and arrays would be oriented and tilted to maximize solar absorption and minimize direct reflection. The solar panels would be designed to absorb (and not reflect) sunlight efficiently through layers of anti-reflective coating and glare-reducing textured glass. The objective is to maximize absorption and minimize reflection. Solar panels have a lower albedo (reflectivity) than other typical building materials in the area, including glass and metal. As a project design feature, the proposed solar array would utilize photovoltaic modules manufactured with anti-reflective coatings and low-iron glass, resulting in low surface reflectivity. The panels would be installed at fixed tilt, or single-axis tracking, orientations designed to optimize energy generation while minimizing direct reflection toward adjacent roadways, residences, and other glare-sensitive receptors. No highly reflective materials would be used as part of the solar array or associated equipment. These design features minimize the potential for glare toward roadways, residences, and airport operations. Therefore, the proposed Project is not expected to create a new source of substantial light or glare.

Mitigation Measures:

None.

3.5 Agriculture and Forestry Resources

Environmental Issue Area	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. Agriculture and Forestry Resources. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	☐	☐	☐	☑
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☑
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☑
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☑
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☑

Regulatory Setting

Farmland Mapping and Monitoring Program

The California Department of Conservation manages the Farmland Mapping and Monitoring Program (FMMP), which maintains an automated map and data base system for tracking farmland resources throughout California. Farmland is categorized by the following classifications that consider soil quality, irrigation, urbanization and grazing potential: Prime Farmland; Farmland of Statewide Importance; Unique Farmland; farmland of Local Importance; Farmland of Local Potential; Grazing Land; Urban and Built-up Land and; Other Land.

Williamson Act

The California Land Conservation Act of 1965, also known as the Williamson Act, allows local governments and private landowners to enter into contracts for the purpose of preserving or restricting parcels of land to agricultural or related open space use. The Williamson Act ensures available agricultural land for food production and discourages noncontiguous urban development.

Santa Barbara County Comprehensive Plan

The Land Use Element of the Santa Barbara County Comprehensive Plan contains four fundamental goals, of which the third is *Agriculture*. The *Agriculture Goal* states that in the rural areas, cultivated agriculture shall be preserved and, where conditions allow, expansion and intensification should be supported. Lands with both prime and non-prime soils shall be reserved for agricultural uses. Much of the plan further emphasizes agricultural use within agriculturally zoned areas and preservation of areas proving fertile for agricultural uses.

Eastern Goleta Valley Community Plan

The Eastern Goleta Valley Community Plan shares the same four fundamental goals of which the third is Agriculture. The Community Plan contains various objectives, policies, and goals that preserve agricultural lands and support local agricultural operations.

> Objective EGV-6: Increase the production and availability of local food.
>
> Objective LRG-EGV-3: Enhance the physical structure, connectivity, and character of existing residential neighborhoods of the community while optimizing areas designated for agriculture, areas for conservation of the natural environment, and public open spaces.
>
> Objective LUA-EGV-1: Sustain and enhance agricultural land, operations, and characteristics in Eastern Goleta Valley.
>
> > Policies LUA-EGV-1.4 to LUA-EGV-1.6: Maintenance of agriculture and mountainous land use designations in the Rural Area, and maintenance of urban agricultural uses in agricultural land within the Urban Area.
>
> Objective LUA-EGV-2: Support farms and agricultural businesses as a vital element in a sustainable mix of economic activity.
>
> > Policy LUA-EGV-2.4: In the interest of sustaining and enhancing urban agricultural operations in the Urban Area of Eastern Goleta Valley, the County shall allow for a range of sustainable agricultural and agriculture-related uses on agriculturally-designated land in the Urban Area only to retain agricultural and farmland in the Urban Area of Eastern Goleta Valley and support agriculture-related businesses without impairing the function or character of onsite and adjacent land uses.

Existing Conditions

The Project Site currently contains the GSD WRRF. There are no agricultural or forestry resources within the Project Site.

Environmental Determination

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

No Impact. According to the FMMP map viewer, the proposed Project Site is located on Urban and Built-Up Land and as such, would not convert prime farmland, unique farmland or farmland of statewide importance to non-agricultural use. The Project Site is surrounded by the Santa Barbara Municipal Airport, undeveloped coastal habitat, residences, and businesses, and is currently developed with equipment, offices and maintenance buildings that comprise the GSD WRRF.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The proposed Project would not conflict with agricultural zoning or a Williamson Act contract. The Project site is located within a coastal habitat area with surrounding development largely including the Santa Barbara Municipal Airport. The Project site is presently zoned Public Utility. Moreover, the County of Santa Barbara William Act Land Map (2015) does not designate the area as an Agricultural Preserve (Agricultural Preserve of Santa Barbara County, 2015).

c) Conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

No Impact. The proposed Project is not located within forestland, timberland, or timberland zoned Timberland Production. Thus, the proposed Project would not conflict with, or cause rezoning of, forestland, timberland, and timberland zoned Timberland Production.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The proposed Project is not located within or in the immediately vicinity of forest land. Thus, the proposed Project will not result in the loss of forest land and will not convert forest land to non-forest use.

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

No Impact. The proposed Project would not involve other changes in the existing environment that could result in the conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use. The proposed Project Site is entirely developed with equipment, offices and

maintenance buildings that comprise the GSD WRRF. Moreover, the proposed Project includes installation of solar arrays, a battery storage system, and duct bank routing within the existing facility footprint. Therefore, the proposed Project would not result in the conversion of farmland to non-agricultural uses.

Mitigation Measures:

None.

3.6 Air Quality

Environmental Issue Area	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. Air Quality Resources. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☑	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard?	☐	☐	☑	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☑	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☑	☐

Existing Conditions

The Goleta Sanitary District (GSD) is pursuing a preliminary design for a solar and battery microgrid, supporting its long-term goal of achieving energy neutrality. The microgrid is designed to reduce reliance on traditional utilities, giving GSD greater control over its energy production, consumption, and costs from Southern California Edison (SCE) and Central Coast Community Energy.

In addition to cost and energy management benefits, the microgrid enhances energy resilience by providing backup power during grid outages, a common occurrence in the region. GSD is located within the Goleta Load Pocket, where communities including Goleta, Santa Barbara, Carpinteria, and Gaviota depend on a single set of transmission lines that traverse approximately 70 miles of mountainous terrain. Disruptions along these lines, caused by wildfires, maintenance, or other events, can interrupt electricity delivery. The proposed microgrid provides a reliable alternative during such events, improving energy security, supporting demand management, and ensuring continuous operation of critical facilities.

The project consists of photovoltaic (PV) panels, and battery storage systems. These components do not produce significant air emissions during operation, representing a zero-emission energy source that offsets grid electricity use.

Regional Climate and Air Quality

The following discussion is based on the Santa Barbara County Air Pollution Control District (SBCAPCD) 2010 Clean Air Plan (SBCAPCD 2011). Santa Barbara County's air quality is strongly influenced by local topography and meteorological conditions, which affect the movement,

mixing, and dispersion of air pollutants. Both surface and upper-level wind flows vary seasonally and geographically, and temperature inversions, which are common in the area, can act as caps on vertical mixing of pollutants, contributing to temporary air quality degradation. Prevailing wind patterns do not necessarily correspond to periods of high ozone; in many cases, elevated ozone concentrations are associated with atypical or localized wind patterns.

Key regional meteorological and topographical factors that influence air quality in Santa Barbara County include:

- **Climate and Precipitation:** Semi-permanent high-pressure systems off the Pacific Coast result in limited annual rainfall, averaging approximately 16 inches per year. Summers are generally warm and dry, while winters are relatively damp. Coastal summer temperatures average around 70°F, with inland areas reaching the high 80s to low 90s. Winter minimum temperatures typically range from the 40s along the coast to the 30s inland. Cool, humid marine air produces frequent fog and low clouds along the coast, particularly during late spring and early summer, which can persist for several days until disrupted by changing weather patterns.

- **Sea and Land Breeze Patterns:** In the northern portion of the County (north of the Santa Ynez Mountains ridgeline), sea breezes typically originate from the northwest, while the southern portion, including Goleta, experiences prevailing southwesterly sea breezes. These breezes strengthen during summer and often persist late into the night. At night, sea breezes weaken and are replaced by light land breezes moving from land to sea. The alternation of these land-sea breeze cycles can produce a "sloshing" effect, whereby pollutants are temporarily transported offshore at night and subsequently carried back onshore during the day. This effect is particularly pronounced during periods of low wind speeds.

- **Coastal Circulation Effects:** The terrain near Point Conception, combined with the change in coastline orientation from north-south to east-west, can create counterclockwise circulation patterns or eddies east of the Point. These eddies fluctuate temporally and spatially, leading to highly variable winds along the southern coastal strip. Point Conception also marks a transition in prevailing surface winds from northwesterly to southwesterly, influencing pollutant transport and local air quality.

- **Santa Ana Winds:** Santa Ana winds are warm, dry northeasterly winds that occur primarily during fall and winter, with occasional occurrences in spring. These winds descend from high inland desert regions and pass down the slopes of mountain ranges. Typical wind speeds are 15–20 mph but can exceed 60 mph during extreme events. During Santa Ana conditions, pollutants from Santa Barbara County, Ventura County, and the South Coast Air Basin (Los Angeles region) are transported offshore. Subsequently, post-Santa Ana conditions can carry these pollutants back onshore into Santa Barbara County, occasionally affecting air quality throughout the region. Not all post-Santa Ana events, however, result in elevated pollutant concentrations locally.

- **Upper-Level Winds:** Upper-level winds, measured at Vandenberg Air Force Base, are generally from the north or northwest throughout the year, though southerly and easterly winds occur occasionally during winter, especially in the morning. Summer winds from the south and east are infrequent but, when present, are often associated with high ozone levels.

Surface and upper-level winds can also transport pollutants originating outside the County into Santa Barbara County, affecting local air quality.

- **Temperature Inversions:** Surface inversions (0–500 feet) are most frequent during winter, while **subsidence inversions** (1,000–2,000 feet) dominate during summer along the California coast. Inversions occur when air temperature increases with elevation, creating a cap that inhibits vertical mixing. Pollutants emitted below or within these inversion layers can accumulate, with ozone concentrations often higher just beneath the inversion base than at ground level. Lower inversion bases and steep temperature gradients intensify the inhibiting effect, leading to pronounced local air stagnation. Subsidence inversions are a principal factor contributing to air stagnation during summer months.

- **Air Stagnation:** Periods of poor air quality are typically associated with high atmospheric stability and restricted air movement. In Santa Barbara County, light wind conditions are more frequent in the southern portion, including Goleta, resulting in a higher likelihood of localized pollution events compared to northern areas with stronger prevailing winds.

Understanding these regional climate and air quality conditions is essential for evaluating potential impacts of the proposed solar and battery microgrid at GSD. Although the project is a zero-emission energy source during operation, construction activities such as site preparation and equipment installation could produce temporary, localized emissions. However, given the prevailing meteorology and the scale of construction, these effects are expected to be short-term and minor relative to the broader regional air quality context.

Regulatory Setting

Federal and State Clean Air Acts

The Federal Clean Air Act (CAA), first passed in 1963 and amended several times, forms the foundation for national air quality regulation in the United States. The 1970 CAA established key provisions for controlling air pollution, including attainment and maintenance of the National Ambient Air Quality Standards (NAAQS) for major pollutants (Title I), motor vehicle emissions and fuel standards (Title II), hazardous air pollutant standards (Title III), and protection of the stratospheric ozone layer (Title VI). Subsequent amendments, including those in 1977, introduced nonattainment requirements for areas not meeting NAAQS and the Prevention of Significant Deterioration (PSD) Program, which regulates emissions from stationary sources. The 1990 Amendments further strengthened federal air quality protections by establishing stricter requirements for emission reductions, demonstrating reasonable further progress, and achieving attainment by specified deadlines.

The current NAAQS define allowable concentrations for major air pollutants over specific averaging periods, ranging from 1-hour to annual measurements. Concentrations are expressed as parts per million (ppm) or as a weighted mass per volume of air (mg/m^3 or $\mu g/m^3$). These standards provide the baseline for evaluating potential air quality impacts of new projects.

In 1988, the California Legislature passed the California Clean Air Act (CCAA), establishing statewide air quality goals, planning mechanisms, regulatory strategies, and measures of progress. The CCAA requires the attainment of California Ambient Air Quality Standards (CAAQS)

at the earliest practicable date. For air basins not meeting State standards for ozone, carbon monoxide (CO), sulfur dioxide (SO_2), or nitrogen dioxide (NO_2), local air districts are required to prepare and implement Attainment Plans. CAAQS are generally more stringent than the corresponding NAAQS.

For the proposed GSD solar and battery microgrid, these federal and state regulatory frameworks provide the context for evaluating air quality impacts during both construction and operation. While solar PV panels and battery systems do not produce emissions during operation, construction activities may generate short-term, minor emissions from vehicles, equipment, and dust. Compliance with federal and state standards, as well as SBCAPCD guidance, ensures that any temporary impacts remain below regulatory thresholds and do not contribute significantly to regional air quality concerns.

Table 3.6-1: CAAQS, NAAQS, and SBCAPCD Attainment Status

Pollutant	Averaging Time	California Standard	Attainment Designation (CA)	National Standard	Attainment Designation (US)
Ozone	8 hour	0.070 ppm	NA-T	0.070 ppm	A/U
	1 hour	0.09 ppm	—	Revoked	—
Nitrogen Dioxide (NO_2)	Annual arithmetic mean	0.030 ppm (56 µg/m³)	A	0.053 ppm (100 µg/m³)	A/U
	1 hour	0.18 ppm (338 µg/m³)	—	0.10 ppm (188 µg/m³)	A/U
Sulfur Dioxide (SO_2)	24 hour	0.04 ppm (105 µg/m³)	A	—	Revoked —
	1 hour	0.25 ppm (655 µg/m³)	—	0.075 ppm (196 µg/m³)	A/U
Carbon Monoxide (CO)	8 hour	9.0 ppm (10 mg/m³)	A	9 ppm (10 mg/m³)	A/U
	1 hour	20 ppm (23 mg/m³)	—	35 ppm (40 mg/m³)	—
Respirable Particulate Matter (PM10)	Annual arithmetic mean	20 µg/m³	N	—	Revoked —
	24 hour	50 µg/m³	—	150 µg/m³	U
Fine Particulate Matter (PM2.5)	Annual arithmetic mean	12 µg/m³	U	9.0 µg/m³	A/U
	24 hour	—	—	35 µg/m³	A/U
Lead (Pb)	Rolling 3-month average	—	—	0.15 µg/m³	A/U

	30-day average	1.5 µg/m³	A	—	—
Sulfates Hydrogen Sulfide (H_2S)	24 hour	25 µg/m³	A	No National Standard	—
Vinyl Chloride (Chloroethene)	1 hour	0.03 ppm (42 µg/m³)	A	—	—
Visibility-Reducing Particles	24 hour	0.01 ppm (26 µg/m³)	—	—	—

Legend:

- **A** = Attainment
- **NA-T** = Nonattainment-Transitional
- **N** = Nonattainment
- **U** = Unclassified
- **A/U** = Attainment/Unclassifiable
- **—** = No Standard

Units:

- **mg/m³** = milligrams per cubic meter
- **µg/m³** = micrograms per cubic meter
- **ppm** = parts per million
- **ppb** = parts per billion

Notes:

1. **Statewide Visibility-Reducing Particles Standard** (except Lake Tahoe Air Basin): Applies to particles in sufficient quantity to produce an extinction coefficient of 0.23 per kilometer when relative humidity is below 70%. This standard is intended to limit the frequency and severity of visibility impairment caused by regional haze and is equivalent to a nominal visual range of 10 miles.

Attainment/Unclassifiable Designation: Recent U.S. EPA federal registers indicate that the "Attainment/Unclassifiable" designation is preferred over "Unclassifiable/Attainment." Reordering the terms does not affect regulatory interpretation or compliance requirements

General Air Conformity

Section 176(c)(1) of the Federal Clean Air Act (CAA) requires that federal agencies ensure their actions conform to applicable State Implementation Plans (SIPs) for achieving and maintaining the National Ambient Air Quality Standards (NAAQS) for criteria pollutants. Specifically, a federal action must not: (1) contribute to new violations of ambient air quality standards, (2) increase the frequency or severity of existing violations, or (3) delay timely attainment of standards in the area of concern.

The Santa Barbara County Air Pollution Control District (SBCAPCD) has adopted general conformity requirements in Rule 702, which largely mirror federal requirements. Air conformity requirements apply only to activities within federal nonattainment areas and only for pollutants for which the area is in nonattainment. Areas that have consistently met NAAQS standards are not subject to conformity review unless they later fall into nonattainment.

Prevention of Significant Deterioration (PSD) Program

The PSD Program, overseen by the U.S. Environmental Protection Agency (EPA), applies to new or modified stationary sources of air pollution with the potential to emit major quantities of attainment pollutants. Major sources are generally defined as those emitting more than 100 or

250 tons per year of any regulated pollutant, depending on the source type, or sources that could adversely affect federally designated Class I areas.

The SBCAPCD has established New Source Review (NSR) rules to implement PSD requirements locally, including the application of Best Available Control Technology (BACT) to new or modified sources that exceed emissions thresholds. BACT involves implementing feasible technologies and practices to minimize emissions, taking into account energy use, cost, and environmental impacts. For the proposed solar and battery microgrid, operational emissions are expected to be minimal, and PSD applicability is unlikely.

Ozone Plan

The most recent SBCAPCD air quality planning document is the 2022 Ozone Plan. Consistency with the Ozone Plan requires that any emissions associated with a project, both direct and indirect, are accounted for in the Plan's emission growth assumptions. The Plan uses population and land-use projections from the Santa Barbara County Association of Governments (SBCAG) and on-road vehicle emission forecasts from the California Air Resources Board (CARB).

As shown in Table 3.6-1, Santa Barbara County is classified as nonattainment-transitional for state ozone standards and nonattainment for state respirable particulate matter (PM10) standards. Ozone is a secondary, regional pollutant formed when reactive organic compounds (ROC) and nitrogen oxides (NOx) react in sunlight. Major ozone precursors in the County include motor vehicles, petroleum operations, and solvent usage. PM10 sources include construction, grading, road dust, and vehicle emissions.

SBCAPCD Regulations

The proposed solar and battery microgrid is subject to applicable SBCAPCD prohibitory rules. Because the Project involves primarily solar PV panels, battery storage, and minimal mechanical or electrical equipment, operational emissions are expected to be negligible. No stationary source equipment subject to SBCAPCD permitting is proposed. Construction activities, such as site grading, excavation, and equipment installation, may generate temporary, minor emissions of fugitive dust (PM10) and exhaust from construction vehicles. Key SBCAPCD rules applicable to the Project include:

- **Rule 302, Visible Emissions:** Limits visible emissions from any source. The Project is not expected to produce visible emissions during operation, and construction emissions will be managed using standard dust control measures.
- **Rule 303, Nuisance:** Prohibits emissions that create public nuisance conditions. The Project is not expected to create nuisance conditions due to its limited construction footprint and low operational emissions.
- **Rule 305, Particulate Matter – Southern Zone:** Limits PM emissions from stationary sources. Construction-related PM10 emissions will be minimized through watering, covering soil stockpiles, and using dust suppressants.
- **Rule 309, Specific Contaminants:** Limits emissions of NOx, SOx, and other combustion contaminants from fuel-burning equipment. The Project does not include large combustion sources; emissions from small construction equipment will comply with fleet standards.

In summary, the GSD Energy Storage Project is expected to have minimal operational emissions, with only temporary, localized air quality impacts during construction. Compliance with SBCAPCD rules and standard dust mitigation practices ensures that the Project will not contribute to violations of air quality standards or adversely affect regional air quality.

Significance Criteria

The determination of whether the proposed GSD Energy Storage Project could result in significant air quality impacts is based on guidance from the Santa Barbara County Environmental Thresholds and Guidelines Manual (2024), the SBCAPCD *Scope and Content of Air Quality Sections in Environmental Documents* (2022), and the SBCAPCD *Environmental Review Guidelines* (2015). Quantitative significance criteria established by the local air quality management district may be used to evaluate potential impacts from mass emissions of criteria pollutants.

The County's current attainment status for the California Ambient Air Quality Standards (CAAQS) and the National Ambient Air Quality Standards (NAAQS) is provided in Table 3-2 and is a key factor in assessing whether project emissions could significantly affect air quality.

The SBCAPCD guidelines focus primarily on long-term operation of permanent stationary sources. While quantitative thresholds for short-term construction projects have not been formally adopted, the SBCAPCD recommends that construction-related emissions of NOx, ROC, PM10, and PM2.5 from diesel- and gasoline-powered equipment, paving, and other construction activities be quantified. Dust control measures are required for PM10 because the County currently exceeds the state standard for respirable particulate matter.

For the Energy Storage Project, construction emissions are expected to be temporary and limited in scale, and they will be controlled using standard best management practices such as watering, covering soil stockpiles, and minimizing equipment idling.

For ongoing operations, the SBCAPCD guidance specifies that a project would not have a significant air quality impact if it:

- Emits, from all project sources (stationary and mobile), less than the daily trigger for offsets or Air Quality Impact Analysis under the APCD New Source Review Rule (240 lbs/day for ROC or NOx; 80 lbs/day for PM10). There is no daily operational threshold for CO.
- Emits less than 25 lbs/day of ROC or NOx from motor vehicle trips alone.
- Does not cause or contribute to a violation of any CAAQS or NAAQS (excluding ozone).
- Does not exceed APCD health risk thresholds (maximum cancer risk of 10 in one million and a Hazard Index >1.0 for non-cancer risk).
- Is consistent with the most recently adopted federal and state air quality plans for Santa Barbara County.

The SBCAPCD and the County apply the same significance threshold for motor vehicle-related long-term emissions (25 lbs/day of ROC or NOx), while the threshold for total project emissions differs depending on whether the SBCAPCD or the County is the lead agency. Consistent with SBCAPCD Rule 202.D.16, the recommended threshold for construction emissions is 25 tons per year for each criteria pollutant, excluding CO. This applies individually to ROC, NOx, SOx, and

PM10, and is not cumulative. Short-term construction emissions are generally considered insignificant, provided standard dust and equipment mitigation measures are implemented.

Table 3.6-2: Summary of the SBCAPCD Significance Thresholds for Construction and Operational Emissions

Pollutant	Project Construction	Project Operation
ROC	25 tons/year, 240 lbs/day	25 lbs/day (motor vehicle trips only)
NOx	25 tons/year, 240 lbs/day	25 lbs/day (motor vehicle trips only)
PM10	25 tons/year	80 lbs/day
SOx	25 tons/year	80 lbs/day
TACs (including carcinogens and non-carcinogens)	–	Maximum Cancer Risk ≥10 in one million; Chronic & Acute Hazard Index ≥1.0 (project increment)
Odor	–	Project creates an odor nuisance pursuant to Rule 303

For the GSD Energy Storage Project, emissions are expected to remain well below these thresholds during both construction and operation.

Methodology

Criteria pollutants for this project were estimated using the California Emissions Estimator Model® (CalEEMod), version 2022.1.1.45. CalEEMod is designed to be a uniform platform for government agencies, land use planners, and environmental professionals to estimate ozone precursors, criteria pollutants, and greenhouse gases (GHGs) (collectively referred to as "emissions"). The emissions are particularly calculated from construction and operation operations of land use projects under CEQA. Default values for vehicle trip lengths, meteorology, utilities, etc. were provided by the various California air districts.

The project was modeled as a 1.3-acre user-defined industrial land use representing a battery energy storage facility within unincorporated Santa Barbara County under the jurisdiction of the Santa Barbara County Air Pollution Control District (SBCAPCD). Project-specific information, including the construction schedule, equipment fleet, worker trips, vendor trips, haul trips, and site characteristics, was incorporated into the model where available.

The modeling assumed construction would begin in March 2027 and occur over approximately 192 workdays, including demolition, site preparation, directional boring, battery pad construction, battery unit placement, and installation activities. Off-road equipment assumptions were based on information provided by the applicant and contractor and included a combination of Tier 4 Final and average diesel-powered equipment. Construction fugitive dust emissions incorporated watering of exposed surfaces twice daily, resulting in a 61-percent reduction in PM10 and PM2.5 emissions from earthmoving activities.

Operational emissions were evaluated based on projected facility activity, periodic maintenance vehicle trips, water usage, and other operational characteristics. The model included approximately 12 annual vehicle trips (240 annual VMT) associated with facility maintenance and

inspection activities. No operational combustion sources, natural gas use, area sources, stationary sources, or waste generation emissions were identified.

Construction Emissions:

The construction phase for this project is anticipated to span approximately seven months. Trip lengths were calculated using CalEEMod default values: 5.3 miles for vendor vehicle trips, 8.8 miles for worker trips, and 20 miles for hauling trips (one-way). Default vehicle classifications were applied, assuming light-duty automobiles (LDA) and light-duty trucks (LDT) for worker trips; medium-heavy-duty trucks (MHDT) and heavy-heavy-duty trucks (HHDT) for vendor trips; and HHDTs for hauling trips. Worker and vendor trip frequencies were estimated using CalEEMod defaults, which are based on statewide construction activity surveys and the number of off-road equipment units. Hauling trip counts were derived by calculating the number of trips required to transport the specified import and export volumes, assuming a hauling capacity of 16 cubic yards per trip. Table 3.6-3 summarizes these input parameters used in the analysis.

Table 3.6-3: Construction Traffic Summary

Phase #	Phase Name	Trip Type	# One-Way Trips/day	Trip Length (miles/one-way trip)	Vehicle Class
1	Site Preparation	Worker	8	8.80	LDA, LDT1, LDT2
		Vendor	3	5.30	HHDT, MHDT
		Hauling	1	20.00	HHDT
2	Directional Boring	Worker	6	8.80	LDA, LDT1, LDT2
		Vendor	1	5.30	HHDT, MHDT
		Hauling	1	20.00	HHDT
3	Battery Pad	Worker	6	8.80	LDA, LDT1, LDT2
		Vendor	3	5.30	HHDT, MHDT
4	Demolition	Worker	4	8.80	LDA, LDT1, LDT2
		Hauling	1	20.00	HHDT
5	Battery Unit Placement	Worker	8	8.80	LDA, LDT1, LDT2
		Vendor	1	5.30	HHDT, MHDT
6	Solar Array Installation	Worker	15	8.80	LDA, LDT1, LDT2

Source: CalEEMod Version 2022.1.1.45

Operations Emissions:

Operational emissions were evaluated to quantify pollutants generated after construction is complete and the facility enters its normal operating phase. Sources of emissions include:

- Direct exhaust emissions from on-road vehicles, off-road equipment during maintenance;
- Indirect GHG emissions associated with water consumption during maintenance;

No stationary sources are included within the scope of this project.

Environmental Determination

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant. The proposed facility is not expected to interfere with implementation of the applicable air quality plan, specifically the 2022 Ozone Plan prepared by the Santa Barbara County Air Pollution Control District (SBCAPCD). This plan is the most recent adopted air quality plan and is therefore the governing document for compliance.

The 2022 Ozone Plan establishes specific conformity requirements to ensure that regional development and air quality objectives remain aligned. Population growth must remain within the forecasted levels identified in the plan, and dust mitigation measures are required to comply with the standards set forth in the 1979 Air Quality Attainment Plan. Amendments to general plans cannot authorize population increases beyond the projections contained in the Ozone Plan. For facilities subject to residential growth management, allowable growth must not exceed the plan's projections, while facilities not subject to growth management must maintain annual incremental increases in dwelling units below those projections. Additionally, commercial and industrial projects are required to be tracked under the Congestion Management Plan, and large stationary industrial sources will be deemed inconsistent if their emissions are not accounted for in the Ozone Plan inventory.

This project does not trigger any of these conditions. It is a small industrial development with no residential component, will not increase population or dwelling units, and is not anticipated to generate significant vehicle traffic. Therefore, the project is considered consistent with the 2022 Ozone Plan

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

Less Than Significant Impact. According to SBCAPCD CEQA guidance, there are no established quantitative thresholds of significance for short-term construction emissions. However, SBCAPCD indicates that construction-related exhaust emissions are generally considered significant if they exceed 25 tons per year of reactive organic compounds (ROC) or nitrogen oxides (NO_x). The guidance also notes that an impact may be considered significant if diesel-powered equipment operates within 0.25 miles of a sensitive receptor.

Estimated emissions of NO_x, ROC, PM_{10}, and $PM_{2.5}$ from diesel- and gasoline-powered equipment, paving activities, and other construction operations are presented in Table 3-5, consistent with SBCAPCD methodology. Calculated emissions are well below the 25 tons per year level; therefore, impacts are considered less than significant. Additionally, the project site is located more than 0.25 miles from any sensitive receptor, eliminating the potential for localized diesel exhaust impacts. Detailed input assumptions and calculation methodology are provided in Appendix A. While construction phases may vary, projected emissions are not anticipated to exceed the 25 tons per year level for ROC, NO_x, So_2, PM_{10}, and $PM_{2.5}$.

The majority of construction emissions would be generated by diesel-powered off-road equipment used during site preparation and installation activities. The highest individual construction phase was the Site Preparation phase, during which earthmoving equipment and fugitive dust emissions generated the greatest levels of criteria pollutant emissions. Dust

suppression measures incorporated into the model substantially reduced PM10 and PM2.5 emissions from grading activities.

Construction-related air pollutant emissions would be temporary and limited to the duration of site development. Emissions would primarily result from operation of construction equipment, worker commuting, vendor trips, and limited hauling activity. Because construction emissions are short term in nature and include implementation of standard dust control measures, impacts would be less than significant.

Table 3.6-4: Construction Emissions

Criteria Pollutant	Max. Emissions (lb/day)	Max. Emissions (tons/year)	SBCAPCD Significance Threshold (tons/year)
ROC	1.25	0.05	25
NO_x	11.78	0.50	25
CO	31.26	0.94	-
SO_2	0.05	0.002	25
PM_{10} Total	3.08	0.056	25
$PM_{2.5}$ Total	1.63	0.031	25

Notes: The lb/day indicate the highest modeled daily maxima. Total PM_{10} and $PM_{2.5}$ are the sum of the fugitive and dust emissions.
SBCAPCD does not specify a separate guideline threshold for PM2.5 so it was set equal to the threshold for PM10. However, the CEQA thresholds are based on the offset threshold and Rule 802 indicates that offsets are not required for PM2.5.
Source: CalEEMod Version 2022.1.1.45

Following construction, the battery energy storage facility would operate with minimal ongoing emissions because the project would not include permanent combustion equipment, manufacturing processes, or substantial employee activity. Operational emissions consist primarily of infrequent maintenance vehicle trips and minor water consumption.

Long-term operational emissions were also quantified and are presented in Table 3-6. Because the project consists of solar array installations, operational emissions are minimal. Unmitigated area-source emissions were estimated using CalEEMod in accordance with SBCAPCD guidance. At this facility, operational emissions are limited to motor vehicle trips associated with employee travel; the project scope does not include stationary sources such as engines, generators, or boilers.

Traffic activity is expected to remain low, as only maintenance employees will commute to the site approximately twice per year. SBCAPCD identifies a significance threshold of 25 pounds per day for ROC, NO_x, So_2, PM_{10}, and $PM_{2.5}$ from motor vehicle-related emissions. SBCAPCD guidance also requires an Air Quality Impact Assessment (AQIA) for projects that exceed specified hourly emission thresholds, as outlined in District Rule 802 and presented in Table 3.6-5 below. As shown, the estimated emissions for this project are substantially below these thresholds and, therefore, do not trigger a significance determination under SBCAPCD criteria. No mitigation measures are required because operational emissions are anticipated to remain low.

Operational emissions would be extremely small because the facility is unmanned and requires only periodic maintenance visits. The CalEEMod results indicate that operational emissions of criteria pollutants would be negligible and well below applicable significance thresholds. Therefore, operational air quality impacts would be less than significant.

Table 3.6-5: Operational Emissions

Criteria Pollutant	Max. Emissions (lb/day)	Max. Emissions (tons/year)	SBCAPCD Significance Threshold (tons/year)	AQIA Threshold (lb/day)
ROC	0.00017	0.00003	240	120
NO_x	0.00024	0.00004	240	120
CO	0.00181	0.00033	-	500
SO_2	0.00005	0.00005	240	120
PM_{10} Total	0.00046	0.00008	80	80
$PM_{2.5}$ Total	0.0012	0.00002	-	55

Note: Operational emissions are from "land use" which includes both on-road fugitive dust and mobile exhaust. The lb/day indicate the daily maxima. Total PM_{10} and $PM_{2.5}$ are the sum of the fugitive and dust emissions.
Source: CalEEMod Version 2022.1.1.45

c) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Sensitive receptors are land uses where occupants are more susceptible to the adverse effects of air pollution, including residences, schools, daycare centers, parks, nursing homes, and hospitals. Potential impacts to sensitive receptors are typically associated with emissions of toxic air contaminants (TACs), particulate matter, or substantial localized concentrations of criteria pollutants generated by project construction or operation.

Construction of the proposed project would result in temporary emissions associated with demolition, site preparation, directional boring, battery pad construction, battery-unit placement, and installation activities. Construction emissions would be generated by diesel-powered off-road equipment, worker vehicle trips, vendor deliveries, and limited haul truck activity. Construction is anticipated to occur between March and October 2027 and would be temporary in nature. The CalEEMod analysis incorporated project-specific construction equipment and vehicle trip assumptions, as well as dust-control measures consisting of watering exposed surfaces twice daily, resulting in a 61-percent reduction in PM10 and PM2.5 emissions associated with earthmoving activities. Construction emissions would occur intermittently over the construction period and would cease upon completion of construction.

The project does not include substantial stationary sources of air pollutants during operation. As modeled in CalEEMod, operation of the facility would generate only minimal maintenance-related vehicle trips, no natural gas consumption, no operational off-road equipment, and no operational combustion sources. The project site consists of a small-scale solar array and battery energy storage facility occupying approximately 1.3 acres. Operational activities would be limited to periodic inspection and maintenance visits. The facility would not involve manufacturing processes, routine fuel combustion, large employee populations, diesel truck operations, or other activities typically associated with substantial localized pollutant emissions. As a result, operation of the facility would not create a substantial source of criteria pollutants or toxic air contaminants in the vicinity of nearby sensitive receptors.

Based on the temporary nature of construction emissions, the relatively small construction equipment fleet, implementation of standard fugitive-dust controls, and the negligible operational emissions, the project would not be expected to expose nearby sensitive receptors to substantial pollutant concentrations. Therefore, the project would not expose sensitive receptors to substantial pollutant concentrations, and impacts would be less than significant.

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

Less Than Significant Impact. The facility is anticipated to generate no significant emissions, including the absence of odorous compounds. While the Goleta Sanitary District produces hydrogen sulfide (H_2S) odors, this source is outside the scope of the project. Emissions associated with the facility are limited to vehicle activity and are expected to be minimal. Additionally, the site is not located near population centers that could be affected by potential emissions. Therefore, the impact is determined to be less than significant.

Cumulative Impacts:

As stated in SBCAPCD's Environmental Review Guidelines (2015), "a project's potential contribution to cumulative impacts is assessed using the same significance criteria as those for project specific impacts". Since the impacts are considered "less than significant" in all other categories, the cumulative impacts are therefore considered less than significant.

Best Management Practices:

The following BMPs are required by the SBCAPCD for projects involving earthmoving activities, regardless of the project size or duration. The measures are based on policies adopted in the 1979 Air Quality Attainment Plan for Santa Barbara County. Proper implementation of these measures is assumed to fully mitigate fugitive dust emissions. It should be noted that applicable SBCAPCD and County Planning Department approved BMPs will be implemented as project design features. This is a standard Condition of Approval and pursuant to CEQA, is not considered mitigation.

BMP-1: During construction, use water trucks or sprinkler systems to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this should include wetting down such areas in the late morning, as well as after work is completed for the day. Increased watering frequency should be required whenever the wind speed exceeds 15 mph. Reclaimed water should be used whenever possible. However, reclaimed water should not be used in or around crops for human consumption.

BMP-2: Minimize the amount of disturbed area and reduce on-site vehicle speeds to 15 mph or less.

BMP-3: If import, export, and stockpiling of fill material is involved, soil stockpiled for more than 2 days shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucks transporting fill material to and from the site shall be tarped from the point of origin.

BMP-4: Gravel pads will be installed at all access points to prevent tracking of mud onto public roads.

BMP-5: After clearing, grading, earthmoving, or excavation is completed, treat the disturbed area by watering or revegetating, or by spreading soil binders, until the area is paved or otherwise developed so that dust generation will not occur.

BMP-6: The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust off-site. Their duties shall include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the Air Pollution Control District prior to grading/building permit issuance and/or map clearance.

Mitigation Measures:

None.

3.7 Biological Resources

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

Existing Conditions

The Project site is located in Santa Barbara County, California, within the Goleta basin of the coastal plain and the Goleta Slough watershed. It is situated northwest of where San Jose Creek, San Pedro Creek, Atascadero Creek, and Goleta Slough converge. San Pedro Creek runs adjacent to the eastern boundary of the site in an engineered channel, while Atascadero Creek and San Jose Creek are approximately 500 and 700 feet east of the site, respectively. The surrounding areas include estuarine wetlands to the south and west, and freshwater wetlands to the east. The site is located within the coastal zone and is fully developed with paved areas, buildings, concrete structures, and landscaping. The soils are identified as xerorthents and cut and fill areas (U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) 2025). The vegetation is primarily ornamental and comprised of non-native species such as Bermuda grass and perennial rye grass. The site's proximity to the Goleta Slough attracts various bird species, some of which use the solids stabilization basins as low-quality aquatic habitat

Regulatory Setting

Vegetation

The County's Coastal Land Use Plan (2019) and the Eastern Goleta Valley Community Plan (2017) identify native plant communities, such as coastal sage scrub, riparian scrub, coastal bluff scrub, and native oak woodlands, as environmentally sensitive habitat (ESH) areas. The California Department of Fish and Wildlife (CDFW) maintains the Natural Communities List and the California Sensitive Natural Communities (CSNC). The CSNC list includes vegetation alliances, associations, and special stands, with state and global rarity ranks for alliances and some associations. Those with ranks 1-3 are considered sensitive. However, CDFW does not provide state ranks for every association or alliance in California (CDFW 2025a).

Special-Status Plant Species

Special-status plant species, for the purposes of this analysis, include those that:

- Are designated as rare, threatened, or endangered by the CDFW or the U.S. Fish and Wildlife Service (USFWS) and are protected under the California Endangered Species Act or the federal Endangered Species Act, or meet the CEQA definition for endangered, rare, or threatened;
- Are candidate species being considered or proposed for listing under these acts;
- Are of concern to resource/regulatory agencies or local jurisdictions, including plants on the CDFW Special Vascular Plants, Bryophytes and Lichens List (CDFW 2025c) and those with a California Rare Plant Ranking (CRPR) of 1 or 2 in the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2025a); and/or
- Are plants in the CNPS Inventory, classified as:
    - CRPR 1A: Presumed extinct in California;
    - CRPR 1B: Rare, threatened, or endangered in California and elsewhere; or
    - CRPR 2: Rare, threatened, or endangered in California but more common elsewhere.

Species with CRPR 3 or 4 generally do not qualify for protection, but they may be considered special-status if they meet certain criteria, such as being locally rare or having unique characteristics. The Rare Plants of Santa Barbara County (Wilken 2018) lists native vascular plant taxa with limited distribution in Santa Barbara County, including those known from one to five occurrences, with separate occurrences defined as locations more than 1 kilometer apart.

Special-Status Wildlife Species

Special-status wildlife species, for the purposes of this analysis, include those that:

- Are designated as rare, threatened, or endangered by the CDFW or the USFWS and are protected under the California Endangered Species Act or the federal Endangered Species Act, or meet the CEQA definition for endangered, rare, or threatened;
- Are candidate species being considered or proposed for listing under these acts;
- Are fully protected by specific sections of the California Fish and Game Code (Sections 3511, 4700, 5050, or 5515); and/or
- Are of concern to resource/regulatory agencies or local jurisdictions, including State Species of Special Concern (SSC) or those on the CDFW Watch List.

Findings related to special-status plants and wildlife were cross-referenced with habitat conditions, elevations, and soil types to assess the potential for their occurrence.

Aquatic Resources

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) regulates the discharge of dredge or fill material into wetlands and other waters of the United States under Section 404 of the Clean Water Act (CWA). Section 404 of the Clean Water Act (CWA) authorizes the U.S. Army Corps of Engineers (USACE) to regulate the discharge of dredged or fill material into "waters of the United States" (WOTUS). Under the proposed update to 40 CFR Part 120 (RIN 2040–AG44), WOTUS includes traditional navigable waters, interstate waters, territorial seas, impoundments, and certain tributaries that are relatively permanent. Adjacent wetlands qualify only if they maintain a continuous surface connection to jurisdictional waters, consistent with the Supreme Court's Sackett v. EPA decision. Ephemeral streams, isolated wetlands, ditches, groundwater, and prior-converted croplands are excluded. This narrower definition eliminates the former "significant nexus" test, providing greater clarity and limiting federal jurisdiction. Authorization from USACE remains required before discharging dredged or fill material into jurisdictional waters.

Regional Water Quality Control Board

The State of California shares jurisdiction with the federal government over Section 401 of the CWA, which concerns Water Quality Certification for jurisdictional wetlands and other waters of the United States. Each Regional Water Quality Control Board (RWQCB) regulates their respective region at the state level, while the USACE regulates at the federal level. For isolated waters and wetlands not under federal jurisdiction, the State exerts independent authority through the Porter-Cologne Act. This Act allows the RWQCB to regulate any actions involving the discharge of waste that could affect the waters of the State, defined as any surface or groundwater within California's boundaries.

The Porter-Cologne Act mandates that each RWQCB create water quality control plans for their regions. The Water Quality Control Plan for the Central Coastal Basin outlines water uses, necessary water quality standards, implementation plans, and monitoring programs (RWQCB 2024).

The State Water Resources Control Board (SWRCB) has established Procedures for Discharges of Dredged or Fill Material to Waters of the State, revised April 6, 2021, which provide uniform standards and definitions for regulating and reviewing discharge applications to wetlands across the State's nine regional boards. Applications submitted before this date are not subject to the new procedures. Activities potentially affecting water quality in state waters require RWQCB authorization before proceeding.

California Department of Fish and Wildlife

Under California Fish and Game Code Sections 1600–1616, the CDFW regulates activities that substantially divert or obstruct natural water flow or alter the bed, channel, or bank of any river, stream, or lake. CDFW's jurisdiction includes ephemeral, intermittent, and perennial watercourses (including dry washes) and lakes with definable beds and banks and existing fish or wildlife resources. This jurisdiction extends to the upland edge of riparian habitat, defined by vegetation supported by hydrologic conditions within a waterway. A watercourse does not need to show an ordinary high-water mark to fall under CDFW jurisdiction. CDFW does not cover ocean or shoreline resources. CDFW may also regulate "one-parameter" wetlands, which display positive indicators for one of the three wetland indicators (hydrophytic vegetation, hydric soils, or wetland hydrology) based on a case-specific analysis. Activities affecting jurisdictional lake or streambed resources require CDFW authorization before proceeding.

Local Coastal Plan

The County of Santa Barbara (2019) defines wetlands within the coastal zone as areas that may be periodically or permanently covered with shallow water. This includes saltwater marshes, freshwater marshes, brackish water marshes, swamps, mudflats, and fens. This definition, adopted from the California Coastal Act (California PRC Section 30121), broadly identifies areas that may be classified as wetlands and thus subject to regulation.

Methodology

Literature Review

Before Langan's field visit for this environmental analysis, the locations of documented special-status plant and wildlife species near the Project area and potential species on-site were identified using several sources. These sources included the California Natural Diversity Database (CDFW 2025c), USFWS Information for Planning and Consultation (IPaC, USFWS 2025), the CNPS Inventory of Rare and Endangered Plants of California (CNPS 2025a), and the updated Rare Plants of Santa Barbara County (Wilken 2018).

Vegetation Mapping

Mapping Nomenclature for on-site vegetation communities follows the most current system, the Manual of California Vegetation, Second Edition (MCV2), and the CSNC. Vegetation communities

were mapped according to these sources, with rarity rankings referenced from the Online Edition of the MCV2 (CNPS 2025b). If observed vegetation did not match the membership rules of these communities, a new name was assigned based on the dominant species observed, in line with MCV2. The minimum vegetation mapping units applied were:

- 0.5–1.0 acre for inaccessible areas due to steep terrain;
- Acre for wetland (hydrophytic) vegetation in traditional wetland environments; and
- Acre for sensitive vegetation communities.

Plant Species

Langan's biologists, knowledgeable about special-status plant species and the general flora of coastal Santa Barbara County, conducted reconnaissance-level plant species surveys. During these surveys, any observed special-status species were mapped using ArcGIS Field Maps.

Native and naturalized plant species encountered were identified and recorded. Scientific and common names for plant species with a CRPR follow the CNPS Online Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2025a). For species without a CRPR, scientific names follow the Jepson Index to California Plant Names (Jepson Herbaria 2025), and common names follow the California Natural Community List (CDFW 2025a) or the USDA NRCS Plants Database (NRCS 2025). The cumulative list of identified plants is included as Appendix B.

Wildlife Species

During the general biological survey, a reconnaissance-level survey documented observed wildlife species. No focused surveys for special-status wildlife species were conducted. Wildlife species detected by sight, sound, tracks, scat, or other signs were noted. Habitat for special-status species was also recorded.

Aquatic Resources

During the general biological survey, a reconnaissance-level survey for aquatic resources was performed, but no formal aquatic resources delineation (such as a wetland delineation) was conducted.

Site Evaluation:

Langan Senior Biologist David Murray conducted a general biological survey of the proposed Project area, covering the permanent impact areas and a 200-foot buffer. He documented wildlife and plant species, noted vegetation communities, and confirmed previous vegetation mapping and a quantitative assessment of impacts to these communities within the project site.

Vegetation Communities

Five vegetation communities and land cover types were recorded within the biological survey area, all of which were non-native (Figure 3-1 and Table 3.7-1). No sensitive vegetation communities were observed. Eucalyptus and myoporum are non-native and do not have a State rank (SNR). The other three communities and land cover types are not listed in the CSNC or the

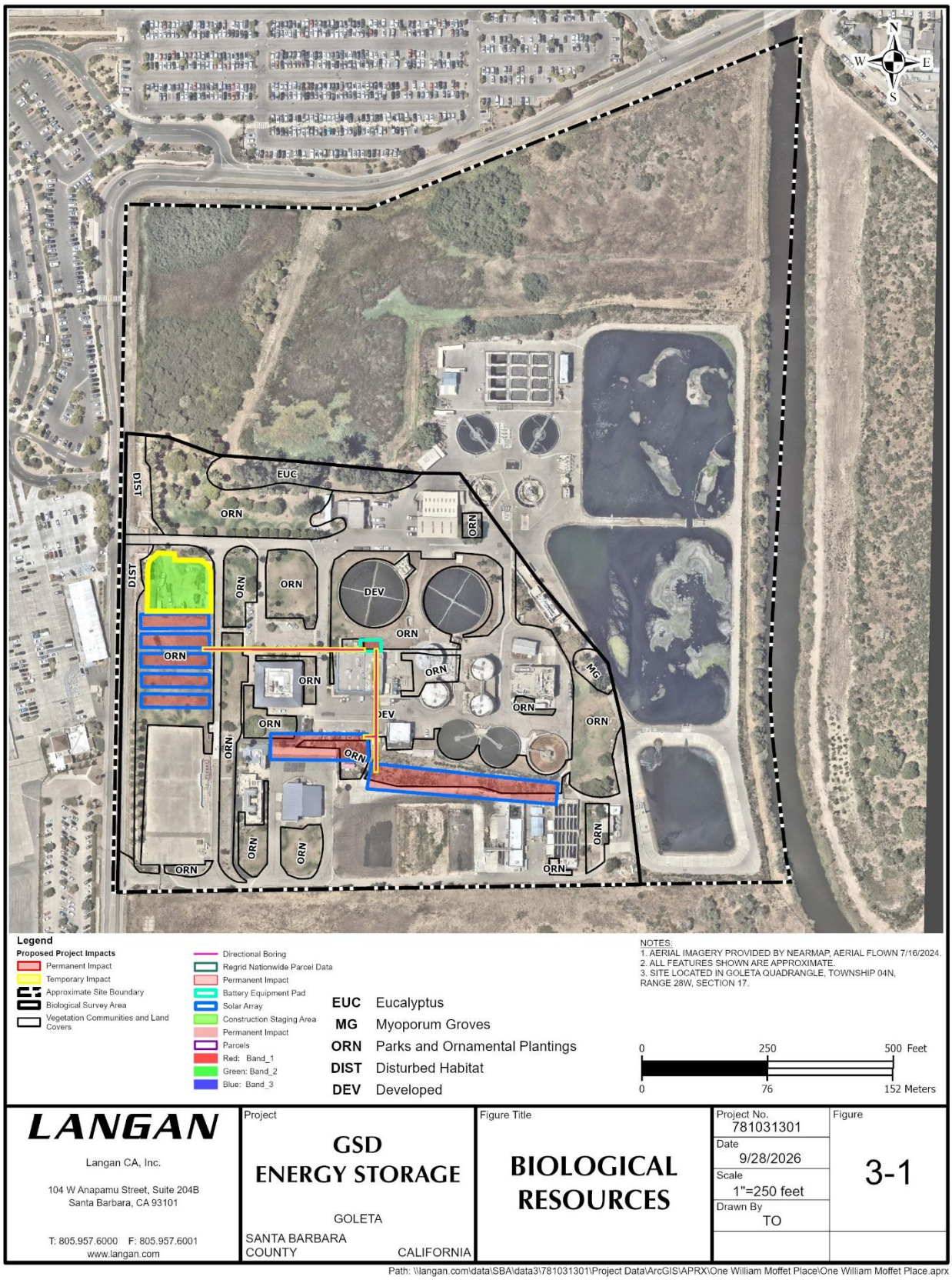
MCV2. The proposed Project would disturb approximately 1.30 acres of non-native plant communities or developed areas (non-ESH areas), including 0.12 acres of temporary disturbance to developed, disturbed, and ornamental plantings, and 1.18 acres of permanent disturbance to developed and ornamental plantings

Table 3.7-1: Summary of Existing Vegetation Communities and Land Cover Types

General Habitat		**Vegetation Community**	**Global, State Rank**	**Acreage**
Non-Native Communities and Land Cover Types	Non-Native Communities	Eucalyptus	GNR, SNR	0.46
		Myoporum Groves	GNR, SNR	0.1
		Arks and Ornamental Plantings	NA	6.42
	Land Cover Types	Developed	NA	9.96
		Disturbed Habitat	NA	0.42
Non-Native Communities and Land Cover Types				17.37
Combined Total				**17.37**

Notes: GNR = globally not rare; NA = not applicable. Not included in CSNC (CDFW 2025a); SNR = state not ranked.

Figure 3-1 Biological Resources



Non-Native Communities

- Eucalyptus (GNR, SNR)

Eucalyptus is listed in the MCV2 and the CSNC, but it does not have a global or State rank because it is composed of non-native species and is not considered sensitive (CNPS 2025b; CDFW 2025a). Eucalyptus groves have eucalyptus trees (*Eucalyptus spp.*) as the dominant species in the tree canopy, which is open to continuous and less than 60 meters (197 feet) in height. The understory shrubs and herbaceous layers are sparse to intermittent. Eucalyptus groves occur throughout California as planted trees, groves, windbreaks, and naturalized areas on uplands, bottomlands, and near stream courses, lakes, or levees. Approximately 0.46 acres of this community were identified in the biological survey area.

- Myoporum Groves (GNR, SNR)

Myoporum groves are listed in the MCV2 and the CSNC, but they do not have a global or State rank because they are composed of non-native species and are not considered sensitive (Sawyer et al. 2009; CDFW 2025a). Myoporum groves consist of myoporum (*Myoporum laetum*) as the dominant species in the tree canopy, which is open to continuous and less than 18 meters (59 feet) in height. Understory shrubs are infrequent or common, and the herbaceous layer ranges from simple to diverse. These groves occur in coastal canyons, washes, slopes, riparian areas, and roadsides throughout central and southern California, often forming dense single-species stands in coastal areas. Approximately 0.10 acre of this community was identified in the biological survey area.

- Parks and Ornamental Plantings

The ornamental vegetation community is not described in the CSNC or the MCV2 because it is not a naturally occurring community in California and is not considered sensitive. This community is dominated by landscaping plants and occurs throughout the property. Approximately 6.42 acres of this community were identified in the biological survey area (Figure 3-1).

Land Cover Types

- Developed

Within the biological survey area, developed areas consist of unvegetated spaces with impervious materials, such as pavement and development. These areas include roads, parking lots, buildings, and concrete structures (Figure 3-1). Approximately 9.96 acres of developed area were identified in the biological survey area.

- Disturbed Habitat

This land cover type is not described in the Natural Communities List or the MCV2, and includes invasive non-native and other disturbance-tolerant species as dominant. Species within this community, including some natives, are tolerant to disturbances such as grading or vegetation clearing. On-site, species found in disturbed areas include poison hemlock (*Conium maculatum*), black mustard (*Brassica nigra*), Hottentot fig (*Carpobrotus edulis*), and horseweed (*Erigeron canadensis).* Approximately 0.42 acres of this land cover type were identified in the biological survey area.

Plant Species

A total of 32 plant species were observed and identified, with 4 (12%) considered native and 28 (88%) considered non-native to California. A query of the California Natural Diversity Database (CDFW 2025c) returned 11 special-status plant species documented within a 5-mile radius of the site. Based on Langan's habitat suitability analysis, including elevation and habitats, 10 special-status plant species had a low potential to occur within the Project site. These species and respective CNPS rankings include:

- Coulter's saltbush (*Atriplex coulteri, 1B.2*)
- Davidson's saltscale (*Atriplex serenana var. davidsonii, 1B.2*)
- Southern tarplant (*Centromadia parryi ssp. Australis, 1B.1*)
- Mesa horkelia (*Lasthenia conjugens, 1B.1*)
- Coulter's goldfields (*Lasthenia glabrata ssp. Coulteri, 1B.1*)
- Pale-yellow layia (*Layia heterotricha, 1B.1*)
- Santa Barbara honeysuckle (*Lonicera subspicata var. subspicata, 1B.2*)
- Sonoran maiden fern (*Pelazoneuron puberulum var. sonorense, 2B.2*)
- Black-flowered figwort (*Scrophularia atrata, 1B.2*)
- Estuary seablite (*Suaeda esteroa, 1B.2*)

No federal, State, or CNPS CRPR plant species were observed.

Trees

There are no native tree species within the temporary or permanent impact areas.

Wildlife Species

A total of 25 wildlife species (24 birds and 1 mammal) were observed or detected based on vocal cues or signs (Appendix B). Various special-status wildlife species occur within 5 miles of the Project site, including:

- Monarch butterfly (*Danaus plexippus*; candidate federally endangered CAN FE) overwintering population
- Crotch's bumble bee (*Bombus crotchii;* candidate State threatened CAN ST)
- Tidewater goby (*Eucyclogobius newberryi*; federally endangered FE)
- Coast Range newt (*Taricha torosa;* CDFW species of special concern SSC)
- California red-legged frog (*Rana draytonii;* federally threatened FT, SSC)
- Northern California legless lizard (*Anniella pulchra*; SSC)
- Southwestern pond turtle (*Actinemys pallida*; CAN FE, SSC)
- White-tailed kite (*Elanus leucurus*; State fully protected FP)

- Western snowy plover (*Charadrius nivosus nivosus*; FT, SSC)
- Tricolored blackbird (*Agelaius tricolor*; USFWS bird of conservation concern BCC, SSC, state threatened ST)
- California least tern (*Sterna antillarum browni*; FE, State endangered SE, FP)
- Burrowing owl (*Athene cunicularia*; candidate State endangered CAN SE, SSC
- Grasshopper sparrow (*Ammodramus savannarum*; SSC)
- Belding's savannah sparrow (*Passerculus sandwichensis beldingi;* BCC, SE)
- Bell's sparrow (*Artemisiospiza belli belli, CDFW watch list, WL)*
- California horned lark (*Eremophila alpestris actia, WL)*
- Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens, WL)*
- Double crested cormorant (*Nannopterum auritum, WL)*
- Cooper's hawk (*Astur cooperii, WL)*
- Ferruginous hawk (*Buteo regalis, WL)*
- Pallid Bat (*Antrozous pallidus*; SSC)
- Western Red Bat (*Lasiurus frantzii*; SSC)
- Townsend's big-eared bat (*Corynorhinus townsendii;* SSC)
- Western mastiff bat (*Eumops perotis californicus*; SSC)
- San Diego desert woodrat (*Neotoma lepida intermedia*; SSC)

Great blue (*Ardea herodias*) and great egret (*Ardea alba*) nest at nearby Goleta Beach and may occur on-site. These species might hunt gophers on the Project site lawn, near the staging area, but have other foraging opportunities in the area. Many avian species, including the great blue heron and great egret, are protected solely for nesting colonies, and none nest at the GSD site. The settling lagoons are poor foraging habitats for these species. California least tern and western snowy plover will not nest at this location. Belding's savannah sparrow may occasionally forage on the property but has no potential to nest.

Monarch butterflies, Candidate federally endangered and protected under the County (County of Santa Barbara 2019), do not have suitable roosting habitats in the eucalyptus trees at the northwestern section of the site, as these trees are not configured properly and are not a known roosting area. These trees are non-native. Crotch's bumble bee may have potential to occur at the site when suitable forage is available. Occurrences are unlikely due to the highly developed nature of the site, considering that the species prefers to forage in grasslands, shrublands and chaparral environments.

Habitat is lacking on-site for all other special-status wildlife species known to occur within 5 miles of the site, except for Cooper's hawk (*Accipiter cooperii).* This bird of prey may nest in the eucalyptus trees along the northwestern boundary of the site, but not within the proposed development areas. No habitat for special-status wildlife species was found, and no special-status wildlife species were detected during the field survey.

Wildlife Movement Corridors

The site is in a developed area and does not connect important habitat areas used by large or small wildlife species. In addition, chain-link fencing borders the property and provides impediments to wildlife movement. Medium-sized mammal species, such as the striped skunk (*Mephitis mephitis*) or northern raccoon (*Procyon lotor*), may move locally along the coast.

Aquatic Resources

No jurisdictional features were detected during the field survey. Standard construction site BMPs apply to protect storm water resources and the environment.

Environmental Determination

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

Less Than Significant with Mitigation Incorporated. No special-status plant or wildlife species were observed within the biological survey area, so impacts to special-status species from Project disturbances in the temporary and permanent impact areas would be less than significant.

However, 22 species of native birds were detected on-site, including several with the potential to nest there. Nests, eggs, and nestlings of all native bird species are protected by the Migratory Bird Treaty Act and the California Fish and Game Code. Vegetation clearing and grading during the nesting season (January 15th to September 15th) could destroy nests, eggs, and nestlings, potentially violating these regulations. Therefore, impacts to nesting birds from Project disturbances would be potentially significant without mitigation. With implementation of Mitigation Measures MM-BIO-1 and MM-BIO-2, the impact would be reduced to a less-than-significant level.

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

No Impact. No sensitive communities were detected within or immediately adjacent to the impact area; therefore, no impacts to sensitive communities would occur. The Santa Barbara County ESH and Riparian Corridor (RC) overlays identify three mapped ESH features, including San Pedro Creek, within or adjacent to the parcel. These features are more than 200 feet from the impact area, exceeding the 100-foot buffer required per the Coastal Land Use Plan.

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

No Impact. No wetlands or streams were detected within or immediately adjacent to the impact area; therefore, no impacts to wetlands or streams would occur. The National Wetlands Inventory

identifies predominantly freshwater emergent wetlands surrounding the project site. These mapped wetlands are more than 100 feet from the impact area, adhering to the minimum buffer strip requirement per the Coastal Zoning Ordinance.

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?

Less than Significant. The proposed Project is within a developed area and does not connect important habitat areas for large or small terrestrial wildlife species. The chain-link fence surrounding the property impedes the movement of larger and medium-sized wildlife. Medium-sized mammals, like the striped skunk and northern raccoon, may occasionally move locally along the coast. Therefore, impacts from interference with wildlife movement would be less than significant.

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

Less than Significant. Up to nine ornamental trees, which are not native or naturally occurring, would be removed within the impact area. Therefore, the proposed Project does not conflict with any local tree preservation policy and impacts to trees would be less than significant.

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

No Impact. Since no habitat conservation plans apply to the proposed Project area, no impact would occur.

Mitigation Measures:

Impacts to Nesting Birds: Should construction or vegetation clearing be initiated during the bird nesting season (January 15th to September 15th), injury and mortality to native nesting birds protected under the Migratory Bird Treaty Act and the California Fish and Game Code may occur.

MM-BIO-1 **Pre-construction Nesting Bird Surveys.** If project activities are proposed during the general avian breeding season of January 15th to September 15th, the Project biologist shall conduct a pre-construction survey for active nests within 500 feet of the construction area and submit a letter report to the County of Santa Barbara prior to the pre-construction meeting. If active nests are detected, clearing and construction within a minimum of 300 feet shall be postponed until the nest(s) is vacated, juveniles have fledged, and there is no evidence of a second attempt at nesting. If an active raptor or rare, threatened, endangered, or SSC bird nest is found, clearing and construction within a minimum of 500 feet shall be postponed until the nest(s) is vacated, juveniles have fledged, and there is no evidence of a second attempt at nesting. The report submitted to the County shall include mitigation measures including, but not limited to, (1) worker environmental

awareness training, (2) daily biological monitoring during construction activities, and (3) the locations of flags and/or stakes to provide the appropriate avoidance buffers. If no nesting birds are detected during the pre-construction survey, no mitigation is required.

The Project biologist shall continue to perform site surveys during all construction activities to detect any nesting birds that may nest on the Project site after the pre-construction survey. Pre-construction clearance surveys shall be completed as required to comply with the federal Endangered Species Act, Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, California Fish and Game Code, and/or County regulations. If the biological monitor determines that Project activities are disturbing or disrupting nesting activities, the monitor will make recommendations to County staff to reduce the noise or disturbance in the vicinity. This may include recommendations such as (1) turning off vehicle engines and other equipment whenever possible to reduce noise, (2) working in other areas until the young have fledged, and (3) stopping work until young are independent of their nests (Development Standard ECO-EGV-2C in County of Santa Barbara 2021).

Requirements and Timing

Pre-construction nesting bird surveys shall be completed prior to any vegetation clearing or ground disturbance associated with construction or grading during the bird nesting season (January 15th to September 15th). The survey should be conducted within 1 week prior to construction or site preparation activities that would occur during the nesting/breeding season of native bird species potentially nesting on the site.

Monitoring

GSD shall ensure the pre-construction nesting bird surveys, and any avoidance requirements, are completed prior to commencement of any earthmoving activities. The results of the pre-construction nesting bird survey will be submitted to the County prior to the pre-construction meeting to document compliance with applicable State and federal laws pertaining to the protection of native birds.

Potential indirect impacts could occur as a result of construction site runoff. These impacts may include accidental pollutant/chemical spills or discharge of materials from the use of concrete, oil/gas, water runoff, or on-site fueling stations. To minimize potential impacts to adjacent sensitive habitat and potential jurisdictional features, the following measure is required.

MM-BIO-2 **Erosion and Sediment Control Plan (ESCP).** Due to the Project impact of less than 1 acre, the Applicant shall prepare an ESCP to minimize the potential for discharge of pollutants during construction activities. The ESCP shall be designed to minimize erosion during construction, and it shall be implemented for the duration of the grading period and until re-graded areas have been stabilized by structures, long-term erosion control measures, or permanent landscaping. The ESCP shall include both structural and non-structural BMPs, including straw

wattles around storm drains, silt fencing, and/or other physical controls to divert flows from exposed soil, spill prevention methods, and clean housekeeping methods for storing and refueling machinery. The ESCP shall use BMPs designed to stabilize the site, protect natural watercourses/creeks, prevent erosion, and convey storm water runoff to existing drainage systems, keeping contaminants and sediments on-site.

As part of the ESCP, the contractor shall include specifications, installation requirements, and locations of appropriate BMPs to control sediment, coarse particles, concrete, and other materials exposed during construction. During construction activities, washing of concrete or equipment shall occur only in areas where polluted water and materials can be contained for subsequent removal from the site. Washing will not be allowed in locations where the tainted water could enter storm drains.

There is a storm water conveyance swale located in the grassy field, south of the staging area. A 50-foot buffer is required from this feature. The southern boundary of the staging area will need appropriate BMPs, such as a silt fence, to protect storm water.

Requirements and Timing

The ESCP shall be submitted and approved prior to any ground disturbance. A County-approved ESCP is required in order to be issued a Grading Permit. ESCPs shall be developed by a professional knowledgeable in erosion and sediment control. It is recommended that a Certified Professional in Sediment and Erosion Control develop the ESCP. The responsible party shall designate an individual to be responsible for on-site installation, maintenance, and removal of ESCP measures. The ESCP requirements shall be implemented between November 1st and April 15th of each year, except pollution control measures, which shall be implemented year-round.

Monitoring

The contractor shall inspect BMPs regularly and prior to storm events. The contractor shall maintain BMPs in good condition at all times, and monitor the site's storm water measures, prior to the start of construction, as well as throughout the duration of construction, to ensure they continue to function properly

3.8 Cultural Resources

Environmental Issue Area	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. Cultural Resources. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☑	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☑	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☑	☐	☐

Existing Conditions

The Project site is located at 1 William Moffett Place, within an unincorporated area of Santa Barbara County southwest of the City of Goleta and immediately east of the City of Santa Barbara's airport property. The existing setting conditions relevant to the assessment of potential impacts to cultural resources include the past and present biological, geological and cultural settings. Summaries of these settings are provided in the following subsections.

Biological Setting

The Project site is located within the Goleta basin of the coastal plain, specifically within the Goleta Slough watershed, northwest of the confluence of San Jose Creek, San Pedro Creek, Atascadero Creek, and Goleta Slough. The nearest fresh water source to the Project site in prehistoric, historic, and modern times is Old San Pedro Creek, that empties into the Goleta Slough and is connected to the Pacific Ocean south of the Project site.

San Pedro Creek is located adjacent to the eastern boundary of the Project site within an engineered channel. Atascadero Creek and San Jose Creek are located approximately 400 and 600 feet east of the Project site, respectively. Adjacent to the parcel to the south and west are estuarine wetlands. To the east is freshwater forested and freshwater emergent wetlands. The proposed Project is located in the coastal zone and is entirely within a developed parcel consisting of paved areas, buildings, concrete structures, and landscaping. Soils in this area are xerorthents (orthent soil with a xeric moisture regime) and cut and fill areas (USDA NRCS 2021). Within the property, vegetation is dominated by ornamental plantings and non-native species such as Bermuda grass (*Cynodon dactylon*) and perennial rye grass (*Festuca perennis*).

The natural vegetation in the Project vicinity prior to European colonization would have consisted of annual grasses, saltgrass, pickleweed, inkweed, and other salt-tolerant plants. The Project site is currently in use as a waste processing plant. The proximity to the Goleta Slough attracts a wide variety of bird species, with some species utilizing the solids stabilization basins as low-quality aquatic habitat.

Geological Setting

Based on regional geologic maps and previous on-site borings and other stratigraphical data collected during archaeological excavations, the Project site is underlain by fill and terrace deposits and at depth by the Monterey Formation. Fill material consisting of very loose to medium dense silty sand was encountered in borings to a depth of 8 feet below ground surface. Terrace deposits consisting of unconsolidated sandy soils, silty claystone, and silty sandstone were encountered to a depth of 63 feet. Monterey Formation bedrock consisting of clayey siltstone was encountered below the terrace deposits to the maximum depth drilled of 67 feet (Ninyo & Moore 2021; McDaniel McDevitt et al. 2021, 2022, 2025).

The proposed Project site is located within the west-central Transverse Ranges Geomorphic Province, that extends from Point Conception in the west to the San Bernardino Mountains in the east. The province also includes the San Gabriel, Santa Monica, and Santa Ynez Mountains and the offshore San Miguel, Santa Rosa, and Santa Cruz Islands (California Geological Survey (CGS) 2002; Morton and Miller 2006). This geomorphic province structure is east-west trending and is oblique to the normal northwest trend of Coastal California. Regionally, the Transverse Ranges extend offshore west to include the continental shelf and offshore islands of Santa Cruz, Santa Rosa, and San Miguel (CGS 2002).

According to surficial geological mapping by Dartnell et al. (2011) at a 1:24,000 scale, the northeastern portion of the proposed Project site is underlain mapped deposits of Holocene (<11,700 years ago) estuarine deposits (map unit Qe); the central portion of the Proposed Project site is underlain by early Pleistocene (approximately 1.8 to 2.58 million years ago) to possibly late Pliocene (approximately 2.58 to 3.6 million years ago) siltstone unit of an unnamed, marine sedimentary unit (map unit QTst); and southernmost portion of the proposed Project site is the upper siliceous unit of the late Miocene (approximately 5.33 to 11.63 million years ago) marine, Monterey Formation (map unit Tmu).

Soils in the Project site are characterized as Alviso soils, undifferentiated, nearly level and Mocho loamy sand, imperfectly drained, nearly level (USDA 1958). A brief description of each series is provided below:

- Alviso soils, undifferentiated, nearly level consists of 0 to 3 percent slopes, with a series profile typically consisting of 0-11 inches of gray, slightly calcareous, hard, moderately basic, massive clay loam that is highly mottled with rust-brown iron stains; 11-60 inches of stratified, highly mottled, light brownish-gray, moderately basic, slightly calcareous, variously textured materials, mottlings become more dull and light gray with depth.
- Mocho loamy sand, imperfectly drained, nearly level consists of 0 to 2 percent slopes, with a series profile typically consisting of 0-14 inches of brown, slightly hard, moderately basic loamy sand of single-grained structure and; 14-72 inches of brown to pale-brown stratified layers of slightly calcareous, moderately basic, slightly hard, massive loamy sands and sand.

Cultural Setting

To review a comprehensive cultural setting on the Project site and surrounding area, please refer to Confidential Appendix C.

Regulatory Setting

Under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5(b)). An "historical resource" includes, but is not limited to, "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (California Public Resources Code (PRC), Section 5020.1(j)).

The California Register of Historical Resources (CRHR)

In 1992, the California legislature established the CRHR "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1(a)). The criteria for listing resources on the CRHR were developed in accordance with established criteria developed for listing in the National Register of Historic Places (NRHP). Because the criteria for the CRHR are consistent with those for the NRHP, properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

According to PRC Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

a) is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

b) is associated with the lives of persons important in our past;

c) embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

d) has yielded, or may be likely to yield, information important in pre-history or history.

In determining the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. Standard practice considers 50 years to be the sufficient time; however, a resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see 14 California Code of Regulations (CCR) 4852(d)(2)).

CEQA statutes PRC Section 21000 et seq. and CEQA Guidelines 14 CCR 15000 et seq. specifically address archaeological, historic, and tribal cultural resources (TCRs):

- PRC Section 21083.2(g) defines "unique archaeological resource."
- PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a) define "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource"; it also

defines the circumstances when a project would materially impair the significance of a historical resource.

- PRC Section 21074(a) defines "tribal cultural resources."
- PRC Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
- PRC Sections 21083.2(b) and 21083.2(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures. Preservation in place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

CEQA also applies to "unique archaeological resources." California Public Resources Code Section 21083.2(g) defines a "unique archaeological resource" as any archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

For purposes of CEQA, all historical resources and unique archaeological resources – as defined by statute – are presumed to be historically or culturally significant (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5(a)). However, the lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5(a)). It is important to understand, that a site or resource that does not meet the definition of "historical resource" or "unique archaeological resource" is not considered significant under CEQA and need not be analyzed further (California Public Resources Code Section 21083.2(a); CEQA Guidelines Section 15064.5(c)(4)).

Under CEQA and significant cultural impact results from a "substantial adverse change in the significance of an historical resource [including a unique archaeological resource]" due to the "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064.5(b)(1); California Public Resources Code Section 5020.1(q)). In turn, the significance of a historical resource is materially impaired when a project:[1]

Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or

Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

2. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

[3]Pursuant to Section 15064.5(B)(2), CEQA first evaluates whether a project site contains or has the potential to contain "historical resources," then assesses whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

When a project significantly affects a unique archeological resource, CEQA imposes special mitigation requirements. Specifically, "[i]f it can be demonstrated that a project will cause damage to a unique archeological resource, the lead agency may require reasonable efforts to be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. Examples of that treatment, in no order of preference, may include, but are not limited to, any of the following:"

1. "Planning construction to avoid archeological sites."
2. "Deeding archeological sites into permanent conservation easements."
3. "Capping or covering archeological sites with a layer of soil before building on the sites."
4. "Planning parks, greenspace, or other open space to incorporate archeological sites."

Human Remains

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in PRC Section 5097.98.

The California Public Resources and Health and Safety codes consist of the regulatory, penal, and administrative ordinances for the State of California. A summary of the California codes that are applicable to the subject of the discovery of human remains are provided below.

California Health and Safety Code Section 7050.5. This code establishes that human remains are to not be knowingly mutilated or disinterred, wantonly disturbed, or willfully removed from any location other than a dedicated cemetery without authority of law. The code specifically provides exception to any person carrying out an agreement developed pursuant to subdivision (l) of Section 5097.94 of the Public Resources Code or to any person authorized to implement Section 5097.98 of the Public Resources Code. The code also provides protocols to be followed in the case of discovery or recognition of any human remains in any location other than a dedicated cemetery and stipulates the role of the coroner. Finally, the code provides the protocols to follow in the case the coroner determines that the remains are not subject to his or her authority and if

the coroner recognizes the human remains to be those of a Native American as well as the role of the Native American Heritage Commission (NAHC). Public Resource Code 5097.94.

This code establishes the powers and duties bestowed on the NAHC. As they relate to those powers and duties that apply to human remains, this code states that the NAHC has the responsibility to: identify and catalog places of special religious or social significance to Native Americans, and known graves and cemeteries of Native Americans on private lands; make recommendations relative to Native American sacred places that are located on private lands; mediate disputes arising between landowners and known descendants relating to the treatment and disposition of Native American human burials, skeletal remains, and items associated with Native American burials; provide protection to Native American human burials and skeletal remains from vandalism and inadvertent destruction; and assist interested landowners in developing agreements with appropriate Native American groups for treating or disposing, with appropriate dignity, of the human remains and any items associated with Native American burials.

Public Resource Code 5097.98. This code outlines the protocols to be followed in the case of a discovery of Native American human remains including the roles and responsibilities of the coroner, Native American Heritage Commission (NAHC), the individual identified by the NAHC as the most likely descended from the deceased Native American, and the landowner of whose land the discovery was made. The code defines the manner of "conferral" or "discuss and confer" as "the meaningful and timely discussion and careful consideration of the views of each party, in a manner that is cognizant of all parties' cultural values, and where feasible, seeking agreement" and states that all parties involved "shall recognize the other's needs and concerns for confidentiality of information provided to the other". If the either the NAHC is unable to identify a descendant, or the descendants identified fail to make a recommendation, or the landowner or his or her authorized representative rejects the recommendation of the descendants, and the mediation provided for in subdivision (k) of section 5097.94. if invoked, fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall inter the human remains and items associated with Native American human remains with appropriate dignity on the property in a location not subject to further and future subsurface disturbance.

Public Resource Code 5097.99. This code is intended to protect by prohibiting obtaining or possessing Native American artifacts or human remains taken from grave or cairn on or after January 1, 1984 and states that "any person who removes, without authority of law, any Native American artifacts or human remains from a Native American grave or cairn with an intent to sell or dissect or with malice or wantonness is guilty of a felony which is punishable by imprisonment in the state prison".

Public Resource Code 5097.991. This code establishes the policy of the state that Native American remains and associated grave artifacts shall be repatriated.

Methods Employed to Determine Potential for Impacts

CHRIS Records Search

A search of the California Historical Resources Information System (CHRIS) database housed at the Central Coast Information Center (CCIC) was conducted. The search included any previously

recorded and submitted cultural resources and investigations within a 0.5-mile radius of the *Project* area. The CHRIS search also included a review of the National Register of Historic Places (NRHP), the CRHR, the California Points of Historical Interest list, the California Historical Landmarks list, the Archaeological Determinations of Eligibility list, and the California State Historic Resources Inventory list. Confidential Appendix C provides the records' search results, maps, and a complete bibliography of all prior cultural resource studies occurring within 0.5 miles of the Project area.

Previously Recorded Cultural Resources

The CHRIS records indicate that seventeen (17) cultural resources have been previously recorded within 0.5-miles of the proposed Project site, one of which is located within the proposed Project site, CA-SBA-46. The seventeen (17) identified cultural resources include eleven (11) prehistoric sites and six (6) built environment, above ground resources. Table 3.8-1 summarizes all previously recorded cultural resources identified within the records research radius followed by a brief summary of the precontact archaeological resource located within the records search radius.

Table 3.8-1: Cultural Resources Recorded within a 0.5-mile Radius of the Proposed Project Site

CHRIS Resource Designation	Resource Type and Description	Recording Events	NRHP Eligibility	Approximate Distance from proposed Project Site
P-42-000043 (CA-SBA-000043)	Prehistoric site containing marine shell midden, broken mortars (possible cemetery), flakes, flaked stone tools, groundstone, and fire cracked rocks.	1929 (David B. Rogers); 1981 (L. Wilcoxon and J. Erlandson)	Unknown	660 meters (2,165 feet) southeast
P-42-000044 (CA-SBA-000044)	Prehistoric site containing marine shell midden, groundstone, flaked stone tools, fire cracked rock, and two isolate human remain fragments.	1929 (David B. Rogers); 1967 (J. Chartkoff, K. Chartkoff, L. Kona); 1981 (Erlandson and Wilcoxon)	Unknown	680 meters (2,230 feet) southeast
P-42-000045 (CA-SBA-000045)	Prehistoric site containing marine shell midden, flakes, flaked stone tools, groundstone, asphaltum, tarring pebbles, modified and unmodified faunal bones, and human remains	1927 (David B. Rogers); 1967 (J & K Chartkoff and L. Kona); 1978 (Erlandson, Heinzen); 1981 (L. Wincoxon, J. Erlandson); 1991 (L. Wilcoxon, Mike Imwalle)	Unknown	255 meters (836 feet) east

P-42-000046 (CA-SBA-000046)	Prehistoric site, location of Mescalitan Island and village Helo'. Site contains marine shell midden, groundstone tools, flakes, flaked stone tools, hearths, ornaments, and various burials, including the 'Queen of Mescalitan'	1928 (David B. Rogers 1962 (Klug); 1967 (J & K Chartkoff, L. Kona); 1981 (Erlandson and Wilcoxon)	Unknown	Overlapping
P-42-000047 (CA-SBA-000047)	Prehistoric site containing marine shell midden and a flaked stone tool	1929 (David B. Rogers); 1948 (F.A. Riddell); 1967 (L. Kona and J & K Chartkoff)	Unknown	615 meters (2,018 feet) southwest
P-42-000048 (CA-SBA-000048)	Prehistoric site containing fragments of human remains, marine shell midden, debitage, flaked stone tools, groundstone, fire affected rocks, faunal bones (modified and unmodified), and a steatite bead	1929 (David B. Rogers); 1948 (F. Fenenga); 1967 (J & K Chartkoff and L. Kona); 1981 (Erlandson and Wilcoxon); 2007 (Lebow, C. Applied)	Unknown	700 meters (2,297 feet) southwest
P-42-001158 (CA-SBA-001158)	Prehistoric site containing marine shell, debitage, chipped stone tool, asphaltum, and a marine mammal bone fragment.	1980 (Jon Erlandson)	Unknown	565 meters (1,853 feet) south
P-42-001579 (CA-SBA-001579)	VOID, determined to be part of P-42-000045	1978 (Jon Erlandson, Larry Heinzen)	Unknown	375 meters (1,230 feet) east
P-42-001695 (CA-SBA-001695)	Prehistoric site containing marine shell midden and a flake.	1981 (Erlandson and Wilcoxon)	Unknown	590 meters (1,935 feet) southeast
P-42-001696 (CA-SBA-001696)	Prehistoric site containing marine shell midden, fire cracked rocks, flaked stone tools, and faunal bones.	1981 (Erlandson and Wilcoxon)	Unknown	780 meters (2,559 feet) east
P-42-002579 (CA-SBA-002579)	Prehistoric site containing a low-density lithic scatter, marine shell, a marine mammal bone, and fish bones.	1993 (Roy Dugger)	Unknown	405 meters (1,329 feet) northeast
P-42-004010 (CA-SBA-004010)	Prehistoric site containing a dense marine shell	2011 (Phil Fulton, Terri Fulton)	Unknown	370 meters (1,214) feet southeast

	scatter, a flake, and asphaltum			
P-42-041030	Historic building, airplane hangar	1994 (Mitch Stone and Judith Triem); 2014 (Morlet, A. Applied)	Ineligible	75 meters (246 feet) west
P-42-041041	Historic building, WWII storehouse	1994 (Mitch Stone and Judith Triem)	Ineligible	85 meters (279 feet) northwest
P-42-041042	Historic building, WWII storehouse	1994 (Mitch Stone and Judith Triem)	Ineligible	40 meters (131 feet) west
P-42-041043	Historic building, WWII firehouse and armory	1994 (Mitch Stone and Judith Triem)	Ineligible	40 meters (131 feet) west
P-42-041044	Historic building, airplane hangar	1994 (Mitch Stone and Judith Triem)	Ineligible	40 meters (131 feet) west
P-42-041093	Historic building, motel (demolished)	1994 (Mitch Stone and Judith Triem)	Ineligible	65 meters (213 feet) southwest

CA-SBA-43 is a prehistoric site measuring approximately 233 meters (764 feet) north to south and 412 meters (1,351 feet) east to west at an elevation of 80-90 feet AMSL and is located approximately 520 meters (1,700 feet) southeast of the proposed Project area. CA-SBA-43 is documented as consisting of high-density shell midden, high-density and diverse lithic assemblage (including Monterey and Franciscan cherts, crude projectile points, bifaces), mortar and pestle fragments, asphaltum-covered stones, drill, fire affected rock, and potentially a cemetery area. The site was originally recorded formally by David Banks Rogers in his book Prehistoric Man of Santa Barbara Coast (1929) as a collection of three "great rancheria sites" located on the flat top of the extensive mesa east of the Goleta Slough. Larry Wilcoxon and Jon Erlandson recorded the site in 1981 after a pedestrian survey and noted that a "cluster of broken mortars at the NE midden edge may mark a cemetery although no human remains were observed."

CA-SBA-44 is a prehistoric site measuring approximately 206 meters (676 feet) north to south and 251 meters (824 feet) east to west at an elevation of 60 feet AMSL and is located approximately 1,140 meters (3,740 feet) southeast of the proposed Project area. CA-SBA-44 is documented as consisting of high-density shell midden, utilized Monterey chert flakes and blade fragment, bowl frag, mano, fossilized whale bone, and isolated human remains. The site was originally formally recorded by David Banks Rogers in his book Prehistoric Man of Santa Barbara Coast (1929) as a collection of three "great rancheria sites" located on the flat top of the extensive mesa east of the Goleta Slough. A second recording of the site was completed by Joseph Chartkoff, Kerry Chartkoff, and L. Kona; however, the record appears to have been done based on research, since the site record includes a comment "access to site could not be gained." Jon Erlandson and Larry Wilcoxon recorded the site in 1981 after a pedestrian survey and described the site as "a large and high density shell midden containing human remains." Erlandson and Wilcoxon provided comment in the site record that the site had reportedly been "extensively surface-collected for years."

CA-SBA-45 is a prehistoric site measuring approximately 305 meters (1,000 feet) northwest to southeast and 61 meters (200 feet) northeast to southwest at an elevation of 5 feet AMSL and

is located approximately 210 meters (690 feet) southeast of the proposed Project area. CA-SBA-45 is documented as consisting of dense shell and bone midden, chipped stone artifacts, including flakes and projectile points, ground stone, including pestles and "rubbingstone", tarring pebbles, asphaltum, burnt bone, bone tools, fishhooks, and human remains. The site was originally formally recorded by David Banks Rogers in his book Prehistoric Man of Santa Barbara Coast (1929), in which he refers to the site as "Twin Mounds" and describes the site as "two small, closely adjacent mounds" located on the floor of the Goleta Slough and displaying "upon their surface the sooty soil, rich in fragments of shell, which indicates former occupancy." Based on extensive excavations conducted in 1927 by Olson and Hill of the University of California as well as his own, Rogers noted that the site showed evidence of a long and continuous village settlement. Subsequent recordings of the site were completed by: Joseph Chartkoff, Kerry Chartkoff, and L. Kona in 1967, with concerns of potential destruction due to channel construction; Jon Erlandson and Joseph Heinzen in 1978; Larry Wilcoxon and Jon Erlandson in 1981, based on presence of charcoal lenses and remains of three individuals eroding from the stream bank; and Larry Wilcoxon and Michael Imwalle in 1991, as the result of conditions observed during a pedestrian survey conducted for a water pipeline project. Portions of the site are thought to have been destroyed by the construction of the Ward Memorial Boulevard (SH 217) in 1964, and consistent disturbance of the site has been documented to occur as a result of natural flooding and channeling of Atascadero Creek.

CA-SBA-46 is a large, rich archaeological site with both historic and prehistoric components. It sits on a large mound, itself a remnant of Mescalitan Island, formerly an island in Goleta Lagoon. Prior to the infilling of the Lagoon during the 19th century, and prior to 20th century grading, Mescalitan Island was approximately 0.35 square kilometers (3,767,369 square feet), 21 meters (69 feet) above the slough, and accessible only by boat (Glassow et al. 1986; Gamble 2008). CA-SBA-46 is approximately 457 meters (1,500 feet) north to south and 305 meters (1,000 feet) east to west at an elevation of 25-70 feet AMSL and overlaps the proposed Project area. The site is considered to be the location of the ethnohistoric village of *Helo*', which was occupied continuously from the Middle Period through the historic era for approximately 2,000 years (Gamble 2020).

The site was first committed to written record by the Cabrillo expedition of 1542 under the name "Gua", and then again in 1769 by Friar Crespi of the Portolá expedition, who was taken by the sheer number of inhabitants (which he listed as between 600 and 800 individuals). The Portolá expedition is also responsible for naming the island Mescalitan, which is a derivation of the Aztec Mescaltitán, after an island in Mescaltitán Lagoon in Nayarit, Mexico. The village of *Helo*' is mentioned regularly in mission records from Santa Barbara.

Aside from looters and curiosity hunters, the first known excavation was conducted in 1875 by Yarrow under the auspices of the Smithsonian Institution. Though Rogers did not excavate at this site, it features prominently in his compendium, Prehistoric Man of Santa Barbara Coast (1929). Olson conducted an extensive excavation in the 1920s of three cemeteries and some middens; the collections from these excavations are housed at the Phoebe Hearst Museum in Berkeley, California. From 1932-33, Richard van Valkenburgh (of the Los Angeles County Museum of Natural History) excavated there, and from 1939¬46, Phil Orr (Santa Barbara Museum of Natural History) did as well. Since 1959, students and faculty from UCSB (including James Deetz and Claude Warren) have conducted small-scale excavations on a somewhat regular basis; sadly, the results of these efforts have mostly escaped publication.

The most comprehensive, scientific studies of the historic portion of the site, affiliated with the village *Helo'*, were conducted in the 1970s and 80s when GSD, which runs the sewage treatment plant on the northern end of the site, wanted to expand their facilities into the historic portion of the site. According to Lynn Gamble (who excavated there in 1986 and 1987 while at UCSB), the historic portion of the site was 80% undisturbed prior to expansion of the sanitation facilities in 1987. As part of the proposed expansion, Scientific Resource Surveys, Inc. (SRS) conducted an assessment in 1978, and in 1985, excavated 37 1-meter by 1-meter units. Over the next couple of years, Gamble conducted a detailed excavation of two historic era house floors in this part of the site, providing a rare glimpse of Chumash domestic life prior to and during the establishment of both the Presidio and the Mission (Gamble 1991, 2008, 2020).

In 1981, Wilcoxon and Erlandson noted a "continuing loss to erosion and illicit collection," and estimated that 50% of the original island had been removed for fill and that 50-60% of CA-SBA-46 had been destroyed. Much of the site was destroyed to provide fill for development of Ward Boulevard on its east side. Much of the rest of the entire island was graded into the Slough as fill for the airport.

The site has produced a large and diverse range of features and artifacts, such as fire hearths, caches, points, pendants, beads, flakes, charmstones, and net-weights. Chartkoff, Chartkoff, and Kona (1967) described it as "very rich." Famously, and regrettably, one of the burials from CA-SBA-046 excavated by Orr in 1943 was on display at the Santa Barbara Museum of Natural History, and widely known locally as the "Queen of Mescalitan Island." The site is also famous for an unusually large "bathtub" mortar decorated with beads, an abalone shell dish full of unburned red maids seeds, and a small model of a canoe carved from steatite. The historic portion of the site also produced an abundance of organic implements (like soap-root brushes, redwood planks, and even a full-size redwood canoe) that do not typically preserve in older sediments.

There are eight documented cemeteries across three localities at the site. Many of the early 20th century observers (e.g., Olson and Orr) noted that human remains, and fragments thereof, were often visible on the surface. Though illicit looting was still a problem in the early 1980s, and may still be today, the effects of it on the stability and integrity of the site have not been evaluated recently.

CA-SBA-47 is a prehistoric site measuring approximately 60 meters (197 feet) in diameter at an elevation of 45 feet AMSL and is located approximately 735 meters (2,410 feet) southwest of the proposed Project area. CA-SBA-47 is described as a "large shell midden occupation site on top of bluff overlooking both Goleta Slough and Pacific Ocean," near the east gate to the UCSB campus. The site was originally tested and reported by David Banks Rogers in his book Prehistoric Man of Santa Barbara Coast (1929). By December of 1948, Francis Riddell noted that the "site is all but totally destroyed." In 1967, Chartkoff, Chartkoff, and Kona noted that the site had been "leveled for campus construction." Since 1948, reports suggest that the cultural deposit is only about 1 foot deep.

CA-SBA-48 is a prehistoric site measuring approximately 100 meters (328 feet) north to south and 350 meters (1,150 feet) west-northwest to east-southeast at an elevation of 40 feet AMSL and is located approximately 845 meters (2,770 feet) southwest of the proposed Project area. CA-SBA-48 is a prehistoric shell midden on the northeastern edge of the UCSB campus,

overlooking Goleta Slough. Faunal remains (shell and bone) at this location have been preserved and have recently been subject to absolute dating to reveal "an initial occupation around 820-1210 B.C., corresponding to the late Early Period and, after a hiatus of roughly 2,250 years, a second occupation during the late Late Period, around A.D. 1435¬1660" (CA-SBA-48 Site Record). The site was originally reported by David Banks Rogers in his book Prehistoric Man of Santa Barbara Coast (1929). Tournapulls conducted a salvage excavation concurrent with heavy grading in 1941. This effort produced manos and metates (milling stones), as well as mortars and pestles, and also suggests there may have been two or more cultural components: one associated with the Canalño as described by Rogers, and the other in a lower component containing mineralized, flexed burials perhaps associated with the earlier Oak grove or hunting cultures. Tournapulls further notes that the burials could not be properly studied or preserved as they were typically destroyed by the "Bull Dosers." Fenenga followed up with a small excavation in 1948, noting a hammerstone, a chopper, a small steatite bead, and flaked stone on Monterey and Franciscan cherts. Fenenga further reported that there were "numerous human bones on the surface" in 1948 and noted that CA-SBA-048 was "probably the best remaining site on the campus." Chartkoff, Chartkoff, and Kona re-recorded the site in 1967, and Glassow conducted a condition assessment in 1973. Larry Wilcoxon and Jon Erlandson evaluated the site in 1981 after a pedestrian survey and noted that "large portions [of it had been] damaged or destroyed," presumably during grading. Applied Earthworks conducted the most comprehensive subsurface evaluation as part of the California Nanosystem Institute project (McKim et al. 2007); this study established a faunal record for the site, along with an outline of the timing of the different occupations.

CA-SBA-1158 is a prehistoric site measuring approximately 4,283 square meters (46,101 square feet) at an elevation of 5-10 feet AMSL and is located approximately 570 meters (1,870 feet) south of the proposed Project area. CA-SBA-1158 is documented as consisting of a medium density shell, bone, and lithic scatter and was originally formally recorded in 1980 by Jon Erlandson, who described the site as a "a shell, bone and lithic scatter of unknown dimensions." Erlandson also provided comments regarding the site corresponding to "Pantoja's 1782 map location of Chumash house clusters on the Goleta sandspit." Subsurface testing was conducted in 1986 by Michael Macko to better understand the nature and horizontal and vertical extent of the site, from which Macko made the determination that the cultural material had been redeposited and did not exist within intact, native soils. The site record was not updated by Macko, but a note was added to the site record referencing Macko's 1986 report (SR-00171).

Previous Cultural Resources Studies

Results of the CHRIS database records search indicate that eighty-three (83) previously submitted cultural resource studies have been conducted within the records search area between 1948 and 2019. Sixteen (16) of these studies (SR-00147, SR-00153, SR-00183, SR-00192, SR-00194, SR-00218, SR-00779, SR-00929, SR-01068, SR-01600, SR-02652, SR-04892, SR-04911, SR-06149, SR-06523, and SR-06577) are mapped as having addressed the proposed Project site. Table 3.8-2 summarizes all previously submitted cultural resources studies addressing the proposed Project site, followed by brief summaries of the overlapping reports that provide relevant information on the Project site. A complete list of all eighty-three (83) previously conducted cultural resource studies within 0.5-miles of the Project site is included in Confidential Appendix C.

Table 3.8-2: Previous Technical Studies Addressing the Proposed Project Site

CHRIS Resource Designation	Resource Type and Description	Recording Events	NRHP Eligibility
SR-00147	Erlandson, J.	1985	RE: Proposed Developments, Goleta Sanitary District, Santa Barbara County, CA.
SR-00153	Greenwood, R.	1975	Archaeological Investigation Goleta Sanitary District Wastewater Treatment Plant Evaluation.
SR-00183	Planning Land Use Services (PLUS)	1986	Final supplemental environmental impact report for the Goleta Sanitary District Wastewater Treatment Plant Upgrade.
SR-00192	Scientific Resource Surveys, Inc.	1985	SBA-46 Test Program, Goleta Sanitary District / Brown & Caldwell, Vol. I, II, & III
SR-00194	Scientific Resource Surveys, Inc	1985	Research Design for Test Excavations on Mescalitan Island, Site III, SBA-46.
SR-00218	Whitney-Desautels, Nancy	1985	Letter report: Response to peer review comments regarding test program conducted by SRS at SBa-46
SR-00779	Erlandson, J.	1985	Letter Report: Review of SRS Research Proposal for the Archaeological Evaluation of Proposed Goleta Sanitary District Developments on Mescalitan Island (SBA-46, Site III).
SR-00929	Gamble, L.H., Douglas Bamforth, Michael Glassow, Natalie Anakouchine, Carole Denardo, Brian Glenn, John Johnson, Chester King, Thomas Rockwell, Phillip Walker	1990	Archaeological investigations at Helo' on Mescalitan Island
SR-01068	Rose, Ron	1990	Cultural Resources Investigation of Proposed Modifications to Wastewater Facility and Associated Pipeline for Distribution of Reclaimed Water
SR-01600	Wilcoxon, L.	1991	Limited Subsurface Testing at Goleta Sanitations District's Wastewater Treatment Facility

SR-02652	Palmer, K, Lebow, C.	2000	Phase 1 Cultural Resources Survey for University of California, Santa Barbara Campus Sewer Renewal Project, Goleta, CA
SR-04892	Stone, David, Victorino, Ken	2009	Extended Phase 1 Archaeological Investigation, Goleta Sanitary District Wastewater Treatment Plant Upgrading Project
SR-04911	Ken Victorino, David Stone	2009	Letter Report for Archaeological Monitoring, Goleta Sanitary District
SR-06149	Stone, David	2011	Supplemental Archaeological Work Effort Construction Monitoring and Salvage Excavations Goleta Sanitary District Wastewater Treatment Plant
SR-06523	Roger D. Mason, R. Paige Talley	1985	Report on Test Excavations on Mescalitan Island, CA-SBA-46. STE III, Volume II
SR-06577	Scientific Resource Surveys, Inc	1978	Archaeological Survey and Assessment Report on the Isla Vista Sanitary District Proposed Construction of a Pump Station and Pipeline in Goleta, California

SR-00153. *Archaeological Investigation Goleta Sanitary District Wastewater Treatment Plant Evaluation* (Greenwood 1975), documents the results of an archaeological investigation performed in order to determine if proposed improvements within the existing Wastewater Treatment Plant (WTP) would impact cultural resources. The area of study overlaps approximately 15 percent of the currently proposed Project site. The study included archival and literature review, interviews, and a pedestrian survey. The study revealed CA-SBA-46 is within the WTP. During the pedestrian survey, midden, fire affected rocks, a light scatter of marine shell, a chert flake, and a sandstone cobble with asphaltum were observed. Regarding the currently proposed Project site, midden was observed south of the existing Primary Sedimentation Tanks where solar panels are proposed, and west of Biofilter No. 2 where a portion of the Duct bank Alignment is proposed. The fire affected rocks were observed within the vicinity of where a portion of the Duct bank Alignment is proposed. Due to previous disturbances associated with the Santa Barbara Airport and other grading activities, it was determined that the proposed improvements to the WTP would unlikely impact undisturbed prehistoric materials. It was recommended CA-SBA-46 be entered into the NRHP and supervisory personnel be alerted if any cultural material were discovered during work activities.

SR-00183. *Final Supplemental Environmental Impact Report for the Goleta Sanitary District Wastewater Treatment Plant Upgrade* (Planning Land Use Services 1986) documents a

supplemental effort for an Environmental Impact Report (EIR). The purpose of the EIR was to determine if any potentially significant effects upgrades to the WTP would have on the environment. The EIR overlapped 100 percent of the currently proposed Project site. The archaeological component of the supplemental EIR included a review of previous studies covering the project area. The supplemental EIR found that the project would have significant impacts to cultural resource CA-SBA-46. Recommended Mitigation measures included avoiding impacts whenever possible, controlled use of a backhoe, and monitoring of all excavation activities by archaeological and Native American consultants.

SR-00192. *SBA-46 Test Program, Goleta Sanitary District / Brown & Caldwell, Vol. I, II, & III* (Scientific Resource Surveys, Inc. 1985), documents the history of Mescalitan Island, including ethnography, land modifications (both natural and manmade), previous archaeological investigations, and results of test excavations performed by Scientific Resource Surveys, Inc (SRS) to determine the content, boundaries, and integrity of CA-SBA-46. In 1985, SRS excavated thirty-seven (37) 1-meter by 1-meter square units, twelve (12) auger probes, and three (3) small hand excavated trenches within CA-SBA-46. Two (2) of the excavated units, U25 and U35, were located where the current Duct bank alignment is proposed and one (1) auger probe, A10, was located where solar panels are currently proposed. Units U25 and U35 were excavated to a depth of 2.35 meters and 3.35 meters, respectively, and probe A10 was excavated to a depth of 1.2 meters. Prehistoric materials recovered from the test excavations included marine shell, beads, bone, modified bone, stone tools, and debitage. Historic materials recovered included glass beads, one bone button, and two Mission Ware sherds. Marine shell fragments were recovered from all excavated units. Within unit U35, cultural materials recovered between 40-150 cm include debitage, bone, groundstone, and chipped stone tools. No artifacts were observed within unit U25, except for marine shell. Correlated radiocarbon dates and analysis of shell beads, indicate three periods of occupation within the portion of CA-SBA-46 that was excavated for this investigation, 7,990-6,470 B.C., 1,830 B.C. to 50 A.D., and less than 1,100 years old. SRS concluded the tested portion of CA-SBA-46 had been severely impacted by grading and construction activities.

SR-00929. *Archaeological investigations at Helo' on Mescalitan Island* (Gamble 1990) documents excavations that took place throughout the current proposed Project site. The purpose of the investigations was to mitigate the impacts of the proposed expansion of the Wastewater Facility on prehistoric site CA-SBA-46. The investigation included the excavation of thirty-five units. The excavation revealed high cultural deposits, including two house floors, suggesting CA-SBA-46 was a village site. One of the more significant results of the archaeological investigation was the conclusion that site CA-SBA-46 is the Chumash village *Helo*'.

SR-01068. *Cultural Resources Investigation of Proposed Modifications to Wastewater Facility and Associated Pipeline for Distribution of Reclaimed Water* (Cultural Resources Management Services 1990) documents the results of a Phase I archaeological investigation overlapping a portion of the current proposed Project site. The investigation included a records search and literature review, and an intensive field survey. The purpose of the investigation was to determine if proposed modifications to the Wastewater Facility and associated distribution pipeline would have on cultural resources. The records search showed that the Goleta Sanitary District's Wastewater Facility resided over previously recorded archaeological site CA-SBA-46. The field survey within the Wastewater facility identified several prehistoric chert flakes. The investigation

concluded the proposed project area, that overlaps the current proposed Project site, had been highly disturbed and subsurface test excavations were recommended to determine if a significant cultural deposit remained within the proposed project site. Archaeological and a Native American monitoring was also recommended for all ground disturbing activities.

SR-01600. *Limited Subsurface Testing at Goleta Sanitations District's Wastewater Treatment Facility* (Wilcoxon 1991) documents subsurface testing that took place within the current proposed Project site. The subsurface testing included six backhoe trenches excavated to depths between 1.3 and 2.9 meters (4.27 and 9.51 ft.). The purpose of the testing was to determine the extent of prerecorded archaeological site CA-SBA-46 within the then proposed project site. The results of the subsurface testing show that the native topsoil, where cultural remains were located, had been significantly cut and disturbed by past grading. It was determined unlikely that undisturbed high-density deposits existed within the proposed areas of construction. Archaeological monitoring during construction activities was recommended as a form of mitigation.

SR-02652. *Phase 1 Cultural Resources Survey for University of California, Santa Barbara Campus Sewer Renewal Project, Goleta, California* (Palmer and Lebow 2000), documents the results of an archaeological investigation performed for the implementation of a proposed sewer renewal project. The area of study overlaps approximately 1 percent of the currently proposed Project site. The investigation included archival and literature review, and a pedestrian survey. The report primarily focused on previously recorded cultural resources CA-SBA-1158, located approximately 565 meters (1,854 feet) south of the currently proposed Project site. However, the pedestrian survey included a portion of the currently proposed Project site. No cultural resources were observed within the currently proposed Project site as a result of the survey. Recommendations provided within the report were restricted to CA-SBA-1158.

SR-04892. *Extended Phase 1 Archaeological Investigation, Goleta Sanitary District Wastewater Treatment Plant Upgrading Project* (Stone and Victorino 2009) documents the results of an Extended Phase I archaeological investigation that overlapped center portions of the proposed Project site. The investigation included a records search and literature review and subsurface testing consisting of thirty-four geoprobes. The purpose of the investigation was to determine the integrity of any subsurface cultural materials and to determine the horizontal and vertical extent of cultural materials, associated with prerecorded archaeological site CA-SBA-46, within then proposed improvement areas. The geoprobes resulted in identifying varying densities of cultural material. The area west of the existing biofilter contained little to no cultural materials. The area east and north of the existing biofilter contained higher densities of cultural material extending up to six feet deep. The study resulted in recommendations for proposed disturbances within areas of high densities of cultural material be redesigned or relocated to areas with little to no cultural material present, a pre-construction workshop conducted by an archaeologist and local Native American representative and that archaeological and Native American monitoring occur during all ground disturbing activities.

SR-04911. *Letter Report for Archaeological Monitoring, Goleta Sanitary District* (Victorino and Stone 2009) documents the results of archaeological monitoring within the center of the proposed Project site. The monitoring was required to fulfill conditions of approval for the proposed Goleta Sanitary District Wastewater Treatment Plant Upgrading project. Fragmented

and weathered marine shell was observed in low densities during the archaeological monitoring. The cultural materials were observed in areas where previous disturbance had taken place and were not considered potentially significant.

SR-06577. *Archaeological Survey and Assessment Report on the Isla Vista Sanitary District Proposed Construction of a Pump Station and Pipeline in Goleta, California* (SRS 1978), documents a pedestrian survey conducted in 1978, that resulted in the identification of shell fragments, three groundstone fragments, and a midden deposit associated within CA-SBA-46. These newly identified finds appear to be adjacent to or intersect the northeastern most portion of the GSD property.

Historic Aeriel Photograph and Topographic Map Review

Langan reviewed historic aerial photographs employing the University of California, Santa Barbara's (UCSB 2026) FrameFinder database and the Nationwide Environmental Title Research (NETR 2026) historic aerials. This analysis was conducted to 1) understand the natural environment in relation to the proposed Project; 2) identify natural and human-made changes to the proposed Project site over time; and 3) better determine the potential for intact cultural deposits to exist within the proposed Project site. A review of all available historical aerial photographs included the following years: 1928, 1929, 1938, 1941, 1944, 1947, 1953, 1956, 1961, 1967, 1971, 1984, 1992, 1994, 2001, 2002, 2005, 2009, 2010, 2012, 2014, 2016, 2018, 2020, 2022, and 2024, (NETR 2026; UCSB 2026). Through careful comparative review of historic aerial photographs, changes to the landscape of a study area may be revealed. Disturbance to the study area is specifically important as it assists in determining if soils within the study area are capable of sustaining intact archaeological deposits. Additionally, historic aerial photographs have the potential to reveal whether a study area was subjected to alluvial deposits by way of flooding, debris flows or mudslides, as well as placement of artificial or foreign fill soils that may have buried intact archaeological deposits. Table 3.8-3 summarizes the findings of the historic aerial photograph review.

Table 3.8-3: Historic Aerial Photograph Review

Year	Description
1928	Improvement areas: the proposed Project site improvement areas are largely undeveloped with the exception of the northern portion of the planned Western Solar Array where an orchard is located. Surrounding areas: the GSD property overlaps what was previously the eastern portion of Mescalitan Island. On the edge of the island, within the proposed Project area, is a thick row of trees outlining the island's border. In the northern portion of the island, there are two areas occupied by an orchard. A cleared path/road running north-south connects the agricultural areas to the southern portion of the island.
1938	Improvement areas: the orchards present in the 1928 aerial are no longer present. All proposed Project site improvement areas are undeveloped. Surrounding areas: the island is undeveloped with the exception of two structures and some ephemeral roads. The current Santa Barbara Airport, located directly to the west of the proposed Project site, is shown as undeveloped in this photograph.

Year	Description
1941	Improvement areas: all proposed Project site improvement areas remain undeveloped but have been impacted to varying degrees by grading to fill the slough area. Surrounding areas: the slough surrounding the proposed Project site is no longer filled with water. To the west, a large portion of land, including the western half of the island, has been cleared for what will be the Santa Barbara Airport. The surface of the southeastern half of the island appears to be relatively undisturbed.
1944	Improvement areas: all proposed Project site improvement areas remain undeveloped but have been impacted to varying degrees by grading to fill the slough area. Surrounding areas: San Pedro Creek is now channeled north-south and located east of the Project area. Moffett Place and James Fowler Road are shown to the west and north respectively. At the time that this photo was taken, construction was taking place in the northern portion of Mescalitan Island, near James Fowler Road, within the current GSD property. The surface of the southeastern half of the island appears to remain relatively undisturbed with the exception of the most southerly portion that is occupied by the La Goleta Gas Field.
1947	Improvement areas: all proposed Project site improvement areas remain undeveloped but have been impacted to varying degrees by grading to fill the slough area. Surrounding areas: the airport has been more fully developed and construction grading on the eastern portion the island appears to have stopped.
1953, 1956	Improvement areas: there are no apparent changes to the proposed improvement areas suggesting ground disturbance has occurred. Surrounding areas: the 1953, 1956 and 1961 images show the first physical evidence of GSD's new plant that opened in 1951 with four trapezoidal water basins along San Pedro Creek and east of the original island and various ancillary structures in the northeast portion of the property on the eastern edge of island. A section of trees has been removed from the eastern edge of the island, just west of the water basins. The only portion of the cleared path that remains is the northern portion, connecting the water basins and ancillary structures to Moffett Place. There is another path within the proposed Project site connecting the structures to James Fowler Road; along this path, tanks and additional ancillary structures exist within the proposed Project site.
1961, 1967, 1971,1973, 1986	Improvement areas: there are no apparent changes to the proposed improvement areas suggesting ground disturbance has occurred. Surrounding areas: an additional four water basins are visible adjacent to the original four. Additional infrastructure including digesters and ancillary structures are visible in the northern portion of GSD's property within the eastern side of the island. The historical aerial shows an increase in surface disturbance within the southern portion of the Project site that appears to suggest further grading of the island reducing it to its current remnant.

Year	Description
1992, 1994	Improvement areas: each proposed improvement area has been developed to varying degrees. The Western Solar Array appears to have been graded and vegetated; the Carport Solar Array appears to have been graded in preparation for the adjacent structures and paving of the area; Canopy Solar Array appears to be the least of the impacted areas but may have been impacted by surrounding construction. The location of the proposed directional drilling appears to have been subjected to construction through grading and structural installation. Surrounding areas: the GSD property has been significantly developed similar to its current state in that the property is almost entirely developed. The airport property and roads are similar to that visible in the 1986 image.
2002-present	Improvement areas: there are no apparent changes to the proposed improvement areas suggesting ground disturbance has occurred. Surrounding areas: additional ancillary structures, and road and infrastructure improvements continue to occur within the GSD property.

Langan reviewed historic topographic maps from the Nationwide Environmental Title Research. This analysis was conducted to 1) understand the built environment in relation to the proposed Project site; 2) identify natural and human-made changes to the proposed Project site over time; and 3) better determine the potential for historic period cultural materials and features to exist within the proposed Project site. The maps reviewed the following years: 1943, 1951, 1957, 1965, 1968, 1978, 1982, 1984, 1989, 2000, 2012, 2015, 2018, and 2022 (NETR 2026). Table 3.8-4 summarizes the findings of the historic map review.

Table 3.8-4: Historic Topographic Map Review

Year	Description
1943	Improvement and surrounding areas: The general Project area is shown as surrounded by a marshy area with no built environment (e.g. structures, buildings, roads, or trails) within 200 feet. Buildings and roads are located north, south, east, and west of the Project site approximately 0.5 mile away or greater.
1951, 1957, 1965	Improvement and surrounding areas: Mescalitan Island appears on the 1951 topographic map and is depicted as already impacted by expansion of the airport. Roads with the alignment as present-day South Fairview Avenue, James Fowler Road and William Moffett Place are illustrated. No structures or roads are depicted within the proposed improvement areas and one structure is depicted within the GSD property.
1968, 1982, 1984, 1989	Improvement areas: no structures or roads are depicted within the proposed improvement areas. Surrounding areas: first structures and basins associated with GSD are depicted within the northeast portion of the property. Structures and basins increase through the years in the northeast portion. The San Pedro Creek channel is depicted as well as the drive in theater to the east and an increase of structures on the airport property.

Year	Description
2000	Improvement areas: structures are depicted very near the proposed improvement areas. Surrounding areas: structures increase through the GSD property expanding to the west and south and the basins appear to be consolidated. Little change in depiction of structures and roads on the surrounding properties.
2012, 2015, 2018, 2022	Improvement and surrounding areas: these maps are limited to general labels and depiction of roads; no depiction of structures is included on the maps of the general Project area.

Based on review of available historical aerial photographs and topographic maps, prior to the development of the Santa Barbara Airport in the 1940s, the proposed Project site was located on a portion of Mescalitan Island that in the earliest aerial images in the 1920s and 1930s had been minimally employed agriculturally. The western portion of the island was graded in the 1940s to fill the slough in preparation for expanding the airport to support the military effort associated with WWII. The roads bordering GSD, Moffett Place and James Fowler Road, first appeared in the 1944 historic aerial photograph and structures associated with GSD first appeared in the 1953 historic aerial photograph. Over the next 73 years continued grading of the southern portion of the island and construction of buildings, basins and other infrastructure components was conducted within the GSD property. By the mid 1990s, the proposed improvement areas appear similar to the present day.

Pedestrian Survey

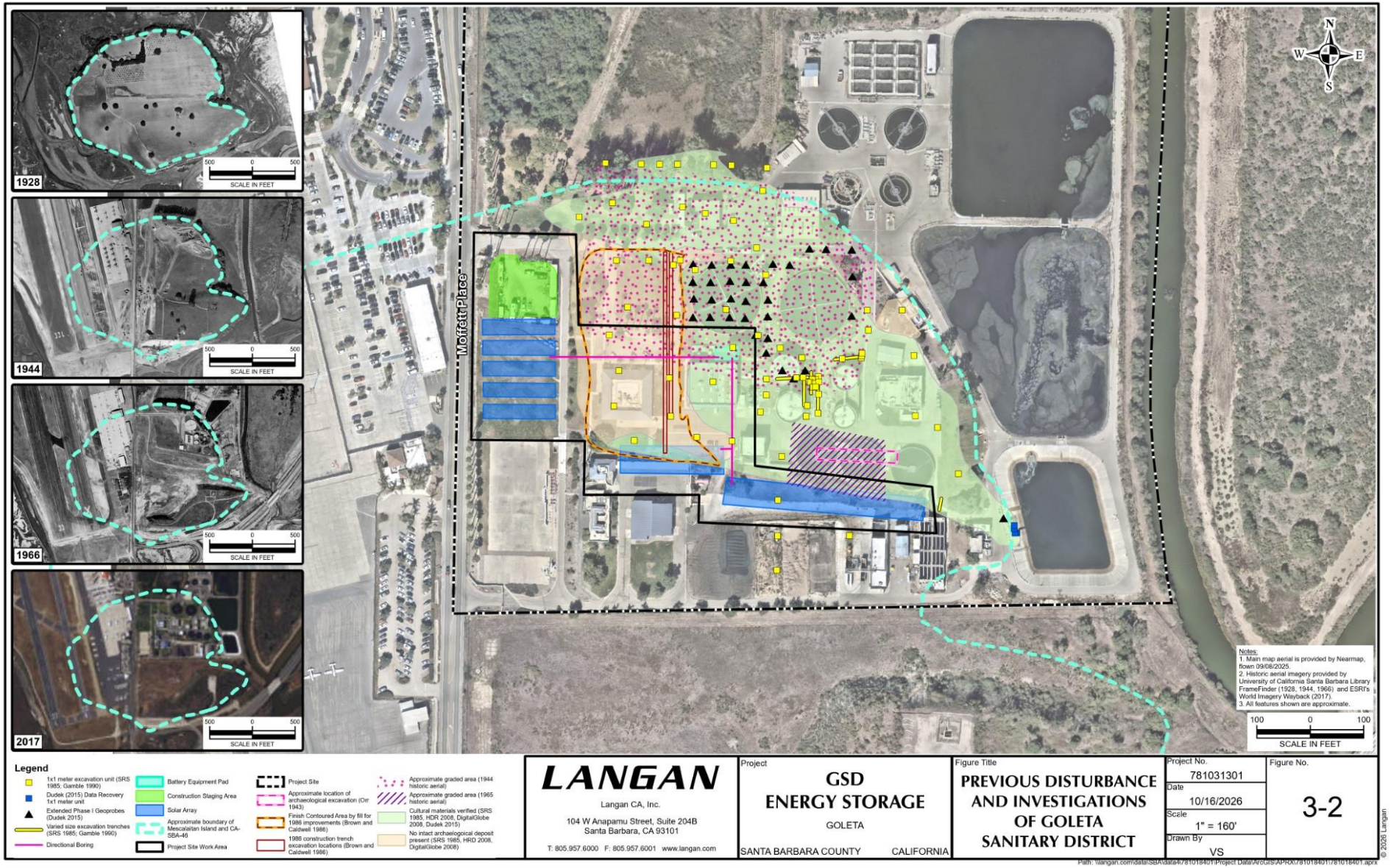
The intensive-level survey methods consisted of a pedestrian survey conducted in parallel transects, spaced no more than 3 meters apart (approximately 10 feet) in areas free of structures and pavement and where obstructions to the visibility of the earth were present, an opportunistic method was employed. The ground surface was inspected for prehistoric artifacts (e.g., flaked stone tools, tool-making debris, groundstone tools, ceramics, fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions, features indicative of structures and/or buildings (e.g., standing exterior walls, post holes, foundations), and historical artifacts (e.g., metal, glass, ceramics, building materials). To overcome visibility issues caused by vegetation and surface debris, gravel, etc., small surface scrapes were conducted in 10-meter intervals, or subjectively as needed. Ground disturbances such as rodent burrows, ephemeral trails and areas of barren ground were given specific attention to provide the best opportunity to observe soils and any potential exposed subsurface materials. If observed, no artifacts were collected.

All fieldwork was documented using field notes and Galaxy Tab Active5 5G (Tablet) equipped with ArcGIS Field Maps software. Cultural resources identified during this inventory within the proposed Project site were to be recorded on DPR forms, using the Instructions for Recording Historical Resources (Office of Historic Preservation 1995). All field notes, photographs, and records related to the current study are on file at Langan's office in Santa Barbara, California. All field practices met the Secretary of Interior's standards and guidelines for a cultural resources inventory.

An intensive archaeological survey of the proposed Project area was completed by Langan' Cultural Resource Practice Director Heather McDaniel McDevitt, M.A., RPA. At the time of the

survey, the specific improvement areas were not yet determined, so a larger area than the current proposed improvement areas was surveyed. Boot scrapes were employed where needed to expose surface soils. Careful attention was given to barren ground, including at the base of trees, within dirt paths and landscape beds, and subsurface soils exposed by burrowing animals. The exposed soils under vegetation and within landscape beds accounted for approximately 20% of the proposed improvement areas and provided very good to excellent ground surface visibility (80-100%). A manicured lawn is present within approximately 65% of the proposed improvement areas and included sporadic barren patches; this area provided fair to excellent ground surface visibility (40-100%). Areas developed with structures and pavement accounted for approximately 15% of the proposed improvement area and provided none to poor ground surface visibility (0-30%). A considerable amount of fragmented and weathered shell was observed in the areas where soils were observable. No other cultural material, such as tools or lithic material, was observed within the proposed Project area.

Figure 3-2 Previous Disturbance and Investigations of Goleta Sanitary District



Environmental Determination

a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less than Significant Impact with Mitigation Incorporated. No structures meeting the criteria of a historical resource pursuant to Section 15064.5 are located within or immediately surrounding the proposed Project site. The proposed Project site exists within archaeological resource, CA-SBA-46, a multicomponent resource with both historic and prehistoric components and the location of the former Barbareño Chumash village *Helo*'. CA-SBA-46 has been studied by archaeologists at length both prior to and after a large portion of the resource was used to infill the Goleta slough in preparation for the then Navy airport (now Santa Barbara Airport). Despite the disturbance, intact cultural deposits have been identified in the last 80 years. Although not formally listed on either the California Register of Historic Resources or the National Register of Historic Resources, the resource meets the criteria of historically or culturally significant pursuant to PRC Section 5024.1(g).

Previous archaeological testing and excavation efforts have identified intact deposits within the proposed Project's general area. Archaeological testing and excavations conducted in the past 30 years at CA-SBA-46 included a "facility-wide" significance evaluation undertaken in 1985 by SRS. However, the study was limited to the expansion of the GSD WRRF as proposed in the 1980s and did not include the improvement areas proposed for the Western Solar Array and the Canopy Solar Array. The results of the 1985 survey identified the integrity and variability of identified cultural deposits within a large portion of CA-SBA-46 and categorized the variability into five density levels: Level I – 30,140.0 grams per cubic meter; Level II – 1,242.9 grams per cubic meter; Level III – 229.3 grams per cubic meter; Level IV – 34.1 grams per cubic meter; and Level V – no A horizon present. Generally, the highest densities of shellfish, animal bone, stone tools, waste flake debitage, and stone tools were found in the southeastern corner of the GSD WRRF and extremely low densities in the western portion of the GSD WRRF. This is consistent with the analysis of available historic aerials that demonstrate removal of the island was most significant in the western portion of Mescalitan Island.

The Project improvement areas are proposed to be located within areas that have been verified as having cultural material present within intact native soils and in areas that have not yet been studied enough to determine the potential of intact cultural deposits to exist. Following is a brief summary of information currently known for each improvement area.

- Construction Staging Area and Western Solar Array
    - In an area not previously tested for intact deposits. However, this area is immediately adjacent to an area confirmed as not possessing intact archaeological deposits. Additionally, analysis of available historic aerials demonstrate removal of the island through grading was most significant in the western portion of Mescalitan Island within which these improvement areas are located.
- Carport Solar Array

  - In an area where approximately 80% has been previously tested. Approximately 30% of the tested area has been determined to have no intact cultural deposits and 70% of the tested area has been determined to have intact deposits at Level III and IV densities as previously defined.
- Northern Directional Boring
  - In an area that has been previously tested. Approximately 40% of the linear boring will traverse an area with no intact cultural deposits and 60% will traverse areas with intact deposits at Level II, III and IV densities as previously defined.
- Southern Directional Boring
  - In an area that has been previously tested. The linear boring will traverse an area with intact deposits at Level II density as previously defined
- Battery Equipment Pad
  - In an area that has been previously tested and determined to have intact cultural deposits with Level II and III densities as previously defined.
- Canopy Solar Array
  - In an area that approximately 60% has not been previously tested for intact deposits and 40% has been previously tested and determined to have intact cultural deposits with Level II and III densities as previously defined.

The locations of proposed directional boreholes and solar arrays were adjusted as much as possible to stay aligned with previously disturbed areas and within deposits of lower density. However, there still remains the possibility of encountering concentrations of cultural remains within areas of high, moderate and low densities, as well as inadvertently encountering isolated artifacts or human remains within previously disturbed soils. In the event that unanticipated archaeological resources are encountered during Project implementation, impacts to these resources could be potentially significant.

Based on the proposed ground disturbing activities, the Project has the potential to cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5, as the proposed activities have the potential to materially alter in an adverse manner those physical characteristics of the historical resource that convey its eligibility for inclusion in the California Register of Historical Resources.

The mitigation measures identified have been created to minimize impacts to cultural resources to less than significant. Implementation of MM-CUL-1 would ensure exploratory excavations and, if necessary, data recovery efforts in areas of high to moderate density and variability possessing data potential, capable of providing information about the prehistoric and historic periods in this area; MM-CUL-2 would establish a program of treatment and mitigation in the case of an inadvertent discovery of cultural resources during ground-disturbing phases, which would provide for the proper identification, evaluation, treatment, and protection of any cultural resources throughout the duration of the proposed Project; MM-CUL-3 would ensure the preparation and implementation of a Worker Environmental Awareness Program (WEAP); MM-CUL-4 would ensure that a qualified archaeologist is retained to monitor all initial ground disturbing activities and to respond to any inadvertent discoveries during Project construction; and MM-CUL-5 would ensure the proper treatment and protection of any inadvertent discovery of cultural resources, including human remains and burial artifacts, and that all construction work occurring within 50 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for Archaeology, can evaluate the significance

of the find. Thus, potentially significant impacts to archaeological resources would be reduced to less than significant levels with Mitigation Measures MM-CUL-1 through MM-CUL-5 incorporated.

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

Less than Significant with Mitigation Incorporated. No prehistoric or historic burials have been identified within the proposed Project site as a result of the CHRIS records search or pedestrian survey. However, considering the proposed Project is located within the archaeological site CA-SBA-46, the location of the former Barbareño Chumash village *Helo',* there is potential that an inadvertent discovery of human remains could occur. In the unexpected event that human remains are found, those remains would require proper treatment in accordance with applicable laws. Procedures of conduct following the discovery of human remains on non-federal lands are mandated by California Health and Safety Code Section 7050.5, PRC Section 5097.98, and 14 CCR Section 15064.5(e).

The mitigation measures identified have been created to minimize impacts to cultural resources to less than significant. Implementation of MM-CUL-2 would establish a program of treatment and protection in the case of an inadvertent discovery of human remains throughout the duration of the proposed Project; MM-CUL-3 would ensure the preparation and implementation of a WEAP to ensure all Project personnel are aware of the appropriate procedures and protocols they must follow in the event human remains are inadvertently discovered; MM-CUL-4 would ensure that a qualified archaeologist is retained to monitor all initial ground disturbing activities and to respond to any inadvertent discoveries during Project construction; and MM-CUL-5 would ensure the proper treatment and protection of any inadvertent discovery of human remains and burial artifacts. Thus, potentially significant impacts to archaeological resources would be reduced to less than significant levels with Mitigation Measures MM-CUL-2 through MM-CUL-5 incorporated.

Mitigation Measures:

MM-CUL-1 **Data Recovery.** Based on the determination that, despite efforts to avoid significant intact cultural deposits, the Proposed Project has the potential to impact cultural deposits of moderate and high density, the Project therefore has the potential to adversely affect a unique archeological resource and a historical resource pursuant to §15064.5. As such, pursuant to the California Environmental Quality Act (CEQA), data recovery is required to be implemented according to following tasks:

A qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, shall be retained to develop a data recovery program and research design prior to the data recovery efforts, and they shall make provision for adequately recovering the scientifically consequential information from, and about, the resource; this shall be prepared and adopted prior to any excavation being undertaken (CEQA Guidelines Section 15126.4(b)(3)(A)). As such, the data recovery plan shall include specific levels of effort and methods to obtain a statistically representative sample of significant archaeological deposits, as well as field and laboratory requirements, to ensure proper treatment of all materials,

including documentation of results and curation of the archaeological collection. This plan shall be submitted to the District for review prior to implementation. Specifically, the data recovery plan shall, at the least, include the standards, guidelines, and performance criteria to ensure that the data recovery mitigation will be effective in "adequately recovering the scientifically consequential information from and about the historical resource" as stated in CEQA Guidelines Section 15126.4(b)(3)(C). The following are basic criteria, based on the California Office of Historic Preservation (OHP) Guidelines for Archaeological Research Designs (OHP 1991) from which a more detailed and comprehensive data recovery plan shall be formulated:

Professional Qualifications. The data recovery plan shall be designed by a qualified archaeologist meeting the Secretary of Interior's Professional Qualifications for archaeology, including at least 6 years documented supervisory experience in the study of prehistoric archaeological resources of the region.

Research Design. The research design shall be developed to satisfy the requirement for public benefit that can be derived from the data recovery efforts. The design shall focus research on one or more important hypotheses that have been carefully constructed to address current data gaps, new models, theories, investigative and conservation techniques, as well as priority research areas identified by state or federal agencies (OHP 1991; National Park Service 2020). The design shall have the following requirements for its goals, pursuant to OHP guidelines: focus on important goals; be realistic and attainable; establish efficient methods to accomplish the goals; understandable; provide a thorough and well-organized argument; and concise and flexible.

Fieldwork, Laboratory, and Curation Methods. The data recovery field methods shall be designed to recover the entire portion of the cultural resource (sandstone-lined well) that will be impacted as a result of the ground disturbance, plus a statistically significant assemblage of any surrounding resource deposit, sufficient to answer the research questions determined in the data recovery research design, that the site is potentially capable of addressing.

Report Elements. The data recovery efforts shall be thoroughly documented in a comprehensive report, including the following core elements: theoretical orientation; cultural context; definition of the formulated hypotheses presented in the original research design; all field, laboratory, and curation methods; results of research; and implications of the results, in light of current understanding, and its potential to contribute to future research and understanding. The qualified archaeologist shall provide an data recovery report to the District and the Southern San Joaquin Valley Information Center (SJVIC).

Requirements and Timing

Data recovery shall be completed prior to ground disturbance ground disturbance associated with grading or construction for the Project.

Monitoring

GSD shall ensure submittal of the Data Recovery Research Design and Work Plan prior to implementation of the data recovery excavation; that the data recovery excavation will be completed prior to any ground disturbance associated with Project implementation; and that the Final Data Recovery Report will be submitted to the District prior to completion of the Project.

MM-CUL-2 **Cultural Resource Inadvertent Discovery Plan.** Impacts to cultural resources should be minimized through implementation of pre- and post- construction tasks. Tasks pertaining to cultural resources include the development of a cultural resource inadvertent discovery plan (Plan). The purpose of the Plan is to outline a program of treatment and mitigation in the case of an inadvertent discovery of cultural resources during ground-disturbing phases and to provide for the proper identification, evaluation, treatment, and protection of any cultural resources in accordance with CEQA throughout the duration of the Project. This Plan should be created by a qualified archaeologist and define the process to be followed for the identification and management of cultural resources in the Project's ground disturbance areas during construction. Existence of and importance of adherence to this Plan should be stated on all Project construction plans intended for use by those conducting the ground disturbing activities. Prior to the development of the Plan, a qualified archaeologist should review all plans and any updated project descriptions to determine if/when proposed depths of disturbance will impact intact native soils and subsequently prescribe an appropriate monitoring plan.

Requirements and Timing

Cultural Resource Inadvertent Discovery Plan shall be completed prior to ground disturbance ground disturbance associated with grading or construction for the Project.

Monitoring

GSD shall ensure submittal of the Cultural Resource Inadvertent Discovery Plan (Plan) prior to ground disturbance associated with grading or construction for the Project and that all contractors associated with ground disturbance associated with grading or construction for the Project will be provided a copy and understand the importance of following the Plan.

MM-CUL-3 **Workers Environmental Awareness Program (WEAP) Training.** All construction personnel should be briefed regarding the general archaeological sensitivity of the Project site and the potential for the occurrence of inadvertent discoveries of cultural resources prior to the start of ground disturbing activities. A basic presentation shall be prepared and presented by a qualified archaeologist to inform all personnel working on the Project about the archaeological sensitivity of the area. The purpose of the WEAP training is to provide specific details on the kinds of cultural resource materials that may be identified during construction of the Project and explain the importance of and legal basis for the protection of significant cultural resources. Each worker should also be instructed on the proper

procedures to follow in the event that cultural and/or tribal cultural resources and/or human remains are encountered during ground-disturbing activities. These procedures include the potential for work curtailment or redirection, and the immediate contact of the on-call qualified archaeologist and if appropriate, Tribal representative. Necessity of training attendance should be stated on all Project site plans intended for use by those conducting the ground disturbing activities.

Requirements and Timing

Workers Environmental Awareness Program Training shall be completed prior to ground disturbance associated with grading or construction for the Project. All construction personnel associated with ground disturbing activities shall be trained consistent with the Workers Environmental Awareness Program.

Monitoring

GSD shall ensure all contractors associated with ground disturbance associated with grading or construction for the Project will shall be trained consistent with the Workers Environmental Awareness Program.

MM-CUL-4 **Archaeological Monitoring.** A qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, shall oversee monitoring of all initial (first movement of soils within each ground disturbance location at complete horizontal and vertical extents) ground disturbances within the proposed Project improvement areas. A qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for a Principal Investigator, shall oversee and adjust monitoring efforts as needed (increase, decrease, or discontinue spot monitoring frequency), based on the observed potential for construction activities to encounter cultural deposits. The archaeological monitor shall be responsible for maintaining monitoring logs. Following the completion of construction, the qualified archaeologist shall provide an archaeological monitoring report to the District and the Southern San Joaquin Valley Information Center (SJVIC) with the results of the cultural monitoring program.

Requirements and Timing

Archaeological monitoring shall be conducted during ground disturbance activities associated with grading or construction for the Project and in accordance with the Cultural Resource Inadvertent Discovery Plan.

Monitoring

GSD shall ensure all contractors associated with ground disturbance associated with grading or construction for the Project communicate the construction schedule to the archaeological principal investigator, or their representative, to support implementation of archaeological monitoring in accordance with the Cultural Resource Inadvertent Discovery Plan.

MM-CUL-5 **Inadvertent Discovery of Archaeological Resources.** In the event that cultural resources (sites, features, or artifacts) are exposed during ground disturbing activities for the Project, all construction work occurring within 50 feet of the find should immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find under the California Environmental Quality Act (14 CCR 15064.5(f); California PRC Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. If the discovery is Native American in nature, consultation with and/or monitoring by a Tribal representative may be necessary.

Requirements and Timing

In the event there is an inadvertent Discovery of Archaeological Resources, the Cultural Resource Inadvertent Discovery Plan shall be followed by all contractors associated with ground disturbance associated with grading or construction for the Project

Monitoring

GSD shall ensure all contractors associated with ground disturbance associated with grading or construction adhere to the Cultural Resource Inadvertent Discovery Plan regarding the proper response to an inadvertent Discovery of Archaeological Resources.

MM-CUL-6 **Inadvertent Discovery of Human Remains.** If an inadvertent discovery of human remains or possible human remains occurs, the following procedures as set forth in the CEQA Guidelines Section 15064.5(e), the California Public Resources Code Section 5097.98, and the California Health and Safety Code Section 7050.5 shall be undertaken: 1) work at the location of discovery and surrounding vicinity (no less than 100 feet) shall halt immediately; 2) the Santa Barbara County Coroner shall be contacted immediately as well as a qualified archaeologist and the appropriate County staff; 3) the County coroner and qualified archaeologist shall determine the need for a field examination to determine the provenience and nature of the remains as well as the potential for additional remains to be present within the project site; 4) if the Coroner determines that the remains are Native American, the Coroner shall contact the California Native American Heritage Commission (NAHC) who will provide the name and contact information for the Most Likely Descendent (MLD) and consultation regarding treatment of the human remains shall occur between the MLD and the property owner; 5) in the event, the human remains are not Native American, the County coroner shall consult with the property owner regarding treatment; 6) a qualified archaeologist shall be retained to monitor all further subsurface disturbance in the area of the discovered human remains and if the remains are Native American, a tribal

representative shall also be retained to monitor; 7) work in the vicinity of the discovery shall only proceed after the appropriate County staff grants authorization.

Requirements and Timing

In the event there is an inadvertent Discovery of Archaeological Resources, the Cultural Resource Inadvertent Discovery Plan shall be followed by all contractors associated with ground disturbance associated with grading or construction for the Project

Monitoring

GSD shall ensure all contractors associated with ground disturbance associated with grading or construction adhere to the Cultural Resource Inadvertent Discovery Plan regarding the proper response to an inadvertent Discovery of Archaeological Resources.

3.9 Energy

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

Regulatory Setting

Strategic Energy Plan for the County of Santa Barbara

The Strategic Energy Plan was adopted to address resiliency concerns stemming from the county lying at the border between Southern California Edison (SCE) and Pacific Gas & Electric (PG&E) service territories, leaving residents susceptible to electric outages. It aims to stimulate renewable energy developing within the county to meet state and local emissions reduction goals and to improve the resiliency of the local electric grid. The plan identifies total resource potential for renewable energies, creates a list of priority sites for renewable energy development, and defines various strategies and regulatory frameworks to identify barriers to accessing renewable energy.

Existing Conditions

The GSD WRRF currently uses biogas, which is combusted in a boiler that supplies heat to the digesters to aid in the digestion process and serves the onsite buildings. Any biogas produced beyond what is necessary in the digestion process and building operations is flared. Moreover, the building and other equipment onsite uses electricity and natural gas as needed.

Environmental Determination

An analysis of the proposed Project's fuel and energy consumption is provided below:

Project Construction Fuel Consumption

The fuel consumption from the mobile sources used for construction was calculated using the CalEEMod outputs. CalEEMod calculates mass emissions of GHGs, including CO_2, from offroad and onroad mobile sources associated with project construction. For construction, CalEEMod aggregates mobile source CO_2 emissions into four broad categories (typical fuel types assumed):

- Offroad equipment [diesel (Tiers 1-4)];

- Hauling [heavy-heavy duty diesel trucks (HHDT)];
- Vendor [medium-heavy and heavy-heavy duty diesel trucks (MHDT, HHDT)]; and
- Worker [light duty gasoline automobiles and trucks (LDA, LDT1, LDT2)].

For each category, diesel and gasoline fuel consumption can be estimated (back-calculated) using 2025 Climate Registry (40 CFR 98 Subpart C) emission factors for those fuels:

- Diesel Fuel Oil No. 2: 10.21 kg CO_2 per gallon [22.51 lbs CO_2 per gallon]; and
- Motor Gasoline: 8.78 kg CO_2 per gallon [19.36 lbs CO_2 per gallon].

Using the CalEEMod annual emissions results (MT CO_2) for each of the four mobile source categories (offroad, hauling, vendor, worker) and the corresponding CO_2 emission factors, Table 3.9-1 shows estimated fuel consumption during Project construction, which equates to approximately 16,161 gallons of liquid fuels.

Table 3.9-1: Construction Mobile Source Energy Use

Mobile Sources	Types	Fuels	MT CO_2	CO_2 Emission Factor (kg/gal)	Fuel Consumption (gallons)
Off-Road	Tiers 1-4	Diesel	165	10.21	16,161
Hauling	HHDT	Diesel			
Vendor	MHDT, HHDT	Diesel			
Worker	LDA, LDT1, LDT2	Gasoline			

Sources: CalEEMod, The Climate Registry 2025, 40 CFR 98 Subpart C. Assume worse case diesel fuel emissions factor.

Project Operation Fuel Consumption

Similar to construction, CalEEMod calculates mass emissions of CO_2 from area and mobile sources associated with project operation. For operation, CalEEMod aggregates area and mobile source CO_2 emissions into three broad categories (typical fuel types assumed):

- Utility equipment [gasoline];
- Heavy Mobile [light-heavy, medium-heavy and heavy-heavy duty diesel trucks (LHDT, MHDT, HHDT)]; and
- Light Mobile [light and medium duty gasoline automobiles and trucks (LDA, LDT1, LDT2, MDV)].

For each category, diesel and gasoline fuel consumption can be estimated (back-calculated) using 2025 Climate Registry (40 CFR 98 Subpart C) emission factors for those fuels. Consistent with CalEEMod, operational vehicle fleet mixes comprise approximately 90% gasoline and 10% diesel fuel usage.

Using the CalEEMod annual emissions results (MT CO_2) for the mobile source categories and the corresponding CO_2 emission factors, Table 3.9-2 shows estimated fuel consumption during

Project operation. As shown in Table 3.9-2, based on CalEEMod, project operation would consume approximately 8 gallons of liquid fuels annually.

Table 3.9-2: Operational Area and Mobile Source Energy Use

Sources	Types	Fuels	MT CO_2/year	CO_2 Emission Factor (kg/gal)	Fuel Consumption (gallons/year)
Mobile	LHDT, MHDT, HHDT	Diesel	0.085	10.21	8

Sources: CalEEMod, 40 CFR 98 Subpart C. Assume worse case diesel fuel emissions factor.

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

Less than Significant Impact. Construction of the proposed Project would require consumption of diesel and gasoline by the use of construction equipment onsite. Construction deliveries are anticipated to be minimal, with less than 10 days expected for general equipment. The energy required by construction would be temporary and would not entail a substantial demand on energy resources. When not in use, any electric equipment would be powered off so as to avoid unnecessary energy consumption. Moreover, Project characteristics would not require construction equipment that are less energy-efficient than comparable construction equipment utilized in other parts of the state, nor is there expected to be significant use of gasoline or diesel compared to regional consumption. Therefore, the proposed Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources during construction.

Proposed Project operations would also include an 807-kW solar array and a 1,632-kWh 4-hour battery unit that is expected to generate approximately 1,414,000 kWh of solar energy annually for the WRRF. The solar array would generate renewable electricity that would either charge the BESS or be delivered to the electrical grid. As such, the Project would further GSD's long-term goal of achieving energy neutrality and would lessen the WRRF's overall consumption of and reliability on energy resources from public utilities.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact. The proposed Project would construct a solar and battery energy storage microgrid at the GSD WRRF. As the facility currently utilizes a biogas collection system, the proposed Project would be one of two sources of renewable energy utilized, which furthers GSD's long-term goal of achieving energy neutrality. The proposed Project is consistent with the Santa Barbara County Strategic Energy Plan, which ranks solar photovoltaic systems as the renewable resource with the greatest potential for generation capacity and annual generation.

Mitigation Measures:

None.

3.10 Geology and Soils

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

Regulatory Setting

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act aims to mitigate the hazard of surface faulting to structures constructed for the purpose of human occupancy. The three main provisions of the act are to: 1) direct the California Department of Conservation California Geological Survey (CGS) to record and compile maps of active faults within the state; 2) require property owners to legally disclose if their property lies within active fault zones defined on the CGS maps and; 3) prohibit new construction of houses within such zones until a comprehensive geologic investigation shows that the fault is not a hazard.

California Health and Safety Code

Sections 17922 and 17951-17958.7 of the California Health and Safety Code mandate that cities and counties adopt and enforce the current edition of the California Building Code (CBC), including its grading section. Specific sections of Volume II of the CBC address various geologic hazards.

California Environmental Quality Act

Geological and paleontological resources are protected under CEQA that states a project will normally be considered to have a significant environmental impact if it could disrupt or adversely affect paleontological resources, soils or a unique geologic feature, unless the activity is part of a scientific study. Specifically, Section VII(f) of Appendix G of the State CEQA Guidelines asks whether a project could "directly or indirectly destroy a unique paleontological resource or site or unique geologic feature."

Relevant to the protection of paleontological resources, Section 5097.5 of the California Public Resources Code (PRC) states: "No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological, or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor. As used in this PRC section, 'public lands' means lands owned by, or under the jurisdiction of, the state or any city, county, district, authority, or public corporation, or any agency thereof."

Santa Barbara Comprehensive Plan

The Seismic Safety & Safety Element, amended July 2023, of the Santa Barbara Comprehensive Plan analyzes geologic, soil, seismic, fire and flood hazard data for the purpose of safe land use development and contains numerous goals, policies, and implementation measures to ensure compliance with geologic and seismic protection requirements.

Geologic and Seismic Goal 1. Protect the community to the extent feasible from risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche and dam failure; slope instability leading to mudslides and landslides; subsidence, liquefaction and other seismic hazards pursuant to Government Code §65302(g)(1), Chapter 7.8 (commencing with Section 2690) of Division 2 of the Public Resources Code, and other geologic hazards known to the legislative body.

Geologic and Seismic Protection Policy 1: The County shall minimize the potential effects of geologic, soil, and seismic hazards through the development review process.

Geologic and Seismic Protection Policy 2: To maintain consistency, the County shall refer to the California Building Code, the Land Use Development Code, County Ordinances, the Coastal Land Use Plan, and the Comprehensive General Plan when considering the siting and construction of structures in seismically hazardous areas.

Geologic and Seismic Protection Policy 3: The County shall ensure compliance with State seismic and building standards in the evaluation, design, and siting of critical facilities, including police and fire stations, school facilities, hospitals, hazardous material manufacture and storage facilities, bridges, large public assembly halls, and other structures subject to special seismic safety design requirements pursuant to the California Code of Regulations, Title 24, Part 2 California Building Code.

Geologic and Seismic Protection Policy 4: The County Office of Emergency Services (OES) shall continue coordinating emergency planning for the Santa Barbara Operational Area pursuant to the California Emergency Services Act of 1970.

Geologic and Seismic Protection Policy 5: Pursuant to County Code Section 21-7(d)(4) and (5), the County shall require a preliminary soil report prepared by a qualified civil engineer be submitted at the time a tentative map is submitted. This requirement may be waived by the Planning Director if he/she determines that no preliminary analysis is necessary. A preliminary geological report prepared by a qualified engineering geologist may also be required by the Planning Director.

Geologic and Seismic Protection Policy 6: The County should reference the Santa Barbara County Multi-Jurisdiction Hazard Mitigation Plan when considering measures to reduce potential harm from seismic activity to property and lives.

Eastern Goleta Valley Community Plan

The Eastern Goleta Valley Community Plan includes land use policies and implementation strategies to ensure development does not compromise public health and safety given geologic conditions.

Goal #14. Life and property is protected from geologic hazards.

Objective GEO-EGV-2: Retain the structural geologic integrity of Eastern Goleta Valley

Policy GEO-EGV-2.1: (Coastal) Grading for the purpose of creating or enhancing views or aesthetics shall not be permitted.

Policy GEO-EGV-2.2: No development shall be allowed on slopes of 30 percent or greater. Ground disturbances and development on slopes of 20 percent or greater should be avoided, unless such avoidance would preclude reasonable use of the parcel, wherein the portion of the site which exhibits the least amount of slope

shall be utilized. Development on these sites should be designed to minimize combined grading from driveway and building pad creation.

Policy GEO-EGV-2.3: Erosion control measures including the use of drought-tolerant landscaping shall be established in all site drainages.

Objective GEO-EGV-3: Minimize potential seismic hazards.

Policy GEO-EGV-3.1: Development shall avoid known geologic faults consistent with the policies of the County's Seismic Safety and Safety Element.

Policy GEO-EGV-3.2: Development proposed on Rincon Formation soils or within state mapped elevated radon hazard zones shall be avoided to the extent feasible; if infeasible, development shall be subject to an evaluation of conformance to EPA radon gas exposure standards. For any sites exposed to radon gas levels exceeding acceptable health standards, incorporation of construction techniques which reduce the interior radon gas concentrations to acceptable levels shall be required.

Existing Conditions

The following geologic and soils information is derived from a Geotechnical Evaluation by Ninyo & Moore (2022; Appendix D) and a paleontological records search conducted through the Natural History Museum of Los Angeles County (LACM), detailed in Appendix E.

Faults

The proposed Project site is situated in a seismically active area with several active faults nearby, including Mission Ridge, Red Mountain, North Channel, Pitas Point, and Santa Ynez. Such active faults can produce maximum moment magnitudes of 6.8 to 7.4. Although the site is not within a State of California Earthquake Fault Zones, as per the Alquist-Priolo Earthquake Fault Zoning Act, it is approximately 0.5 miles north of the More Ranch Fault Zone as part of the Mission Ridge Fault System, which is considered active by Santa Barbara County (USGS 2008). A 2009 site-specific evaluation by Earth Systems Pacific found no evidence of faulting near the proposed improvement areas (Ninyo & Moore 2022).

Geologic Formations

According to regional geologic maps and onsite borings, the proposed Project site is underlain by fill, terrace deposits, and at greater depths, the Monterey Formation. Fill material, composed of moist, medium dense, silty sand, was found up to 3 feet below the surface. Below this, terrace deposits of moist, very stiff to hard, lean clay can be found to a depth of approximately 10 feet, as well as soft to moderately hard silty claystone thereafter to the maximum drilled depth of 71 feet (Ninyo & Moore 2022).

Liquefaction

The Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element (2015) classifies the proposed Project site as having a moderate liquefaction potential. However, a project-specific geotechnical investigation by Ninyo & Moore (2022) found that hard, lean clay deposits and silty claystone were found during subsurface exploration. As such, liquefaction is not considered a design consideration for the proposed Project. Located within the central portion of Mescalitan Island, the site features shallow and exposed bedrock. While the county's liquefaction hazard map is regional and generalized, the site-specific borings by Ninyo & Moore indicate a low liquefaction potential at the proposed Project site.

Landslide

The proposed Project site has relatively flat to gently sloping topography. Based on site reconnaissance, published geologic maps, stereoscopic aerial photographs, and the City of Goleta Geologic Hazards Map (2009), landslides are not considered a potential hazard at the site (Ninyo & Moore 2022).

Collapsible and Expansive Soils

According to the 2022 Geotechnical Evaluation conducted for the FOG Receiving Station and Thermal Drying Facility at GSD by Ninyo & Moore, borings drilled at the site indicated that the existing fill soils and terrace deposit consist of granular soils that may be prone to caving. On the other hand, the geotechnical evaluation did not assess soil expansion potential due to the generally coarse-grained soils with negligible clay content. As such, expansive soils are not expected at the proposed Project site.

Paleontological Resources

Paleontological resources are remains or traces of once living organisms that have been preserved in rock units; these resources are defined by the Society of Vertebrate Paleontology as being older than recorded human history and/or older than the middle Holocene (8,200 to 4,200 before present (BP) (SVP 2010)). These resources are limited, nonrenewable, and can hold significant scientific and educational value, and thus are protected under State laws and regulations. According to the Society for Vertebrate Paleontology *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources* (2010), significant paleontological resources are, "fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information."

A search of the Natural History Museum of Los Angeles County (NHMLA) database of the closest known fossil localities relative to the proposed Project site was requested to determine if the project site is underlain by documented paleontological resources or by soils or geologic units potentially containing paleontological resources. The NHMLA records indicate that no fossil localities have been documented as lying directly within the proposed Project improvement areas. However, nearby paleontological resource localities have been recorded in the surrounding area and within the same sedimentary deposits that have the potential of occurring within the proposed Project, either at the surface or at depth. Table 3.10-1 lists the documented fossil localities in the NHMLA collection nearest the proposed Project site.

Table 3.10-1: Paleontological Resource Localities Near the Project Site (NHML 2025)

Locality Number	Location	Formation	Taxa	Proximity and Depth
LACM VP 5018	Seacliff about 1.5 miles long; between Goleta Point & Coal Oil Point	Unknown formation (Pleistocene; conglomerate and sandstone; locally coquinoid)	Fish (Osteichthyes)	~4,230 m (2.6 mile) southwest; depth: surface
LACM IP 416	Seacliff in Goleta	Pleistocene terrace	Uncatalogued invertebrates	Specific location unknown; depth: surface
LACM IP 36	Seacliff near Coal Oil Point	Unknown formation (Pleistocene)	Uncatalogued invertebrates	~4,230 m (2.6 mile) southwest; depth: surface

Note: *VP, Vertebrate Paleontology; bgs, below ground surface*

The mitigation measure identified has been created to minimize impacts to paleontological resources to less than significant. Implementation of MM-GEO-1 would establish a program of treatment and protection in the case of an inadvertent discovery of paleontological resources throughout the duration of the proposed Project that a qualified paleontologist is retained to oversee monitoring of ground disturbing activities and to respond to any inadvertent discoveries during Project construction.

Environmental Determination

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

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

No Impact. The proposed Project Site is not located within a State of California Earthquake Fault Zone as defined by the Alquist-Priolo Earthquake Fault Zoning Act. A site-specific evaluation by Earth Systems Pacific in 2009 found no evidence of faulting associated with the nearby More Ranch Fault near the proposed thermal dryer facilities and supporting infrastructure (Ninyo & Moore 2022). Therefore, the Project would not cause substantial adverse effects, including the risk of loss, injury, or death due to the rupture of a known earthquake fault. As such, no impacts would occur.

ii) Strong seismic ground shaking?

Less Than Significant Impact. The proposed Project Site is located within a seismically active area of Southern California, with several active and potentially active faults capable of producing strong ground shaking of magnitudes between 6.7 and 7.7. Past geotechnical investigation

conducted by Ninyo & Moore (2022) calculated a peak ground acceleration of 1.040 gravity (g), based on a magnitude 7.4 earthquake on the Red Mountain Fault, 2.5 miles from the site. The elements of the proposed Project include solar arrays, as well as a pad-mounted battery energy storage system. Duct bank routing will employ trenching along existing roadways within the GSD WRRF. As ground disturbance is minimal in terms of potential damage from seismically induced ground failure, impacts would be less than significant.

iii) Seismic-related ground failure, including liquefaction?

Less Than Significant Impact. The Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element indicates that the Project site is located within an area of moderate liquefaction potential. A past geotechnical investigation conducted for the Project Site by Ninyo & Moore (2022) concluded that liquefaction is not a design concern for the proposed Project due to the hard, lean clay deposits and silty claystone underlying the site. Other seismic-related ground failures, including lateral spreading and differential settlement, were not expected because the Project Site is not underlain by liquefaction-prone soils. Therefore, the proposed Project would not cause substantial adverse effects from seismic-related ground failure, resulting in less than significant impacts.

b) Result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. The proposed Project involves installation of solar array configurations and a pad-mounted battery unit. Approximately 133.2 cubic yards (cy) of excavated soil is anticipated to be disposed of offsite. Directional boring for the duct bank routing assumes 8 inch wide narrow borings running approximately 600 feet long. Approximately 108 square feet, or four (4) cubic yards, of CMU wall in the existing Power & Maintenance Building would be demolished for the addition of a new employee accessway, resulting in negligible demolition debris and potential ground disturbance within the building itself. Equipment staging areas will utilize existing spaces dedicated for such purposes on WRRF's front lawn.

As such, impacts to the WRRF's stormwater drainage systems are expected to be negligible and temporary. As the western portion of the WRRF drains towards the Goleta Slough, this runoff must comply with the Santa Barbara County Storm Water Management Program and the Small Municipal Separate Storm Sewer System (MS4) Permit, which includes a Construction Site Storm Water Runoff Control Program to prevent pollutant discharge. With adherence to the existing MS4 Permit and implementation of site-specific BMPs, the proposed Project would not cause substantial soil erosion or loss of topsoil.

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

Less Than Significant Impact. The soils underlying the proposed Project Site were determined not to be prone to liquefaction or lateral spreading, and the Project Site's relatively flat to gently sloping topography makes it unsusceptible to landslides. According to the USGS Areas of Land Subsidence in California web tool (2018), the Project Site is not located within an area that is subject to ground subsidence due to groundwater pumping, oil extraction, or peat loss.

The proposed Project will be designed and constructed with the CBC and recommendations from the prior 2022 geotechnical report conducted by Ninyo & Moore, including over-excavation and re-compaction of loose soils. Temporary slopes in loose sediments during excavation may potentially pose safety hazards, however such hazards would be managed according to the prior geotechnical report's recommendations, as well as the 2022 CBC and Cal/OSHA. Impacts would be minimized to less than significant with adherence to geotechnical engineering, state, and federal standards during the construction phase.

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

Less Than Significant Impact. Soils underlying the proposed Project Site are unlikely to have high soil expansion potential as they are generally coarse-grained and not clay-rich; expansive soils are not anticipated at the Project Site. Impacts would be less than significant.

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

No Impact: The proposed Project does not include the use of septic tanks or alternative wastewater disposal systems. No impacts related to septic tanks or alternative systems would occur.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?

Less Than Significant with Mitigation Incorporated. The proposed Project site is located in the west-central Transverse Ranges Geomorphic Province, spanning from Point Conception to the San Bernardino Mountains, and includes several mountain ranges and offshore islands (CGS 2002; Morton and Miller 2006). The province trends east-west, contrasting with the typical northwest trend of Coastal California. Regionally, the Transverse Ranges extend offshore to include the continental shelf and islands such as Santa Cruz, Santa Rosa, and San Miguel (CGS 2002).

Surficial geological mapping (Dartnell et al. 2011) indicates that: the northeastern part of the general Project site consists of Holocene estuarine deposits (Qe); the central part includes early Pleistocene to possibly late Pliocene siltstone (QTst); and the southernmost part contains the late Miocene Monterey Formation (Tmu). A paleontological records search revealed no paleontological resources have been recorded within the proposed Project site, but significant resources have been found in similar deposits nearby (see Table 3.10-1).

The SVP states that "rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered" indicate a high potential for encountering paleontological resources. Since the proposed improvement areas include varied geologic formations and deposits, the potential for encountering and impacting paleontological resources is varied. Therefore, those areas with Holocene deposits have low surface sensitivity/potential, increasing with depth, while artificial fill has no sensitivity/potential and areas possessing Pleistocene deposits have high sensitivity/potential for encountering and adversely impacting significant paleontological resources.

In summary, the presence of nearby significant paleontological resources within Pleistocene rock units and soil deposits suggests a high potential for significant paleontological resources at the proposed Project site but only within localities and depths of the Pleistocene era. Ground-disturbing activities during construction within Pleistocene rock units and soil deposits could potentially destroy significant paleontological resources at depths below 12 feet (depth of solar installation foundation columns) from the current surface.

The mitigation measures identified have been created to minimize impacts to unique paleontological resources or unique geological features to less than significant. Implementation of

Mitigation Measures:

MM-GEO-1 Paleontological Resources Impact Mitigation Program and Paleontological Monitoring. Prior to commencement of any grading activity on-site, the applicant shall retain a qualified paleontologist, per the SVP (2010) guidelines. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the proposed Project. The PRIMP shall be consistent with the SVP (2010) guidelines and outline requirements for worker environmental awareness training and in what areas paleontological monitoring will occur based on construction plans and/or geotechnical reports. The Plan will also include procedures and protocols for the implementation of paleontological monitoring, assessment and treatment of discovered resources, and the methods (including sediment sampling for microinvertebrate and microvertebrate fossils) for recovery/salvage, reporting, and collections management.

The qualified paleontologist, or their representative, shall conduct a WEAP training, and a qualified paleontological monitor shall be on-site during initial rough grading and other significant ground-disturbing activities (including augering) that occur within previously undisturbed, early Pleistocene to late Pliocene unnamed marine sedimentary units. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the ground disturbance will be temporarily halted and/or diverted to allow, as appropriate, for the assessment and recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once assessment, documentation and/or collection of the find is completed, ground disturbance will be allowed to continue in the area of the discovery. Authorization to continue ground disturbance within the area of discovery will be provided by the qualified paleontologist, or their representative, only.

Requirements and Timing

Paleontological Resources Impact Mitigation Program (PRIMP) shall be completed prior to ground disturbance ground disturbance associated with grading or construction for the Project. Paleontological monitoring shall be conducted during ground disturbance activities associated with grading or construction for the Project and in accordance with the PRIMP.

Monitoring

GSD shall ensure submittal of the PRIMP prior to ground disturbance associated with grading or construction for the Project and that all contractors associated with ground disturbance associated with grading or construction for the Project will be provided a copy and understand the importance of following the PRIMP.

GSD shall ensure all contractors associated with ground disturbance associated with grading or construction for the Project communicate the construction schedule to the paleontological principal investigator, or their representative, to support implementation of paleontological monitoring in accordance with the PRIMP.

3.11 Greenhouse Gas Emissions

Environmental Issue Area	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. Greenhouse Gas Emissions. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☑	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☑	☐

Existing Conditions

Refer to Section 3.6.

Regulatory Setting

For this resource area, an evaluation of the proposed Project's potential impacts on climate change was conducted, focused on greenhouse gas (GHG) emissions associated with construction and operation of the solar facility. There is strong scientific consensus that the rapid warming observed globally in recent decades is primarily driven by human-generated GHG emissions. Atmospheric concentrations of carbon dioxide (CO_2) the principal GHG have increased by approximately 45 percent over pre-industrial levels. Climate change has the potential to substantially affect Santa Barbara County's natural systems, water supply, public health, and infrastructure.

At the state level, Assembly Bill (AB) 32 established the goal of reducing statewide GHG emissions to 1990 levels by 2020 (427 million metric tons of CO_2e). This represented roughly a 29 percent reduction relative to "business-as-usual" (BAU) projections for 2020, where BAU conditions were based on 2005 energy use, building efficiency, vehicle emissions, and grid electricity conditions. To support implementation of AB 32, the California Air Resources Board (CARB) adopted a Cap-and-Trade Program, which set a statewide declining annual GHG emissions cap for major sources between 2013 and 2020.

Senate Bill (SB) 32, adopted in 2016, expanded upon AB 32 and established a more stringent statewide target of reducing GHG emissions to 40 percent below 1990 levels by 2030. These long-term reduction goals are further supported by CARB's 2022 Climate Change Scoping Plan, which provides a statewide framework for achieving California's 2030 and 2045 GHG reduction mandates. The Santa Barbara County Air Pollution Control District (SBCAPCD) also provides regional context for GHG reduction strategies through the 2022 Ozone Plan, although neither document establishes GHG significance thresholds for CEQA evaluations.

Energy efficiency requirements in California also contribute to statewide GHG reduction goals. The California Building Energy Efficiency Standards (Title 24) are updated on a three-year cycle

and are designed to improve energy performance in new residential, commercial, and industrial buildings. The 2022 standards, which became effective on January 1, 2023, further increase requirements for high-efficiency equipment, building envelopes, and renewable energy integration. While the proposed solar project would not rely on energy-intensive processes during operations, compliance with Title 24 and other applicable energy codes during construction would support reduced GHG emissions.

The County of Santa Barbara adopted its 2030 Climate Action Plan (CAP) in August 2024 to achieve a 50% reduction in GHG emissions below 2018 levels by 2030. The CAP establishes sector-specific strategies and measures to reduce emissions from energy, transportation, waste, and wastewater systems. Applicable CAP measures for the proposed Project include:

- CE-1.6 Resilience Hubs. Support the creation of resilience hubs that utilize renewable energy and backup energy systems, prioritizing frontline communities.
- CE-1.10 Utility Scale Solar. Update and adopt the utility-scale solar ordinance to expand opportunities for solar development on agricultural, commercial, and industrial lands.

Consistent with the Santa Barbara County Strategic Energy Plan (2019), the proposed solar project directly contributes to the County's goals of expanding renewable energy production and decreasing reliance on fossil-fuel-based electricity.

Methodology

The greenhouse gases (GHGs) considered in this analysis include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and refrigerants (R). Each compound has a distinct global warming potential (GWP), which is applied to its respective emissions to calculate carbon dioxide equivalent (CO_2e) for standardized reporting. GWPs for CO_2, CH_4, and N_2O are sourced from the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (2007), consistent with statewide GHG inventory protocols. Refrigerant GWPs are derived from IPCC (2007), the California Air Resources Board (CARB, 2020b), and the World Meteorological Organization (2018).

For this facility, direct GHG emissions originate from fuel combustion in mobile sources, including off-road construction equipment and on-road vehicles. Indirect emissions result from off-site electricity generation used to power the facility, operate construction equipment, and pump water supplies. Default energy and natural gas consumption estimates are based on 2019 data from the California Energy Commission (CEC) 2018–2030 Uncalibrated Commercial Sector Forecast and the 2019 Residential Appliance Saturation Survey.

Emission estimates for both direct and indirect sources were developed using CalEEMod, applying U.S. Environmental Protection Agency (EPA) AP-42 emission factors where project-specific data were unavailable. Detailed model inputs and outputs are provided in Appendix A.

Environmental Determination

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

Less Than Significant Impact. GHG emissions associated with project construction were quantified for the anticipated four-month construction period. Emissions primarily stem from off-road equipment operation and mobile exhaust sources. Total construction-related emissions are estimated at approximately 165 metric tons of CO_2e in the year that they occur. Detailed assumptions, input parameters, and calculation methodology are provided in Appendix A.

Table 3.11-1: Construction GHG Emissions

GHG Pollutant	Emissions (MT/yr)
CO_2e	165

Source: CalEEMod Version 2022.1.1.45

The GHG emissions from operations were also quantified. Operational emissions are primarily attributable to mobile exhaust and water conveyance during maintenance and cleaning. The estimate is intentionally conservative, as the facility will generate solar energy during operation and actual emissions are expected to be lower. Total operational emissions are projected at approximately 0.085 metric tons of CO_2e.

Table 3.11-2: Operational GHG Emissions

Source Category	Annual CO2e (MT/yr)
Mobile	0.0835
Water Conveyance	00015
Total	**0.085**

Source:CalEEMod Version 2022.1.1.45

Table 3-14 summarizes the estimated CO_2e emissions from operational emissions and compares them to applicable local significance thresholds. Two thresholds are relevant: (1) the Santa Barbara County threshold established in the 2024 Environmental Thresholds and Guidelines Manual, and (2) the SBCAPCD threshold from the 2015 Environmental Review Guidelines. The Santa Barbara County threshold is a bright-line criterion of 1,000 metric tons of CO_2e per year, while the SBCAPCD threshold is 10,000 metric tons per year. Because the County threshold is more stringent, it is applied here for significance determination. As shown in Table 3.11-3, operational emissions total approximately 0.085 metric tons per year, which is below the 1,000 metric ton threshold; therefore, the impact is considered less than significant.

Table 3.11-3: Operational GHG Emissions Thresholds Impact

GHG Pollutant	Operational GHG Emissions (MT/yr)	Significance Threshold (MT/yr)
CO_2e	0.085	1000

Source: CalEEMod Version 2022.1.1.45

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

Less Than Significant Impact. In the applicable plan, the 2022 Ozone Plan prepared by the Santa Barbara County Air Pollution Control District (SBCAPCD), GHG reduction strategies are addressed exclusively through Santa Barbara County's Connected 2050 Regional Transportation Plan and Sustainable Communities Strategy (RTP-SCS). These documents establish the county's long-term objective to achieve significant GHG reductions by 2050. The proposed facility is not

expected to conflict with the RTP-SCS because post-construction traffic volumes will be minimal, and the project consists of a solar array that contributes to GHG reduction through renewable energy generation. Accordingly, the project is anticipated to result in a less than significant impact on the applicable plan.

The project would not conflict with any applicable GHG-reduction plan or policy. Total project-related GHG emissions from long-term operational emissions, are estimated at 0.085 MT CO_2e per year, which is well below the Santa Barbara County bright-line threshold of 1,000 MT CO_2e per year. Projects emitting below this threshold are considered to have a less-than-cumulatively-considerable contribution to statewide and regional GHG goals.

The project is consistent with the California Scoping Plan, SB 32, the Santa Barbara County Climate Action Plan, and the SBCAG RTP/SCS, all of which promote expansion of renewable energy, reduction of fossil-fuel dependence, and minimization of lifecycle emissions from new development. The project generates zero direct GHG emissions from electricity production, and its minor indirect emissions from infrequent maintenance activities do not impede implementation of any GHG-reduction measure.

Because the project results in low annual GHG emissions, supports renewable energy deployment, and does not introduce new long-term sources of fossil-fuel combustion, it does not conflict with any plan or regulation adopted to reduce GHG emissions. Therefore, the impact is less than significant

Mitigation Measures:

None.

3.12 Hazards and Hazardous Materials

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

Regulatory Setting

Resource Conservation and Recovery Act (RCRA)

The Resource Conservation and Recovery Act (RCRA) authorizes US EPA control over hazardous waste from "cradle to grave"- from generation to transportation, treatment, storage, and finally,

disposal. Also included is the management of non-hazardous solid waste. Pursuant to this regulation, hazardous waste generators and handlers must prepare applications for hazardous waste disposal based on type and qualities of materials.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) is a permit program led by US EPA that ensures water quality is not degraded by pollutants discharged in stormwater flows from development and construction projects. Applicable to projects that disturb one acre or more during construction, the NPDES General Construction Permit contains discharge limits and monitoring and reporting requirements. Compliance with permitting requirements also includes implementation of a Storm Water Pollution Prevention Plan (SWPPP) during construction.

California Department of Toxic Substances Control

The California Department of Toxic Substances Control (DTSC) has the primary responsibility of enforcing hazardous waste laws and regulations within the state, including RCRA, the California Health and Safety Code, and the California Hazardous Waste Control Law. DTSC takes enforcement action against violators, oversees cleanup of hazardous wastes on contaminated properties, oversees permit applications from hazardous waste handlers and storage facilities, and treats and disposes hazardous waste.

California Division of Occupational Safety and Health

The California Division of Occupational Safety and Health (Cal/OSHA) and Occupational Safety and Health Administration (OSHA) establishes protocol, training and permitting for safe workplace conditions and hazardous material handling. Cal/OSHA standards are generally more stringent than federal OSHA regulations. Cal/OSHA standards for hazardous waste operations, emergency response, safety and preparedness are located in the California Code of Regulations.

Santa Barbara Comprehensive Plan – Hazardous Waste Element

The Hazardous Waste Element of the Santa Barbara Comprehensive Plan serves as the principal planning document for hazardous waste management at the county level. The Hazardous Waste Element contains several goals and policies that form the framework for waste minimization and proper waste storage and disposal, including a comprehensive waste generation, treatment and disposal data base, permitting processes for hazardous waste generators and handlers, zoning decisions for appropriate siting criteria, and implementation schedules.

Certified Unified Program Agency

The Certified Unified Program Agency (CUPA) is a program that consolidates the administrative requirements, permit, inspections, and enforcement activities of six environmental and emergency response programs, including the Aboveground Petroleum Storage Act (APSA), California Accidental Release Prevention (CalARP), Hazardous Materials Business Plan (HMBP), Hazardous Waste Generator Program, Onsite Hazardous Waste Treatment (Tiered Permitting), and the Underground Storage Tank (UST) Program. As certified by the California Environmental Protection Agency, Santa Barbara County is certified as the CUPA for the county. The CUPA

regulates businesses that handle hazardous materials, generate or treat hazardous waste, or operate aboveground or underground storage tanks.

The primary goal of the CUPA Program is to protect public health and the environment by promoting compliance with applicable laws and regulations

Existing Conditions

Current operations at the GSD WRRF include the transport, storage, use and disposal of hazardous materials during disinfection and treatment of wastewater, as well as during routine facility maintenance for painting and diesel-powered equipment maintenance. Many of the materials used in routine operation at the proposed Project site are considered hazardous, including thermal fluid (i.e., mineral oil), lubrication oil, and paint. While many of the materials are stored and used in significant quantity, the daily use of, and access to, these materials is controlled and handled following manufacturer and regulatory safety guidelines.

According to the California Department of Toxic Substances (DTSC) EnviroStor database, the proposed Project Site is not listed as a hazardous waste facility or a contamination site requiring further investigation. According to the SWRCB GeoTracker, the GSD WRRF is listed as a site actively operating under an NPDES permit but is not a previous spill site and does not have any known sources of contamination.

Environmental Determination

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

Less Than Significant Impact. Construction activities for the proposed Project would be short-term and one-time in nature, and would involve the limited transport, storage, use, and/or disposal of hazardous materials. Some examples of hazardous materials handling include fueling and servicing construction equipment on-site and the transport of fuels, lubricating fluids, and solvents. These types of materials, however, are not acutely hazardous, and all storage, handling, and disposal of these materials are regulated by the Cal/OSHA, DTSC, EPA, OSHA, and the Santa Barbara County Fire Department. Therefore, construction impacts would be less than significant.

Operation of the proposed Project would not involve transport, storage, use and disposal of hazardous waste, such as used oil, empty hazardous material containers, and cleanup spill residue. Handling of hazardous materials during facility operations will continue to be controlled through implementation of GSD's Hazardous Materials Business Plan (HMBP) (GSD 2024), which will be updated and maintained by the facility, as required by the local Certified Unified Program Agency (CUPA). Finally, the facility expects to continue to comply with applicable hazardous waste disposal regulations. Since the facility has readily available methods for safe transportation (i.e., DTSC- and U.S. Department of Transportation (USDOT)-approved transporters), and is required to ship certain wastes as hazardous wastes, the operational impacts of the transport, use, and disposal of hazardous materials would be less than significant.

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

Less Than Significant Impact. Current site operations include the use and storage of wastewater treatment chemicals such as sodium hypochlorite and sodium bisulfate, which are transported in bulk quantities and stored for daily use. Current operations also generate flammable and toxic gases, including methane and H_2S. However, the proposed Project is not expected to increase significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. The proposed Project includes the installation of ground- and roof-mounted solar arrays and an accompanying battery storage unit. Hazardous waste, such as waste fluid, used oil, and paint solvents, are not expected to be generated during proposed Project operations. Therefore, the proposed Project is not expected to pose more of a significant hazard than the existing equipment utilized during current operations at GSD WRRF.

Moreover, GSD's 2024 HMBP and Emergency Response Plan already contain provisions for storage and handling of hazardous materials. While GSD's HMBP and Emergency Response Plan are updated annually and would thus need to be revised to include the proposed Project's equipment, the plant's hazardous materials management and emergency response procedures would remain the same.

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

No Impact. There is no impact related to the potential for the proposed Project to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school, as no public schools are located or proposed for construction within 0.25 miles of the proposed Project Site.

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

No Impact. According to the California Department of Toxic Substances (DTSC) EnviroStor database, the proposed Project Site is not listed as a hazardous waste facility or a contamination site requiring further investigation. According to the SWRCB GeoTracker, the GSD WRRF is listed as a site actively operating under an NPDES permit but is not a previous spill site and does not have any known sources of contamination.

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

Less Than Significant Impact. The proposed Project is adjacent to the Santa Barbara Municipal Airport and is thereby located within the airport land use plan. However, the Project Site is not located beneath or within the greatest airport hazard areas, including the approach, departure and sideline zones. As no additional employees are required for proposed operations, there is no

impact to safety hazard and excessive noise for people residing or working within the project area. Moreover, implementation of the proposed Project is not anticipated to emit excessive noise nor increase existing noise levels emitted by the airport. Impacts would be considered less than significant.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. While GSD's HMBP and Emergency Response Plan are updated annually and would need to be revised to include the new equipment to be added under the proposed Project, the facility's hazardous materials management and emergency response procedures would remain relatively the same. The facility will reevaluate its emergency response plan and evacuation plan and make necessary changes; however, no significant changes are expected, as the equipment does not restrict movement along evacuation routes nor is it expected to generate hazardous materials or waste. Therefore, impacts would be less than significant.

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

No Impact. The proposed Project would not expose people or structures to a risk of loss, injury, or death involving wildland fires. The proposed Project Site is located in a partially developed area of the Goleta Valley. The surrounding area does not contain dense areas of flammable brush, grass, or trees. The proposed Project Site is not located near areas containing dense vegetation (i.e., flammable brush) considered to be wildlands. The proposed Project is surrounded by asphalt, concrete, and grass, which do not pose a significant fire risk. Furthermore, the proposed Project is required to comply with local fire code requirements. Therefore, no impact would occur.

Mitigation Measures:

None.

3.13 Hydrology and Water Quality

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

Regulatory Setting

Clean Water Act

The Clean Water Act (CWA) sets water quality standards used to regulate discharge of pollutants into national waters. Regulatory and non-regulatory tools used to reduce pollutant discharges

include permits for wastewater and stormwater discharges, regulations for publicly owned municipal and industrial wastewater treatment, and regulations for state-established water quality standards for navigable bodies of water. The State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs) have the responsibility of implementing portions of the CWA in the state.

Applicable sections of the CWA that pertain to water quality protection are discussed below:

Sections 303 & 304 set the framework for implementing water quality standards, criteria, and guidelines. Section 304 establishes the scientific basis for water quality criteria and Section 304 outlines state-level processes for developing and enforcing standards and regulations.

Section 401 requires certification from the state, provided by the RWQCB, that discharges into the waters of the United States will comply with other provisions of the CWA.

Section 402 established the NPDES program to include stormwater discharges from construction sites disturbing between one and five acres. These discharges are regulated by the General Construction Permit, which applicants must obtain along with the development of a Stormwater Pollution Prevention Program (SWPPP).

Section 404 establishes a permit program administered by the United States Army Corps of Engineers (USACE) for the discharge of dredge or fill material into the waters of the United States.

National Flood Insurance Program

The National Flood Insurance Program (NFIP) is managed by the Federal Emergency Management Agency (FEMA) and requires that local governments covered by federal flood insurance create and enforce a floodplain management ordinance that specifies minimum requirements for construction within a 100-year flood zone. FEMA delineates flood zones using publicly accessible flood maps.

Federal Antidegradation Policy

The Federal Antidegradation Policy (40 CFR Part 131.12) mandates that states create and implement statewide antidegradation policies. These policies must, at a minimum, protect and maintain:

- Existing in-stream water uses.
- Existing water quality that exceeds the levels needed to support current beneficial uses, unless a state determines that lowering the water quality is essential for economic and social development in the area.
- Water quality in waters designated as outstanding national resources.

California Fish and Game Code

The California Fish and Game Code, administered by the California Department of Fish and Wildlife (CDFW) and the Fish and Game Commission, establishes laws governing fish, wildlife,

and native plant management and protection, including hunting and fishing regulations, wildlife refuges, and scientific or educational permitting.

Section 6560 of the California Fish and Game Code prohibits discharge of harmful materials, such as petroleum and residuary product of petroleum, refuse from refineries, mills, and factories, sawdust, *cocculus indicus*, and any substances deleterious to fish, plant life, mammals or bird life, into waters of the state. Section 5655 requires that parties responsible for polluting waters of the state pay for removal costs and environmental damages.

Senate Bill 610 and Senate Bill 221: Water Supply Assessments and Water Supply Verifications

Effective January 1, 2002, Senate Bill (SB) 610 and SB 221 strengthen the connection between land use decisions by cities and counties and the availability of water supply. According to Water Code Section 10912(a), projects requiring a water supply assessment under the CEQA include:

- Residential developments with more than 500 dwelling units.
- Shopping centers or business establishments employing over 1,000 people or with more than 500,000 square feet of floor space.
- Commercial office buildings employing over 1,000 people or with more than 250,000 square feet of floor space.
- Hotels or motels with more than 500 rooms.
- Industrial, manufacturing, or processing plants or industrial parks housing more than 1,000 people, occupying over 40 acres, or having more than 650,000 square feet of floor area.
- Mixed-use projects including any of the specified project types.
- Projects demanding water equivalent to or greater than that required by a 500-dwelling unit project.

A key document for complying with SB 610 is the Urban Water Management Plan that water suppliers can use to meet the requirements of SB 610.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) of 2014 ensures local and regional management of groundwater use with the goal of sustainable groundwater management throughout the state by 2042. The Act required the formation of local Groundwater Sustainability Agencies (GSAs) for all high and medium priority basins. The GSAs are required to then develop and implement Groundwater Sustainability Plans (GSPs) for managing and using groundwater without significant impact, such as storage reductions, seawater intrusion, water quality degradation, and land subsidence. The California Department of Water Resources (DWR) and the SWRCB are the two lead agencies implementing the SGMA.

California Porter-Cologne Water Quality Control Act

Beginning in 1973, the California SWRCB and its nine RWQCBs have been responsible for administering permitted discharges into California waters. The Central Coast RWQCB has jurisdiction over the project site. The Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.; 23 CCR Division 3, Chapter 15) establishes a comprehensive water

quality management system to protect California waters. Under this act, anyone discharging, or proposing to discharge, waste that could affect State water quality must file a discharge report with the relevant RWQCB. The RWQCB may then set "waste discharge requirements" to control the discharge. "Waste" is broadly defined and includes various materials, including non-point source pollution.

For discharges covered by the CWA, the state treats Waste Discharge Requirements and NPDES permits as a single permitting vehicle. In April 1991, the SWRCB and other State environmental agencies became part of the California Environmental Protection Agency (CalEPA).

The RWQCB regulates urban runoff discharges under NPDES permit regulations, covering both point sources (e.g., industrial outfall discharges) and non-point sources (e.g., stormwater runoff). The RWQCB issues construction and industrial discharge permits under the NPDES program. BMPs are required as part of a SWPPP. The EPA defines BMPs as practices to prevent or reduce water pollution, including treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage (40 CFR Part 122.2).

CALGreen

CALGreen, also known as the California Green Building Standards Code, 24 CCR Part 11, aims to enhance public health, safety, and welfare by promoting environmentally friendly design and construction methods. It mandates sustainable construction practices for all-new construction and renovations of residential and non-residential buildings. This includes guidelines for site drainage design, stormwater management, and water use efficiency. In addition to these mandatory measures, CALGreen also includes a set of voluntary standards to encourage developers and local agencies to pursue higher standards of development.

California Antidegradation Policy

In 1968, the California Antidegradation Policy, formally known as the Statement of Policy with Respect to Maintaining High-Quality Water in California, was adopted by the SWRCB through State Board Resolution No. 68-16. Unlike the Federal Antidegradation Policy, the California policy applies to all State waters, including isolated wetlands and groundwater, and not just surface waters. The policy mandates that if the existing quality of a water body exceeds the quality established in individual Basin Plans, this high quality must be maintained. Discharges to such water bodies must not unreasonably affect present or anticipated beneficial uses of the water resource.

California Toxics Rule

The EPA sets water quality criteria for certain toxic substances through the California Toxics Rule. This rule establishes both acute (short-term) and chronic (long-term) standards for bodies of water, including inland surface waters, enclosed bays, and estuaries. These standards apply to waters designated by each RWQCB as having beneficial uses that protect aquatic life or human health.

California Water Code

The California Water Code identifies 22 types of districts or local agencies with specific statutory provisions for managing surface water, many of which also have authority for groundwater management. For instance, a Water Replenishment District (Water Code Section 60000 et seq.) can establish groundwater replenishment programs and collect related fees, while a Water Conservation District (Water Code Section 75500 et seq.) can impose groundwater extraction fees. Additionally, through special legislative acts, 13 local agencies have been granted enhanced authority to manage groundwater. Most of these agencies, formed since 1980, can limit water export and control in-basin extraction in cases of overdraft or potential overdraft conditions. They can also levy fees for groundwater management and water supply replenishment activities.

Assembly Bill 3030 – Groundwater Management Act

AB 3030 was passed in 1992, expanding the number of local agencies authorized to develop groundwater management plans, as well as establishing a common framework for local groundwater management across California. These agencies can have the same authority as a water replenishment district to "fix and collect fees and assessments for groundwater management" (Water Code Section 10754), contingent upon receiving majority voter approval in a local election (Water Code Section 10754.3).

Santa Barbara Comprehensive Plan – Conservation Element, Groundwater Resources Section

The Groundwater Resources Section of the Santa Barbara Comprehensive Plan's Conservation Element recognizes that groundwater is a limited but vital resource that the county relies heavily on as a source for domestic, commercial, industrial and agricultural uses. As such, the Element includes several goals, policies and implementation measures that provide guidance for the county's planning and decision-making pertaining to water quality and the county's groundwater basins. Below are applicable elements to the Project.

Goal 1. To ensure adequate quality and quantity of groundwater for present and future County residents, and to eliminate prolonged overdraft of any groundwater basins.

Policy 1.1: The County shall encourage and assist all of the County's water purveyors and other groundwater users in the conservation and management, on a perennial yield basis, of all groundwater resources.

Policy 1.3: The County shall act within its powers and financial abilities to promote and achieve the enhancement of groundwater basin yield.

Goal 2. To improve existing groundwater quality, where feasible, and to preclude further permanent or long-term degradation in groundwater quality.

Policy 2.1: Where feasible, in cooperation with local purveyors and other groundwater users, the County shall act to protect groundwater quality where quality is acceptable, improve quality where degraded, and discourage degradation of quality below acceptable levels.

Goal 3. To coordinate County land use planning decisions and water resources planning and supply availability.

Policy 3.1: The County shall support the efforts of the local water purveyors to adopt and implement groundwater management plans pursuant to the Groundwater Management Act and other applicable law.

Policy 3.2: The County shall conduct its land use planning and permitting activities in a manner which promotes and encourages the cooperative management of groundwater resources by local agencies and other affected parties, consistent with the Groundwater Management Act and other applicable law.

Policy 3.3: The County shall use groundwater management plans, as accepted by the Board of Supervisors, in its land use planning and permitting decisions and other relevant activities.

Policy 3.5: In coordination with any applicable groundwater management plan(s), the County shall not allow, through its land use permitting decisions, any basin to become seriously overdrafted on a prolonged basis

Policy 3.6: The County shall not make land use decisions which would lead to the substantial overcommitment of any groundwater basin.

Policy 3.8: Water-conserving plumbing, as well as water-conserving landscaping, shall be incorporated into all new development projects, where appropriate, effective, and consistent with applicable law.

Eastern Goleta Valley Community Plan

The Eastern Goleta Valley Community Plan acknowledges water quality and flood control as elements of imperative design practices to minimize hazards and pollutants for new development. Below are applicable land use development policies and implementation strategies to the Project.

Objective HYD-EGV-1: Minimize pollution of streams, sloughs, drainage channels, groundwater basins, estuaries, the ocean and areas adjacent to such waters.

Policy HYD-EGV-1.2: Untreated outfalls should avoid or be relocated out of Environmentally Sensitive Habitat and riparian areas.

Objective HYD-EGV-2: Minimize potential flood hazards.

Policy HYD-GV-2.1: Adequate setbacks from floodways and flood hazards shall be required.

Policy HYD-EGV-2.2: Setbacks of a minimum of 50 feet from top of bank but adjusted upward as needed to adequately protect life and property from potential flood hazards shall be required as determined by County Flood Control.

Policy HYD-EGV-2.3: (Coastal) As part of its on-going maintenance operations, the County Flood Control District shall minimize impacts to stream channels to the maximum extent feasible and consistent with sound flood control practices, and incorporate mitigation measures to restore channels and stream banks and mitigate unavoidable adverse impacts to coastal resources to the maximum extent feasible. The District should incorporate and project costs for these efforts into County budget planning.

Existing Conditions

The GSD WRRF is located adjacent to San Pedro Creek and approximately 300 feet southeast of the San Jose Creek and 700 feet southeast of the Atascadero. It is also located approximately 1,200 feet north of the Goleta Slough Channel. Each of these waterways converge into the Goleta Slough that flows into the Pacific Ocean (California DWR 2004, 2021; Goleta Water District 2017). Most storm water at WRRF is internally managed and treated through a series of on-site stabilization basins, where the water either evaporates or flows to the main pump station, and is then handled by the wastewater treatment process, before being discharged to the Pacific Ocean, approximately one (1) mile offshore. The large grassy lawn in the western portion of WRRF captures storm water with the residual runoff flowing toward Moffett Place and then to the Goleta Slough.

Surface water quality at the site is regulated under the Santa Barbara County Storm Water Management Program and the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges from Small MS4s (SWRCB Water Quality Order No. 2013-0001-DWQ; NPDES General Permit No. CAS0000004). The WRRF is situated over the Central Subbasin of the Goleta Groundwater Basin that extends from the Santa Ynez Range foothills on the north to the More Ranch Fault Zone on the south. The Basin is comprised of three subbasins, the West, Central, and North Subbasins with the most usable stored groundwater existing within the fully adjudicated Central Subbasin, making it a low-priority basin under the 2014 Sustainable Groundwater Management Act (SGMA) (California DWR 2004, 2021).

This basin is partially recharged by the Atascadero, Carneros, Cieneguitas, Las Vegas, Maria Ygnacio, San Antonio, San Jose, and Tecolotito creeks. Another recharge source is the bedrock located in the foothills. The principal water-bearing units are derived from Holocene to Pleistocene alluvium, reaching a maximum thickness of about 100 feet, and yielding significant amounts of water. The Pleistocene Santa Barbara Formation serves as the main water source for the basin, reaches a maximum thickness of 2,000 feet in the southern part, and generally has confined groundwater (California DWR 2004, 2021).

Groundwater at WRRF site is about 57 feet below ground surface, based on borings conducted in 2020. However, groundwater has been identified as shallow as 3 feet (equal to an approximate elevation of 6 feet above MSL), approximately 1,400 feet northeast of the Project site east of San Pedro Creek (Ninyo & Moore 2021 and 2022). The entire WRRF is within a 500-year flood zone. Although northern and eastern portions of the facility are within a 100-year flood hazard zone, the proposed construction areas are not (FEMA 2018; CDOC 2009; City of Goleta 2016).

Environmental Determination

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact.

Construction

The proposed Project involves activities that could temporarily expose soils to wind and water erosion, specifically during soil excavation for the solar arrays and the demolition of approximately 108 square feet of wall for the addition of a door and walkway. Moreover, an existing staging area on the front lawn of the WRRF would be utilized for equipment, potentially exposing underlying soils. No soil is anticipated to be removed or disposed of offsite.

Non-sediment pollutants from construction materials and non-storm water flows, such as chemicals and petroleum products, would also potentially degrade surface and groundwater quality. Storm water runoff within the WRRF is internally captured and treated before being discharged into the Pacific Ocean. However, runoff from the western portion of the WRRF drains toward the Goleta Slough and is subject to the Santa Barbara County Storm Water Management Program, Small MS4 Permit, which requires a Construction Site Storm Water Runoff Control Program to prevent pollutant discharge. To comply with the MS4 Permit, GSD's existing SWPPP would be updated to include an ESCP with BMPs. Groundwater may be encountered during construction, with dewatering required in accordance with Central Coast RWQCB Order No. R3-2017-0042, NPDES No. CAG993001.

In accordance with the Santa Barbara County Storm Water Management Program, Small MS4 Permit, and Central Coast RWQCB discharge requirements, the proposed Project would not violate water quality standards or waste discharge requirements. Thus, construction impacts on water quality would be less than significant.

Operations

The impervious surface area within the WRRF would not change with proposed Project operations, thus stormwater would continue to drain appropriately to on-site stabilization basins. Operation of the solar array and battery unit would not require additional water use that would potentially increase or exceed waste discharge requirements. Therefore, operational impacts on water quality would be less than significant.

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

Less Than Significant Impact.

Groundwater Supplies

Although water requirements for dust suppression and soil compaction are expected to be minimal based on the anticipated installation methods of the solar array and battery unit, as well as the construction of the door and external walkway, such water requirements would be sourced from either an onsite fire hydrant or reclaimed water from the treatment plant. If potable water is used, it would be supplied by the Goleta Water District sourced from the Central Subbasin of the Goleta Groundwater Basin. This basin is adjudicated and designated as a very low to low priority under the 2014 SGMA.[2] As project operations would not increase water demand, ground water supplies would not be significantly impacted and the proposed Project would not impede sustainable groundwater management.

Groundwater Recharge

The impervious surface area within the WRRF will not change after project construction and during project operations. The existing lawn area that would be used as a construction staging area would be restored to its original condition after construction. Therefore, the proposed Project would not significantly interfere with groundwater recharge or impede sustainable groundwater management of the basin.

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

i) result in a substantial erosion or siltation on- or off-site;
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
iii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

Less Than Significant Impact. Proposed project construction and operations would not change the existing impervious surface area within the WRRF. Any affected vegetated areas, including the equipment staging area, would be restored to its original condition after construction. Therefore, the proposed Project would not increase associated runoff. The GSD's existing SWPPP will be updated to include an ESCP with BMPs, in compliance with the MS4 Permit requirements, to manage temporary storm water runoff and prevent offsite flooding, erosion and polluted runoff. Therefore, drainage-related impacts would be less than significant.

iv) impede or redirect flood flows?

No Impact. None of the proposed Project construction and installation areas are located within a 100-year flood hazard zone. Additionally, no parts of the WRRF are within a Tsunami Inundation Zone.

The entire WRRF is located within a 500-year flood zone. According to Executive Order 11988, Floodplain Management, federal agencies funding or permitting critical facilities must avoid the 500-year floodplain or protect the facilities to the 500-year flood level (FEMA 2020). Although the WRRF is considered a critical facility, the proposed Project does not involve federal funding or

[2] California Department of Water Resources. SGMA Basin Prioritization Dashboard.

permitting, thus 500-year flood protection is not required. The proposed project would not impede or redirect flood flows, resulting in no impacts.

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

Less Than Significant Impact. The proposed Project would not be located within a flood zone or tsunami runup zone. Seiches, which are oscillations in an enclosed body of water caused by strong seismic activity, could affect the nearby San Pedro Creek Channel to the east during a strong earthquake. However, the proposed Project improvements would be at least 500 feet away from the channel. As seiche damage typically occurs immediately adjacent to water bodies, the distance of the proposed Project to nearby water bodies makes seiche impacts unlikely. Therefore, the release of pollutants due to project inundation is not expected, resulting in less than significant impacts.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less Than Significant Impact. During proposed Project operations, stormwater would drain to onsite stabilization basins, where water will either evaporate or flow to the main pump station for treatment before being discharged to the Pacific Ocean in compliance with the established wastewater discharge permit (Central Coast RWQCB Order No. R3-2017-0021, NPDES No. CA0048160). Runoff from the equipment staging area would be managed under the Santa Barbara County Storm Water Management Program, Small MS4 Permit, minimizing offsite water quality impacts and protecting beneficial uses as outlined in the Central Coast RWQCB Basin Plan.

If potable water from an onsite hydrant is used for dust control and soil compaction, it will be supplied by the Goleta Water District. The Central Subbasin of the Goleta Groundwater Basin, which partially sources the Goleta Water District, is adjudicated and designated as a very low to low priority under the 2014 SGMA. As proposed Project operations would not increase water demand, the Project would not conflict with or obstruct the implementation of a water quality control plan or a sustainable groundwater management plan, and impacts would be less than significant.

Cumulative Impacts

Cumulative development in the Goleta Valley will incrementally contribute to hydrology and water quality impacts. However, as analyzed above and with adherence to the applicable Objectives and Policies in the City of Goleta's and Santa Barbara County's General Plan/Local Coastal Land Use Plans, the project's contribution to these cumulative impacts would not be significant.

Mitigation Measures:

None.

3.14 Land Use and Planning

Environmental Issue Area	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. Land Use and Planning. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☑
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☑	☐

Regulatory Setting

The Project Site is in a coastal region of the Eastern Goleta Valley within unincorporated Santa Barbara County and is therefore subject to land use and development policies detailed in the Land Use Element of the Santa Barbara County Comprehensive Plan, the Santa Barbara County Coastal Land Use Plan, and the Eastern Goleta Valley Community Plan. The Land Use Element of the Santa Barbara County Comprehensive Plan lays out general patterns of development throughout the County. Similarly, the Coastal Land Use Plan details general development patterns throughout areas officially designated within the coastal zone of the county. The Eastern Goleta Valley Community Plan is one of 10 community/area plans that have been adopted as amendments to the Land Use Element and/or Coastal Land Use Plan. They serve the purpose of forming development patterns of a particular area at a finer level of detail.

Existing Conditions

The Project Site is in an unincorporated area of Santa Barbara County southwest of City of Goleta boundary. The Project Site is located within the coastal zone and falls the Eastern Goleta Valley Community Plan area. As the proposed Project area is located both within the jurisdiction of the county's Local Coastal Program and the CCC appeals jurisdiction, the proposed Project is subject to the policies of the California Coastal Act and the County's Coastal Land Use Plan.

The proposed Project Site has a land use designation of Public Utility (UT) and a zoning designation of Public Utility (PU). The GSD WRRF is located primarily in an area of commercial and industrial uses; however, a small residential neighborhood is located approximately 500 feet to the northeast. The Santa Barbara Municipal Airport is located westerly adjacent to the facility. Immediately adjacent to the facility, to the east and south, is additional space designated for public utilities, which is currently not is use (i.e., vacant lots) and is not owned or maintained by GSD.

GSD has submitted preliminary planning applications for a CUP and CDP for the proposed Project to the County of Santa Barbara Planning and Development Department. This MND will also support that permitting process being done in parallel with those applications.

Environmental Determination

a) Physically divide an established community?

No Impact. The proposed Project would not divide an established community as the Project site is already highly developed and part of an existing wastewater treatment plant.

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?

Less Than Significant Impact. The proposed Project is consistent with the purpose and intent of the Santa Barbara County Public Utilities zone and land use designation, which is applied to areas sited specifically for large scale public works, utilities and private service facilities. The proposed Project would be consistent with the development standards of the County's Coastal Zoning Ordinance[3], including performance standards, height limits, and setbacks. Potentially significant impacts on biological resources and cultural resources could potentially be inconsistent with the resource protection policies of the California Coastal Act, the County's Coastal Land Use Plan, and Eastern Goleta Valley Community Plan, if such impacts are not avoided or minimized. However, with implementation of mitigation measure for each issue area, impacts would be reduced to less than significant levels. Therefore, the proposed Project would be consistent with the aforementioned policies and potential impacts that could be found inconsistent with relevant resource protection policies would be avoided or minimized to the maximum feasible extent.

Mitigation Measures:

None.

[3] Santa Barbara County Municipal Code. Article II – Coastal Zoning Ordinance. Division 3 – Development Standards.

3.15 Mineral Resources

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

Regulatory Setting

Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act of 1975 (SMARA) establishes surface mining and reclamation policy with the purpose of minimizing adverse environmental impacts and to ensure mined lands are reclaimed to usable conditions. SMARA requires that the land is classified into mineral resource zones (MRZs) by the California State Geologist, which identify the presence and level of significance of mineral deposits. MRZ categories defined by the CDMG are detailed below.

- MRZ-1: Areas where available geologic information indicates that there is minimal likelihood of significant resources.
- MRZ-2: Areas underlain by mineral deposits where geologic data indicate that significant mineral deposits are located or likely to be located.
- MRZ-3: Areas where mineral deposits are found but the significance of the deposits cannot be evaluated without further exploration.
- MRZ-4: Areas where there is not enough information to assess the zone. These are areas that have unknown mineral resource significance.
- SZ: Areas containing unique or rare occurrences of rocks, minerals, or fossils that are of outstanding scientific significance shall be classified in this zone.

Existing Conditions

According to the 2011 Update of Mineral Land Classification Special Report 215 issued by the Department of Conservation California Geologic Survey, the proposed Project site is designated as Mineral Resource Zone 3 (MRZ-3), indicating the presence of mineral deposits whose significance cannot be evaluated with the available data. The proposed Project site also appears

adjacent to an MRZ-1, where available geologic information indicates that little likelihood exists for the presence of significant mineral resources.

The proposed Project site is situated northwest of the La Goleta Gas Field and the La Goleta Natural Gas Storage Facility. There are no oil and gas wells located directly within the proposed Project site. The nearest well, an idle observation well utilized by the La Goleta Natural Gas Storage Facility, is located approximately 350 feet south of WRRF.

The La Goleta Natural Gas Storage Facility, managed by Southern California Gas Company, utilizes the porous sandstone of the Vaqueros Formation at an average depth of 4,200 feet for natural gas storage. The facility originally contained natural gas, not oil. The Vaqueros Formation allowed for the cyclical injection and withdrawal of natural gas that is sealed by the overlying Rincon Formation shale. As such, this facility includes natural gas injection wells, native gas wells, and observation wells (CalGem 2025, SoCalGas 2025).

Environmental Determination

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

Less Than Significant Impact. The proposed Project Site is classified as MRZ-3, which is an area where mineral deposits are found but significance evaluation cannot be conducted without further exploration. Therefore, the proposed Project would not 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. As such, less than significant impacts would occur.

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

Less Than Significant Impact. The proposed Project Site is not located in a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Therefore, the proposed Project would not result in the loss of availability of such mineral resource recovery site and impacts would be less than significant.

Mitigation Measures:

None.

3.16 Noise

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

Regulatory Setting

Noise Control Act of 1972

The Federal Noise Control Act of 1972 was issued by the US EPA Office of Noise Ambient and Control and established programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In 1981, US EPA subsequently determined that noise is a subjective issue that is best addressed at lower levels of government, and responsibilities for regulating noise control policies were thus transferred to state and local governments.

OSHA 29 CFR 1910.95

Acceptable occupational noise exposure levels established by OSHA state that employees exposed to occupational noise levels greater than 90 decibels (dB) must be provided and wear adequate hearing protection. An employer-sponsored hearing conservation program must be established if occupational noise levels exceed 85 dB. For occupational noise exposure levels greater than 90 dB, the daily period of noise exposure must be decreased from 8 hours.

Santa Barbara Comprehensive Plan – Noise Element

The Noise Element of the Santa Barbara Comprehensive Plan includes noise mitigation recommendations and guidance primarily for transit systems, highways railroads, and airports

and general aviation. The Plan does indicate that public works activities may involve use of mechanical equipment that produce high noise levels. In such cases, it is desirable to establish a program for utilizing equipment that meet desired noise emission characteristics.

Eastern Goleta Valley Community Plan

The Eastern Goleta Valley Community Plan acknowledges that the loudest of noise sources within the county are related to transportation (i.e., road, rail and air traffic). The State of California and the County of Santa Barbara have established criteria for noise exposure which require that interior noise levels within residential dwelling units fall below 45 dBA, and exterior living areas such as yards, balconies and patios, be located and/or designed in such a manner that keeps noise exposure levels below 65 dBA. Therefore, proposed development within range of significant noise sources would require an acoustical analysis and specific design features to minimize potentially significant noise impacts. The land use development policies and implementation strategies that may pertain to the Project are detailed below.

Objective N-EGV-1: Reduce and prevent noise impacts during planning, construction, and operation phases of development, especially to sensitive receptor population.

> Policy N-EGV-1.3: Existing and projected noise generation levels shall limit the location, siting, and design of development.
>
> Policy N-EGV-1.5: The County should work with appropriate agencies and other parties to resolve or minimize noise conflicts or nuisances.

Santa Barbara Municipal Airport Land Use Compatibility Plan

The Project Site is located within the Airport Influence Area (AIA) of the Santa Barbara Municipal Airport and as such, is subject to noise compatibility standards for new development within the AIA established by the Santa Barbara Municipal Airport Land Use Compatibility Plan (ALUCP, 2023). These standards not only depend on the type of land use but also the noise contour within which the land use falls. Airport noise contour maps in the Santa Barbara Airport – Aircraft Noise Analysis (June 2024) show that the Project site is outside the 60 dB noise contour.

Santa Barbara County Environmental Thresholds and Guidelines Manual

The Santa Barbara County Environmental Thresholds and Guidelines Manual has defined the following thresholds of significance for assisting in the determination of significant noise impacts:

- If existing exterior noise levels, including at outdoor living areas, experienced by sensitive receptors is below 65 dBA CNEL, and if the proposed Project will generate noise that will cause the existing noise levels experienced by the sensitive receptors to exceed 65 dBA CNEL – either individually or cumulatively, when combined with other noise-generating sources – then the proposed Project is presumed to have a significant impact.
- If existing exterior noise levels, including at outdoor living areas, experienced by sensitive receptors exceeds 65 dBA CNEL, and if the proposed Project will generate noise that will cause the existing noise levels experienced by the sensitive receptors

to increase by 3 dBA CNEL – either individually or cumulatively, when combined with other noise-generating sources – then the proposed Project is presumed to have a significant impact.

- If existing noise levels experienced by sensitive receptors in interior livings areas is below 45 dBA CNEL, and if the proposed Project will generate noise that will cause the existing noise levels experienced by the sensitive receptors in interior living areas to exceed 45 dBA CNEL – either individually or cumulatively, when combined with other noise-generating sources – then the proposed Project is presumed to have a significant impact.
- If existing noise levels experienced by sensitive receptors in interior livings areas exceeds 45 dBA CNEL, and if the proposed Project will generate noise that will cause the existing noise levels experienced by the sensitive receptors in interior living areas to increase by 3 dBA CNEL – either individually or cumulatively, when combined with other noise-generating sources – then the proposed Project is presumed to have a significant impact.
- Noise from grading and construction activity proposed within 1,600 feet of sensitive receptors, including schools, residential development, commercial lodging facilities, hospitals, or care facilities, would generally result in a potentially significant impact. According to EPA guidelines, average construction noise is 95 dBA at a 50 feet distance from the source. A 6 dB drop occurs with a doubling of the distance from the source. Therefore, locations within 1,600 feet of the construction site would be affected by noise levels over 65 dBA. To mitigate this impact, construction within 1,600 feet of sensitive receptors shall be limited to weekdays between the hours of 8 a.m. to 5 p.m. only. Noise attenuation barriers and muffling of grading equipment may also be required. Construction equipment generating noise levels above 95 dBA may require additional mitigation.

Additionally, the Santa Barbara County Municipal Code Chapter 40, Section 40-2, limits nighttime noise to 60 dBA at 100 feet from the property line of the property upon which the sound is broadcast.

Methodology:

The screening-level noise analysis for Project construction was completed based on methodology developed by the USDOT Federal Highway Administration (FHWA) at the John A. Volpe National Transportation Systems Center and other technical references consistent with CalEEMod outputs for equipment utilization. The USDOT FHWA methodology uses actual noise measurement data collected during the Boston "Big Dig" Project (1991-2006) as reference levels for a wide variety of construction equipment in common use, including equipment anticipated for use constructing the proposed Project.

The FHWA noise model provides relatively conservative predictions because it does not account for site-specific geometry, dimensions of nearby structures, and local environmental conditions that can affect sound transmission, reflection, and attenuation. As a result, actual measured sound levels at receptors may vary somewhat from predictions, typically lower. Additionally, the impacts of noise upon receptors (persons) are subjective because of differences in individual sensitivities and perceptions.

Noise impacts were evaluated against community noise standards contained in the Santa Barbara County Environmental Thresholds and Guidelines Manual and Municipal Code.

Noise Background

Sound is caused by vibrations that generate waves of minute air pressure fluctuations in the air. Air pressure fluctuations that occur from 20 to 20,000 times per second can be detected as audible sound. The number of pressure fluctuations per second is normally reported as cycles per second or Hertz. Different vibrational frequencies produce different tonal qualities for the resulting sound. Sound level data is typically presented in terms of dB (decibel) values; dB scales are a logarithmic index based on ratios between a measured value and a reference value. In the field of atmospheric acoustics, dB scales are based on ratios of the actual pressure fluctuations generated by sound waves compared to a standard reference pressure value. Human hearing varies in sensitivity for different sound frequencies. Several different frequency weighting schemes have been developed to approximate the way the human ear responds to noise levels or to account for the response of building materials to airborne vibrations and sound. The "A-weighted" decibel scale (dBA) is normally used to approximate human hearing response to sound.

Varying noise levels are often described in terms of the equivalent constant dB level. Equivalent noise levels (L_{eq}) are used to develop single-value descriptions of average noise exposure over various periods of time. Such average noise exposure ratings often include additional weighting factors for annoyance potential, due to time of day or other considerations. The L_{eq} data used for these average noise exposure descriptors are generally based on A-weighted sound level measurements, although other weighting systems are used for special conditions (such as blasting noise).

In determining the daily measure of community noise, it is important to account for the difference in human response to daytime and nighttime noise. Noise is more disturbing at night than during the day, and noise indices have been developed to account for the varying duration of noise events over time, as well as community response to them. The Community Noise Equivalent Level (CNEL) adds a 5-dB penalty for noise occurring in the evening (i.e., 7:00 p.m. to 10:00 p.m.) and a 10-dB penalty for nighttime noise (i.e., 10 p.m. to 7 a.m.) (Caltrans 2020, FTA 2018).

Existing Conditions

The GSD WRRF treats wastewater using an anaerobic digester and a thermal heating and dryer system. The WRRF has existing industrial processes and onsite vehicle traffic. The GSD WRRF is located adjacent to the Santa Barbara Municipal Airport, south of the main east-west runway (7/25) and east of the north-south runways (15R/33L and 15L/33R). The nearest residences are at least 1,500 feet from the proposed Project site.

Environmental Determination

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

Less Than Significant Impact.

During construction activities, the Project would generate noise due to operation of off-road equipment, portable equipment, and vehicles at or near the Project site. Most noise would occur during the demolition, site preparation, and building construction when heavy equipment would be operating.

The Santa Barbara County Municipal Code Chapter 40, Section 40-2 limits nighttime noise to 60 dB 100 feet from the property boundary; however, construction will not occur during nighttime hours (10 p.m. to 7 a.m.). The County of Santa Barbara Environmental Thresholds and Guidelines Manual states: "In the planning of land use, 65 dBA Day-Night Average Sound Level is regarded as the maximum exterior noise exposure compatible with noise-sensitive uses unless noise mitigation features are included in project designs." The nearest sensitive receptor is at least 1,500 feet from the proposed Project site. Pile driving is not anticipated, and the loudest activities consist of hydraulic post driving, drilled-pier construction, directional boring, and conventional heavy equipment operations.

The Western Solar Array is anticipated to utilize a hydraulic post driver for installation of steel support piles. Unlike traditional solar projects that may use diesel impact hammers, the Project would not utilize diesel impact pile-driving equipment. Contractor information indicates that hydraulic post drivers generally produce noise levels of approximately 85 to 90 dBA at 50 feet and operate intermittently during installation activities. Canopy and carport structures would utilize drilled-pier foundations installed using auger or drill-rig equipment. Contractor information indicates that no pile driving would occur for these structures. Representative drill-rig noise levels are approximately 85 dBA at 50 feet.

Battery installation would occur during a single-day activity utilizing a truck crane in the 175- to 180-ton class, a telehandler, and support trucks to offload and position the battery units. Because crane operations would occur over a limited duration and would not involve impact activities, associated noise would be temporary and localized.

Construction traffic would consist primarily of worker vehicles, material deliveries, concrete trucks, dump trucks, and occasional specialty equipment transport. The contractor estimates approximately 133 cubic yards of spoil material could require off-site disposal, corresponding to roughly 14 truck loads under a conservative assumption.

Because the Project would use hydraulic post-driving and drilled-pier systems rather than diesel impact pile driving, construction noise levels would be substantially lower than those commonly associated with impact pile-driving operations.

Based on methodology explained above, and the construction equipment in Table 2.5-1, using FHWA default noise generation for the type of equipment and load factors from CalEEMod, the aggregated construction noise is not expected to exceed the 65 dBA threshold at the closest residential receptors, accounting for different distances and attenuation factors for the Western, Carport, and Canopy Solar Arrays. The resulting estimated noise levels are shown in Table 3-16-1. Furthermore, temporary construction noise would be limited to the daylight hours and would

permanently cease upon completion of construction. Therefore, temporary impacts on ambient noise levels during construction would be less than significant.

Table 3.16-1: Noise Impacts from Construction

Phase #	CalEEMod Construction Phases	Modeled Noise Level (L_{eq} dBA)	Significance Threshold (CNEL dBA)[a]	Exceeds Threshold (Yes/No)?
1	Demolition	55	65	No
2	Site Preparation and Directional Boring	63	65	No
4	Battery Pad	52	65	No
5	Solar Array	61	65	No
6	Battery Placement	57	65	No

Notes: a – Santa Barbara County Environmental Thresholds and Guidelines and Manual (2021)
Equipment: $L_{eq} = L_{mx\ (@\ 50\ feet)} + \log_{10\ (load\ factor)}$
Cumulative total: $L_{Total} = 10 \times \log_{10} (L^{1/10} + 10^{L2/10})$
Distance attenuation: $L_2 = L_1 - 20_{log}10\ (D_2/D_1)$

During operation, the proposed Project would not result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project. Solar arrays are static and do not generate operational noise. Any tracking motors would utilize small electric motors to make small motions. Inverters and transformers produce a low frequency sound. Any nominal increase in operational noise from the battery unit such as cooling fans, would be undetectable at the closest receptors, due to the 1,500 feet attenuation distance. Thus, impacts would be less than significant.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact. During construction activities, the project would generate noise and vibration due to operation of off-road equipment, portable equipment, and vehicles at or near the project site. No strong sources of vibrations (e.g., hard rock-breaking, large pile-driving) are planned to be used during the construction of the project. The Project could use an auger drill/bore rig for driving in the solar installations, which is distinct from any impact tool and creates minimal noise and vibration. FTA has published standard vibration velocities for construction equipment operations. The types of construction vibration impacts include human annoyance and building damage. Building damage can be cosmetic or structural. Generally, a peak particle velocity (PPV) vibration threshold of approximately 0.3 in/sec is sufficient to avoid physical damage to engineered structures and 0.2 for non-engineered timber and masonry buildings (FTA 2018). Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. A vibration threshold of 0.2 PPV, which corresponds to "annoying", is typically used as the significance threshold.

No substantial ground vibrations would be transmitted off-site due to the 1,500 feet attenuation distance to the closest off-site receptors. The PPV at nearest receptors would be well below the FTA threshold of 0.2 in/sec for physical damage to non-engineered timber and masonry buildings and human annoyance. Therefore, no strong ground-borne vibrations are expected to be

generated that could affect nearby structures or be noticeable to their occupants and impacts would be less than significant.

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

Less Than Significant Impact. Airport noise contour maps in the Santa Barbara Airport – Aircraft Noise Analysis (June 2024) show that the Project site is outside the 60 dB noise contour. The Project would not add any residential units and would not require new workers. Therefore, the Project would not expose additional people or workers to excessive noise levels.

Mitigation Measures:

None.

3.17 Population Housing

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

Regulatory Setting

Santa Barbara Comprehensive Plan – Housing Element

The Housing Element of the Santa Barbara Comprehensive Plan contains housing goals, policies and programs based on assessments of the county's current and projected housing needs. The overarching goals identified in the Housing Element focus on enhancing the affordability, diversity and quantity of the housing supply, including for those of special needs groups, as well as promoting availability of affordable housing for the extremely low- to moderate-income households in tandem with projected population growth.

Existing Conditions

The GSD WRRF currently employs 39 employees. The closest residential units to the WRRF are located approximately 600 feet northeast along South Fairview Avenue. Much of the nearby areas to the WRRF contain airport operations and undeveloped land.

Environmental Determination

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

No Impact. The proposed Project would not induce population growth within the Project area, neither directly nor indirectly. No additional employees are expected during Project operations and the proposed Project would not require construction of off-site infrastructure. The proposed Project would not increase permitted occupancy capacity at the WRRF nor would it stimulate population growth.

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

No Impact*:* The proposed Project would not displace existing housing or people, necessitating the construction of replacement housing elsewhere. No housing currently exists within the proposed Project Site, and all proposed Project elements would be located within the current WRRF footprint.

Mitigation Measures:

None.

3.18 Public Services

Environmental Issue Area	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. Public Services. Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
i) Fire protection?	☐	☐	☑	☐
ii) Police protection?	☐	☐	☑	☐
iii) Schools?	☐	☐	☐	☑
iv) Parks?	☐	☐	☐	☑
v) Other public facilities?	☐	☐	☐	☑

Regulatory Setting

California Fire Code

The California Fire Code is a set of regulations that address fire safety and fire prevention in buildings and structures throughout the state. Such regulations include emergency planning, fire protection systems, hazardous materials, fire flow requirements and fire hydrant locations.

Eastern Goleta Valley Community Plan

The Eastern Goleta Valley Community Plan contains the following policies to support fire protection, law enforcement, and emergency response services for the community.

Objective FIRE-EGV-1: Minimize the potential hazard to human and animal life, property, and the ecosystem of Eastern Goleta Valley due to fire.

> Policy FIRE-EGV-1.2: Fire hazards shall be minimized in order to reduce the cost of and need for increased fire protection services, while protecting environmental resources
>
> Policy FIRE-EGV-1.3: The Planning and Development Department shall work with the County Fire Department and other interested agencies as needed to address community wildfire protection planning, including, but not limited to, defensible space requirements, landscaping standards and/or guidelines, and other standards for high fire hazard areas.

Objective FIRE-EGV-2: Provide fire protection services that meet or exceed the goals and standards established for adequate fire protection.

> Policy FIRE-EGV-2.1: The County should maintain a five (5) minute response time within the Urban Area and a staffing level of firefighters ideally at a ratio of one (1) firefighter per 2,000 people, but at a maximum ratio of one (1) firefighter per 4,000 people.
>
> Policy FIRE-EGV-2.2: All roads which provide access to structures and properties served by the County Fire Department shall be designed and constructed to Fire Department and County engineering standards or approved equivalent.
>
> Policy FIRE-EGV-2.3: Secondary access shall be a consideration in the location and design of development. Two routes of ingress and egress shall be required for discretionary development unless the County Fire Department waives or modifies this requirement. Routes of ingress and egress required by the Fire Department shall be open and unobstructed.
>
> Policy FIRE-EGV-2.4: Additional rural fire access routes which increase accessibility to rural areas in the event of wildfire should be considered. Additional fire access routes should connect the Urban Area to the rural area, maintain vegetation clearing/fire breaks, and provide public trail access to the maximum extent feasible.

Objective POL-EGV-1: Provide police protection services that meet or exceed the goals and standards established for adequate police protection.

> Policy POL-EGV-1.1: The County should maintain a staffing level of law enforcement officers of at least one (1) officer per 1,200 people to meet or exceed the demand for service based on existing and future service populations as determined by the County Sheriff's Department.

Objective ES-EGV-1: Ensure effective emergency response services and minimize the adverse community-wide impacts of emergencies.

> Policy ES-EGV-1.1: The County shall continue to facilitate effective emergency response systems in the event of a community-wide emergency in Eastern Goleta Valley.

Existing Conditions

Fire protection services are provided to GSD and the proposed Project Site by the Santa Barbara County Fire Department. The nearest Fire Department Station to the proposed Project Site is Fire Station 12, located at 5330 Calle Real, approximately 3 miles northeast of the Project Site.

Police services are provided to the GSD and the proposed Project site by the Santa Barbara County Sheriff's Department. The nearest police station to the Project Site, is located at Calle Real, approximately 4.5 miles northeast. Lastly, the nearest California Highway Patrol office to the Project Site is located at 6465 Calle Real, approximately three miles northwest.

The nearest park to the proposed Project Site is Goleta Beach Park, located approximately 1,300 feet south from GSD WRRF's fenceline.

The nearest school is the Rainbow School Preschool, located at 5689 Hollister Avenue, approximately 1.8 miles northeast. Moreover, the University of California, Santa Barbara (UCSB) campus footprint is located approximately one mile southwest of the Project Site.

Environmental Determination

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

i) Fire Protection?

Less Than Significant Impact. The proposed Project would not result in significant adverse impacts to fire protection. The nearest fire protection responder to the Project Site is Fire Station 12, located approximately 3 miles northeast. The proposed Project would not result in an increase in residential units and population size and would therefore not affect response times.

ii) Police Protection?

Less Than Significant Impact. The proposed Project would not result in an increase of residential units or employment opportunities that would increase population size. Police protection services are not anticipated to increase as a result of the proposed Project thus negating the need for new police station or improvements to the existing police station, Goleta Police Department, that services the area.

iii) Schools?

No Impact. The proposed Project would not result in impacts to existing schools or necessitate the construction of new schools as no additional employees are required for Project operations.

iv) Parks?

No Impact. The proposed Project would not result in impacts to existing parks. The proposed Project would not increase population size and would not therefore necessitate the construction of new parks and related facilities.

v) Other public facilities?

No Impact. The proposed Project would be constructed within the existing WRRF and would not require external lands or facilities. The proposed Project would not increase population size and would not therefore necessitate the construction of new public facilities. No adverse impacts to public facilities would be generated by the proposed Project.

Mitigation Measures:

None.

3.19 Recreation

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

Regulatory Setting

Santa Barbara Comprehensive Plan – Land Use Element

The Land Use Element of the Santa Barbara Comprehensive Plan contains the following policies related to parks and recreation that may be pertinent to the Project.

> ...3. Future development of parks should emphasize meeting the needs of the residents.
>
> …5. Schools and other public-owned lands should be utilized for joint use recreational activities whenever possible.
>
> ...6. When proposed development can establish connections for public use with or between existing bikeways, pedestrian routes, and other trail infrastructure, it shall include them in the project design where feasible and to the extent allowable by law. These connections are intended to promote healthy communities by increasing walkability, multi-modal transportation, neighborhood connectivity to and between commercial services, and public recreational opportunities.

Eastern Goleta Valley Community Plan

The Eastern Goleta Valley Community Plan emphasizes that passive parks, open spaces and recreation facilities not only provide the community with the opportunity to experience the natural environment and to interact with one another, but also preserves habitat and watershed ecology and enhances the value of local visual resources. The Eastern Goleta Valley Community Plan contains the following land use objectives and policies to support such recreational resources for the community.

Objective PRT-EGV-1: Locate parks, playgrounds, trailheads, open space preserves, sports fields, and recreational programming equitably so the resources are accessible to all residents.

> Policy PRT-EGV-1.1: Diverse outdoor and indoor recreational opportunities shall be encouraged to enhance Goleta's recreational resources and to ensure that current and future recreational needs of residents are met.
>
> Policy PRT-EGV-1.2: To enhance overall public health and well-being, recreation facilities shall be located, designed and constructed, as needed, to increase opportunities to play and exercise in Eastern Goleta Valley
>
> Policy PRT-EGV-1.3: New public recreational resources shall be prioritized for underserved locations to increase equitable access to a range of recreation opportunities.

Objective PRT-EGV-3: Preserve and enhance the quality of established recreational resources

> Policy PRT-EGV-3.1: County recreation resources shall be maintained and enhanced to best serve the users of the facility.

Objective PRT-EGV-4: Acquire and maintain active parks needed to adequality serve the local recreation needs.

> Policy PRT-EGV-4.2: Properties with the potential for maximum public use shall be considered a high priority in park acquisition decisions.

Existing Conditions

No recreation facilities are located within the GSD WRRF, nor are any recreation facilities located within its immediate vicinity. The closest recreation area, the Goleta Beach Park, is located approximately 1,300 feet south of the WRRF. Moreover, no recreation facilities are proposed as part of the Project.

Environmental Determination

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

No Impact. Implementation of the proposed Project would not alter the use or capacity of nearby recreational facilities. No additional employees would be required for the proposed Project, and construction and operations of the proposed Project would remain within the boundaries of the WRRF. Therefore, no impacts to recreation or parks would occur.

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

No Impact. The proposed Project would not require the construction or expansion of recreational facilities. Therefore, no impact would occur.

Mitigation Measures:

None.

3.20 Transportation

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

Regulatory Setting

Senate Bill 743 (VMT)

SB 743, passed in 2013 and implemented in 2018 through the adoption of updated CEQA guidelines, promoted statewide policies that included multi-modal transportation networks and efficient access to public transportation. SB 743 replaced Level of Service (LOS) with Vehicle Miles Travelled (VMT) as the primary metric for evaluating transportation performance and potential impacts. Instead of measuring a proposed project's delay to motorists through projected traffic congestion and intersection backups, VMT instead measures the amount of travel for all vehicles within a geographic region over a given period. With the implementation of both onsite and offsite measures, a proposed project would include an appropriate mix of transportation modalities, thereby reducing the amount of air pollution from vehicles.

Eastern Goleta Valley Community Plan

The Eastern Goleta Valley Community Plan includes the following land use development policies and implementation strategies to address the community's vision for a sustainable land use and transportation plan.

Objective TC-EGV-1: Enhance the existing automobile transportation network with multimodal improvements as needed to make walking, biking, and public transit more practical, safe, accessible, and attractive to residents and commuters.

> Policy TC-EGV-1.9: All feasible measures to fully mitigate the transportation impacts associated with development projects, including new and innovative measures as may become available, shall be considered and encouraged.

Objective TC-EGV-2: Consider the facility needs of cyclists, pedestrians, and public transit riders in land use and development decisions.

Objective TC-EGV-3: Design the built environment and transportation system to improve local air quality, climate, and aesthetics, and to provide sufficient parking for all modes of travel.

Existing Conditions

GSD currently has 39 employees, of which about half operate the WRRF.

According to the Eastern Goleta Valley Community Plan, the area is served by three main east-west travel corridors: Cathedral Oaks Road, US Hwy 101, and Hollister Avenue. These east-west travel corridors are connected by three main north-south corridors: Patterson Avenue, Turnpike Road and State Route 154. Access to the proposed Project Site is achieved via James Fowler Road/Moffett Place Road along the Project Site's western boundary.

Environmental Determination

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

Less Than Significant Impact. As proposed Project operations would not require additional employees or work shifts, increased vehicle trips are only anticipated during the construction period of the Project. As such, vehicles associated with construction would use local and regional roadways to access the proposed Project site. Construction trips are temporary and would be considered less than significant compared to the existing area traffic, which includes traffic associated with airport operations.

b) Conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?

No Impact. As no additional employees are required for proposed Project operations, no significant long-term impact on VMT is anticipated. Thus, the proposed Project would not conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b).

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

No Impact. No new roadway design features or incompatible uses are proposed for the Project. Transportation hazards are not anticipated.

d) Result in inadequate emergency access?

No Impact. There are no elements or changes proposed for the Project that would alter the efficacy of emergency access; No impacts to emergency access are anticipated.

Mitigation Measures*:*

None.

3.21 Tribal Cultural Resources

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

Existing Conditions

Ethnohistoric Context: Prior to the Spanish arrival in A.D. 1542, the inhabitants of the Santa Barbara region, collectively known as the Chumash today, comprised various ethnolinguistic groups. These groups occupied a vast territory extending from Morro Bay in the north, to Malibu on the coast, and inland to encompass regions such as the South Coast Range, the northwest Transverse Range, including the Santa Ynez River Valley, the Carrizo Plain, the Cuyama Valley, and the San Emigdio Hills. Their language, considered an isolate (Goddard 1996), distinguished them from neighboring groups such as the Salinan, Yokuts, Kitanemuk, Tataviam, and Tongva (Gabrielino-Fernandeño). Internally, considerable diversity existed, with not all regional dialects being mutually intelligible. Present-day designations for these groups often stem from their

associations with different Mission territories: the Obispeño (or Northern Chumash) in the north were notably distinct from the Central Chumash, comprising the Purisimeño, Ynezeño, Barbareño, and Ventureño. Both the Obispeño and Central Chumash spoke languages distinct from those on the northern Channel Islands, grouped together as Island Chumash. Even within this linguistic taxonomy, historically documented internal diversity includes regional dialectic differences like the Emigdiano, Castec, Matilija, Mugu, and Malibu of the Central Chumash, and the Cruzeño, Roseño, and Migueleño of the Island Chumash (see Kroeber 1925; Grant 1978b, 1978a; Golla 2011). The present Project area was historically occupied by speakers of Ineseño, Purisimeño, Barbareño, and Ventureño Chumash.

Our understanding of these people derives from diverse written accounts, starting with Spanish explorers like Cabrillo in 1542 and Vizcaíno in 1602 (Wagner 1929; Brown 1967), further expanded by accounts from early Mission establishment efforts in Alta California by Portolá in 1769, de Anza in 1776, and to a lesser degree, Garcés in 1776 (Coues 1900; Bolton 1927; Gamble 2008; Priestley 1937). Mission administrators' observations and managerial records for about 60 years also contribute (Geiger 1969; Geiger and Meighan 1976; Johnson 1988, 1982). Additionally, Native perspectives on their history, culture, and lifeways have entered the written record through ethno-historic documentation of beliefs, folk tales, music, customs, and more (e.g., Blackburn 1975; Hudson et al. 1981; Harrington 1942). Notably, key contributors to Chumash ethnography, María Solares, and Fernando Librado, spent significant portions of their lives in and around the Santa Ynez Valley (Blount and Garlinghouse 2014). Contemporary research continues to integrate Chumash identity, concerns, interpretations, and politics (e.g., Gelles 2013).

These written records offer insights into various aspects of Chumash life crucial for archaeologists. They detail dietary habits, material culture production, landscape management, social structure, hierarchy, and power dynamics (e.g., Hudson and Blackburn 1983, 1979, 1985, 1986). Particularly pertinent is the intricate understanding of resource acquisition and control, including exchanges across different environments and networks. Ethnographic details on market-based exchange, shell-bead money, inflation control, intermediary roles, distant trading, and transported goods inform archaeological interpretations and research designs (Gamble 2008; King 1976; Johnson 1988, 1982).

The evolution of complex society among the Chumash has been a focal point for archaeologists, particularly since the 1980s, due to its rich ethnographic records (King 1976; King 1969). Emphasis has been placed on resource acquisition, control strategies, and interregional interactions, shedding light on Chumash social and political complexity (Gamble 2008; King 1976; Johnson 1988, 1982). However, interpretations must consider the ethnographer’s interpretive agency and historical context (Haley and Wilcoxon 1997, 1999; Gill et al. 2019), as contemporary re-analysis may yield novel insights guiding archaeological research.

The earliest European exploration of California, led by Cabrillo in 1542, provided initial observations of Chumash life along the coast and islands of the Santa Barbara Channel, followed by Vizcaíno's expedition in 1602 (Wagner 1929). These encounters marked the beginning of European contact with the Chumash, setting the stage for subsequent interactions and colonial efforts in Alta California.

Regulatory Setting

Assembly Bill 52

AB 52 of 2014 amended PRC Section 5097.94 and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 established that Tribal Consultation Resources (TCRs) must be considered under CEQA and provided for additional Native American consultation requirements for the lead agency. PRC Section 21074 describes a TCR as a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American tribe. A TCR is:

- On the CRHR or a local historic register;
- Eligible for the CRHR or a local historic register; or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1.

AB 52 formalizes the lead agency tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the Project area, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a Negative Declaration, MND, or EIR.

Section 1 (a)(9) of AB 52 establishes that "a substantial adverse change to a tribal cultural resource has a significant effect on the environment." Effects on TCRs should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures "capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource." Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects on TCRs, the consultation shall include those topics [PRC Section 21080.3.2(a)]. The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted [PRC Section 21082.3(a)].

Assembly Bill 52 Notification and Consultation

The Project is subject to compliance with AB 52 (PRC Section 21074) that requires consideration of impacts to TCRs as part of the CEQA review process. Consideration of impacts in accordance with AB 52 requires the lead agency to notify California Native American groups that are traditionally and culturally affiliated with the Project area and have formally requested notification of projects under the jurisdiction of the lead agency.

GSD sent notification letters via regular certified mail on October 6, 2025, to those California Native American tribes who have previously requested formal notification of proposed projects under the agency's jurisdiction. The tribal entities contacted include the Santa Ynez Band of Chumash Indians (SYBCI), the Barbareño Band of Chumash Indians (BBCI) and the Barbareño/Ventureño Band of Mission Indians (BVBMI) (see Confidential Appendix F). Since the formal notification was provided in October 2025, details regarding the project description and the areas of proposed ground disturbance not previously known at the time of the original

notification were determined. These additional details prompted a second notification letter sent via regular certified mail on August 28, 2026, to the Santa Ynez Band of Chumash Indians (SYBCI), the Barbareño Band of Chumash Indians (BBCI) and the Barbareño Ventureño Band of Mission Indians (BVBMI). Follow-up emails were sent to the same tribal entities on September 20, 2026 and October 1, 2026 and follow-up calls were made on September 23, 2026 to support good faith notification by employing various forms of communication.

The BVBMI responded that the Project area is not within their tribal territory and they defer to the BBCI. The BBCI responded requesting a cultural monitor be present during any ground disturbing activities and to be notified of any changes to the Project. The SYBCI responded they defer to the BBCI; however, the SYBCI request a copy of the finalized Inadvertent Discovery Plan when it is available and would like to receive updates regarding the Project and any inadvertent discoveries. Communication that has occurred in support of the AB 52 tribal consultation process is summarized in Table 3.21-1.

Table 3.21-1. Native American Consultation Summary

Tribe/Contact Name	Contact Dates/Method	Response	Date Consultation Closed
SYBCI, Kenneth Kahn, Chairperson	October 6, 2025: certified notification letter sent to Kenneth Kahn. August 28, 2026: certified notification letter providing additional information about project description sent. September 20, 2026 and October 1, 2026: notification emails sent.	See below.	October 16, 2026: Consultation closed.
SYBCI, Nakia Zavalla, Cultural Director and THPO	October 6, 2025: certified notification letter sent to Nakia Zavalla. August 28, 2026: certified notification letter providing additional information about project description sent September 20, 2026 and October 1, 2026: notification emails sent. September 23, 2026: follow up phone call made.	See below.	October 16, 2026: Consultation closed.
SYBCI, Edgar Alvarez, Cultural Resources Manager	October 15, 2026: Notification email sent and follow up phone call made.	Mr. Alvarez forwarded the notification email to Amanda Dobrov.	October 16, 2026: Consultation closed.

Tribe/Contact Name	Contact Dates/Method	Response	Date Consultation Closed
SYBCI, Amanda Dobrov, Cultural Resources Archaeologist	October 16, 2026: copy of the September 20, 2026 notification email was provided and a follow up phone call made.	October 15, 2026: Stated the SYBCI would like to consult on the project and requested additional information. October 16, 2026: Defers to the BBCI, but the SYBCI is available to assist with monitoring if needed. The SYBCI requests a copy of the Inadvertent Discovery Plan and to receive updates regarding the Project and any inadvertent discoveries.	October 16, 2026: Consultation closed.
BVBMI, Matthew Vestuto, Chair	October 6, 2025: certified notification letter sent to Matthew Vestuto. August 28, 2026: certified notification letter providing additional information about project description sent. September 20, 2026 and October 1, 2026: notification emails sent. September 23, 2026: follow up phone call made.	September 23, 2026: Project site is not within their tribal territory and they deferred to the BBCI.	October 1, 2026: Consultation closed.
BBCI, Eleanor Fishburn, Chair	October 6, 2025: certified notification letter sent to Eleanor Fishburn. August 28, 2026: certified notification letter providing additional information about project description sent. September 20, 2026 and October 1, 2026: notification emails sent. September 23, 2026: follow up phone call made.	October 14, 2025: Acknowledgement of receipt. October 14, 2026: Requested a cultural monitor be present during any ground disturbing activities and to be updated with any new or revised plans for the Project.	Consultation is ongoing.

Environmental Determination

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

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

Less than Significant Impact with Mitigation Incorporated. No structures meeting the criteria of a historical resource pursuant to Section 15064.5 are located within or immediately surrounding the proposed Project site. The proposed Project site exists within archaeological re-source, CA-SBA-46, a multicomponent resource with both historic and prehistoric components and the location of the former Barbareño Chumash village Helo'. CA-SBA-46 has been studied by archaeologists at length both prior to and after a large portion of the resource was used to infill the Goleta slough in preparation for the then Navy airport (now Santa Barbara Airport). Despite the disturbance, intact cultural deposits have been identified in the last 80 years. Although not formally listed on either the California Register of Historic Resources or the National Register of Historic Resources, the resource meets the criteria of historically or culturally significant pursuant to PRC Section 5024.1(g).

Previous archaeological testing and excavation efforts have identified intact deposits within the proposed Project's general area. Archaeological testing and excavations conducted in the past 30 years at CA-SBA-46 included a "facility-wide" significance evaluation undertaken in 1985 by SRS. However, the study was limited to the expansion of the GSD WRRF as proposed in the 1980s and did not include the improvement areas proposed for the Western Solar Array and the Canopy Solar Array. The results of the 1985 survey identified the integrity and variability of identified cultural deposits within a large portion of CA-SBA-46 and categorized the variability into five density levels: Level I – 30,140.0 grams per cubic meter; Level II – 1,242.9 grams per cubic me-ter; Level III – 229.3 grams per cubic meter; Level IV – 34.1 grams per cubic meter; and Level V – no A horizon present. Generally, the highest densities of shellfish, animal bone, stone tools, waste flake debitage, and stone tools were found in the southeastern corner of the GSD WRRF and extremely low densities in the western portion of the GSD WRRF. This is consistent with the analysis of available historic aerials that demonstrate removal of the island was most significant in the western portion of Mescalitan Island.

The Project improvement areas are proposed to be located within areas that have been verified as having cultural material present within intact native soils and in areas that have not yet been studied enough to determine the potential of intact cultural deposits to exist. Following is a brief summary of information currently known for each improvement area.

- Construction Staging Area and Western Solar Array
    - In an area not previously tested for intact deposits. However, this area is immediately adjacent to an area confirmed as not possessing intact archaeological deposits. Additionally, analysis of available historic aerials demonstrate removal of the island through grading was most significant in the western portion of Mescalitan Island within which these improvement areas are located.

- Carport Solar Array
    - In an area where approximately 80% has been previously tested. Approximately 30% of the tested area has been determined to have no intact cultural deposits and 70% of the tested area has been determined to have intact deposits at Level III and IV densities as previously defined.
- Northern Directional Boring
    - In an area that has been previously tested. Approximately 60% of the linear boring will traverse an area with no intact cultural deposits and 40% will traverse areas with intact deposits at Level II, III and IV densities as previously defined.
- Southern Directional Boring
    - In an area that has been previously tested. The linear boring will traverse an area with intact deposits at Level II density as previously defined
- Battery Equipment Pad
    - In an area that has been previously tested and determined to have intact cultural deposits with Level II and III densities as previously defined.
- Canopy Solar Array
    - In an area that approximately 60% has not been previously tested for intact deposits and 40% has been previously tested and determined to have intact cultural deposits with Level II and III densities as previously defined.

The locations of proposed directional boreholes and solar arrays were adjusted as much as possible to stay aligned with previously disturbed areas and within deposits of lower density. However, there still remains the possibility of encountering concentrations of cultural remains within areas of high, moderate and low densities, as well as inadvertently encountering isolated artifacts or human remains within previously disturbed soils. In the event that unanticipated archaeological re-sources are encountered during Project implementation, impacts to these resources could be potentially significant.

Based on the proposed ground disturbing activities, the Project has the potential to cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5, as the proposed activities have the potential to materially alter in an adverse manner those physical characteristics of the historical resource that convey its eligibility for inclusion in the California Register of Historical Resources.

The mitigation measures identified have been created to minimize impacts to cultural resources to less than significant. Implementation of MM-CUL-1 would ensure exploratory excavations and, if necessary, data recovery efforts in areas of high to moderate density and variability possessing data potential, capable of providing information about the prehistoric and historic periods in this area; MM-CUL-2 would establish a program of treatment and mitigation in the case of an inadvertent discovery of cultural resources during ground-disturbing phases, which would provide for the proper identification, evaluation, treatment, and protection of any cultural resources throughout the duration of the proposed Project; MM-CUL-3 would ensure the preparation and implementation of a Worker Environmental Awareness Program (WEAP); MM-CUL-4 would ensure that a qualified archaeologist is retained to monitor all initial ground disturbing activities and to respond to any inadvertent discoveries during Project construction; and MM-CUL-5 and MM-CUL-6 would ensure the proper treatment and protection of any inadvertent discovery of cultural resources, including human remains and burial artifacts, and that all construction work occurring within 50 feet of the find shall immediately stop until a qualified archaeologist, meeting

the Secretary of the Interior's Professional Qualification Standards for Archaeology, can evaluate the significance of the find. Thus, potentially significant impacts to archaeological resources would be reduced to less than significant levels with Mitigation Measures MM-CUL-1 through MM-CUL-6 (listed in Section 3.8) incorporated.

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

Less than Significant Impact with Mitigation Incorporated*:* The Project is subject to compliance with AB 52 (PRC Section 21074) that requires consideration of impacts to TCRs as part of the CEQA process and requires lead agencies to provide notification of proposed projects to California Native American tribal representatives that have requested such notifications. As of October 14, 2026, consultation pursuant to AB 52 is ongoing with one of three tribes contacted. As such, TCRs have been preemptively identified within the proposed Project site. Implementation of MM-TCR-1 would ensure involvement of consulting tribe(s) in the WEAP training of all Project personnel to ensure awareness of the appropriate procedures and protocols they must follow in the event of an inadvertent discovery of tribal cultural resources; MM-TCR-2 would ensure that consulting tribe(s) are retained to monitor all initial ground disturbing activities and archaeological excavations; and MM-TCR-3 would ensure the proper treatment and protection of any inadvertent discovery of TCRs. Additionally, implementation of MM-CUL-2 would establish a program of treatment and protection in the case of an inadvertent discovery of human remains throughout the duration of the proposed Project; MM-CUL-3 would ensure the preparation and implementation of a WEAP to ensure all Project personnel are aware of the appropriate procedures and protocols they must follow in the event human remains are inadvertently discovered; MM-CUL-4 would ensure that a qualified archaeologist is retained to monitor all initial ground disturbing activities and to respond to any inadvertent discoveries during Project construction; and MM-CUL-5 and MM-CUL-6 would ensure the proper treatment and protection of any inadvertent discovery of burial artifacts and human remains. Thus, potentially significant impacts to TCRs would be reduced to less than significant levels with MM-TCR-1 through MM-TCR-3 incorporated in concert with the implementation of MM-CUL-1 through MM-CUL-6.

Cumulative Impacts

Cumulative impacts on TCRs consider whether impacts of the proposed Project together with other related projects identified within the vicinity of the Project site, when taken as a whole, substantially diminish the number of TCRs within the same or similar context. Cumulative projects may require extensive excavation in tribally/culturally sensitive areas and thus may result in adverse effects to known or previously unknown inadvertently discovered TCRs. There is the potential for accidental discovery of other TCRs by the proposed Project or by cumulative projects. Because all significant TCRs are unique and non-renewable, all adverse effects or negative impacts contribute to a dwindling resource base. Through implementation of MM-CUL-1 through MM-CUL-6 and MM-TCR-1 through MM-TCR-3, the project-level impact to TCRs would be reduced to less than significant. Other individual projects occurring in the vicinity of the Project

site would also be subject to the same CEQA requirements as the proposed Project, and any impacts to TCRs would be mitigated, as applicable. These determinations would be made on a case-by-case basis, and the effects of cumulative development on TCRs would be mitigated to the extent feasible in accordance with CEQA, AB 52, and other applicable legal requirements. Therefore, impacts on archaeological resources would not be cumulatively considerable with mitigation incorporated (MM-CUL-1 through MM-CUL-6 and MM-TCR-1 through MM-TCR-3).

Mitigation Measures:

MM-TCR-1 **Workers Environmental Awareness Program.** All interested tribes that requested and participated in formal AB 52 consultation shall be notified by the GSD of the time and location of the WEAP training no later than 72 hours prior to its scheduled occurrence. GSD shall provide all interested consulting tribes access and opportunity to participate in the WEAP training.

MM-TCR-2 **Retention of a Native American Monitor.** Prior to any ground-disturbance activities, GSD shall contact any interested tribes with notification of the commencement of ground-disturbing activities, including archaeological excavations. The applicant shall make arrangements with the interested tribe(s) to enter into a Native American Monitoring Agreement with the intent of securing a total of one Native American monitor to be present during initial ground disturbance occurring from 1 foot above native soils and below. Initial ground disturbance is defined as initial construction-related earthmoving of sediments from their place of deposition; this includes archaeological investigations. As it pertains to cultural resource (archaeological or Native American) monitoring, this definition excludes movement of sediments after they have been initially disturbed or displaced by current Project-related construction. The need for cultural resource monitoring (archaeological and Native American) will be determined by a qualified archaeological principal investigator meeting the Secretary of the Interior's Professional Qualification Standards for a Principal Investigator, in consultation with interested tribes who shall oversee and adjust monitoring efforts as needed (increase, decrease, or discontinue monitoring frequency), based on the observed potential for construction activities to encounter cultural deposits or material. More than one monitor may be required if multiple areas within the Project site are simultaneously exposed to initial ground disturbance, as previously defined in these mitigation measures, causing monitoring to be hindered by the distance of the simultaneous activities. The need for an additional monitor shall be determined by the qualified archaeological principal investigator meeting the Secretary of the Interior's Professional Qualification Standards in consultation with interested tribes. The Native American Monitoring Agreement(s) shall include, but not be limited to, outlining provisions and requirements for establishing on-site Native American monitoring for professional tribal monitors during initial ground disturbance, as defined above. If multiple interested tribes request to be present during initial ground-disturbing activities, each interested tribe will be provided access to the Project site when initial ground-disturbing activities are occurring and with a 48-hour notice. However, one interested tribe at a time will be monetarily compensated for monitoring. If more than one interested tribe would like to be retained for

monetary compensation, a schedule will be created to equally share the Native American monitoring duties.

MM-TCR-3 **Inadvertent Discovery of Tribal Cultural Resources.** In the event that TCRs (sites, features, or artifacts) are exposed during ground-disturbing activities for the Project, all construction work occurring within 50 feet of the find should immediately stop until a qualified archaeologist meeting the Secretary of the Interior's Professional Qualification Standards can evaluate the significance of the find, in consultation with interested tribe(s) as appropriate, and determine whether or not additional study is warranted. Depending upon the significance of the find under CEQA [14 CCR Section 15064.5(f); California PRC Section 21082], the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. If the discovery is Native American in nature, consultation with and/or monitoring by a tribal representative may be necessary. If a discovery consists of possible human remains, the Santa Barbara County Coroner shall be contacted immediately, as well as the qualified archaeological Principal Investigator and GSD. If the Coroner determines that the remains are Native American, the Coroner shall contact the California NAHC, who will provide the name and contact information for the MLD. Treatment of the discovery shall be decided in consultation with the MLD provided by the NAHC. Additionally, a tribal representative shall be retained to monitor all further subsurface disturbance in the area of the find. In the event of the discovery of human remains, work in the area of discovery may only proceed after GSD grants authorization.

3.22 Utilities/Service Systems

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

Existing Conditions

The Goleta Water District is responsible for supplying water within the City of Goleta and parts of Santa Barbara County and ensures that the delivered water quality meets applicable California Department of Health Services standards for drinking water. Reclaimed water produced at the GSD WRRF is used for all onsite irrigation and plant processes, and is planned to be used for the fire suppression system of the thermal dryer facility. The proposed Project Site is located in a developed area of unincorporated Santa Barbara County that contains an existing storm water collection and conveyance system. Electricity is provided to the area by Southern California Edison (SCE) and Central Coast Community Energy.

Regulatory Setting

Integrated Solid Waste Management Act of 1989 (Assembly Bill 939)

Pursuant to the California Integrated Solid Waste Management Act of 1989, all jurisdictions in California are required to reduce the amount of solid waste disposed in landfills. AB 939 required a reduction of 25% by 1995 and 50% by 2000. Contracts that include work that will generate solid waste, including construction and demolition debris, have been targeted for participation in source reduction, reuse, and recycling programs. The project proponent is urged to manage solid waste generated by the work to divert waste from disposal in landfills (particularly Class III landfills) and maximize source reduction, reuse, and recycling of construction and demolition debris.

Public Resources Code (PRC) Section 41820.6 through 41822

PRC Sections 41820.5 through 41822 require jurisdictions to submit a report to the California Department of Resources Recycling and Recovery (CalRecycle) summarizing their progress in solid waste reduction. The report must contain calculations of annual disposal reduction, a summary of progress made in implementing the source reduction, a recycling element, and a household hazardous waste element, as well as other information relevant to waste reduction and diversion.

Senate Bill 1383

SB 1383 establishes targets to achieve a 50% reduction in the level of the Statewide disposal of organic waste by 2020 and a 75% reduction by 2025. The law provides CalRecycle the regulatory authority required to achieve the organic waste disposal reduction targets and also establishes an additional target of no less than 20% of edible food that is currently disposed of to be recovered for human consumption by 2025.

Assembly Bill 341

In 2011, the State passed AB 341 which established a policy goal that a minimum of 75% of solid waste must be reduced, recycled or composed by the year 2020. To achieve strategies set to reach the 75% goal, the State recommended mandatory organic recycling and solid waste facility inspections, in addition to expanding CALGreen standards to increase diversion of recoverable construction and demolition materials. Current standards require 65% waste diversion on most construction renovation projects.

SB County Ordinance 4689, Section 1

The Santa Barbara County Environmental Health Services Department is the Local Enforcement Agency for CalRecycle. Santa Barbara County Code of Ordinances Chapter 17 Section 23 dictates that in order to maintain compliance with AB 939 (The Integrated Waste Management Act), the county requires fifty percent of all construction and demolition waste to be recycled.

Environmental Determination

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment of storm water drainage, electric power, natural gas, or

telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less Than Significant Impact. The proposed Project does not involve the relocation of the existing WRRF or the creation of a new WRRF. The proposed Project does not change the impervious surface area of the WRRF and would not require additional or relocated storm water drainage infrastructure. The proposed Project does not impact telecommunications facilities or natural gas facilities.

The proposed Project will generate approximately 807 kW for the WRRF, lessening its dependency on the local electrical grid. However, the WRRF will remain tied into the local electrical utilities in order to maintain facility functions. Impacts to the electrical utility system are minimal and will not require significant relocation of, or creation of, new electrical utilities. Electrical routing for the proposed Project will utilize existing duct bank routing within the WRRF. Therefore, potential impacts of the proposed Project on wastewater and water treatment facilities would be less than significant.

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

No Impact. The proposed Project has no impact on water supplies and would not require additional potable water to the WRFFF. Existing water distribution infrastructure would not change as a result of the proposed Project. Moreover, GSD will comply with local, regional and State water conservation policies as well as standard construction BMPs to reduce water construction.

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

No Impact. As the proposed Project includes the implementation of a solar microgrid system within the GSD WRRF, the Project is not expected to have any impact on the volume of water received by GSD, nor would it affect the capacity of the GSD facility. There are no impacts on the wastewater treatment provider in terms of water treatment demand.

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

Less Than Significant Impact with Mitigation Incorporated. Local ordinances require that at least 50% of construction debris be diverted from landfills, and State law requires that 65% of construction debris be diverted from landfills. The Santa Barbara County Environmental Thresholds and Guidelines Manual indicates that more than 350 tons of construction-related solid waste could be considered significant. As anticipated proposed Project demolition is limited to the partial removal of a wall for the addition of a new door and pedestrian walkway for the Power and Maintenance Building, an approximate 4 cubic yards of concrete and asphalt debris is estimated to be hauled off-site as part of normal trash removal. This is substantially less than the construction solid waste threshold of 350 tons per year established by the Santa Barbara County Environmental Thresholds and Guidelines Manual. Regardless, MM-UTIL-1 requires GSD to

ensure that the construction contractor does not dispose of greater than 350 tons of solid waste in any California landfill. Thus, impacts would be less than significant with implementation of MM-UTIL-1.

e) Comply with federal, state, and local management and reduction statues and regulations related to solid waste?

Less Than Significant with Mitigation Incorporated. Proposed Project operations are not anticipated to increase solid waste generated at GSD WRRF that would result in noncompliance with federal, state, and local management and reduction states and regulations. Moreover, MM-UTIL-1 requires GSD to ensure that the construction contractor does not dispose of greater than 350 tons of solid waste in any California landfill. Thus, impacts would be less than significant with implementation of MM-UTIL-1.

Mitigation Measures:

MM-UTIL-1 **Solid Waste Diversion from Landfill.** GSD will ensure that the construction contractor does not dispose of greater than 350 tons of solid waste in any California landfill. The contractor may exceed 350 tons only if they receive written permission from a landfill (for example, if the landfill want soil for barrier layers, or if they complete a solid waste mitigation plan that is approved by the Santa Barbara County Public Works Department (or another regional agency, if authorized to do so). Since this is a requirement placed on the construction contractor, GSD will enforce this through a contract mechanism or other legally binding requirement.

Requirements and Timing

Construction contractor shall not dispose of greater than 350 tons of solid waste in any California landfill throughout construction duration. Written permission from a landfill is required for exceedances greater than 350 tons.

Monitoring

No monitoring requirements.

3.23 Wildfire

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

Existing Conditions

The proposed Project Site is located within the existing GSD WRRF, which is fully developed with structures and operational equipment and contains concrete, asphalt, and grassy areas. The Project Site is within the Santa Barbara County Fire Protection District (SBCoFD), with the closest Fire Stations being STB 8 and SBC 17, located approximately 1.8 miles north and west of the proposed Project Site, respectively.

The proposed Project Site is located within a Local Responsibility Area (LRA), which indicates that fire protection is provided by city fire departments, fire protection districts, counties, and the California Department of Forestry and Fire Protection (Cal Fire), assuming it is contracted to the local government. The proposed Project Site is not located within any fire hazard severity zones.

Regulatory Setting

Santa Barbara County Comprehensive Plan – Seismic Safety & Safety Element

The Seismic Safety & Safety Element of the Santa Barbara County Comprehensive Plan dictates that SBCoFD maintains a protocol for evaluating the adequacy of fire level service to population ratios, response times, equipment condition levels, emergency service training and other relevant emergency information consisting with State standards.

SBCoFD also maintains a protocol for wildfire defense zones for emergency services, which include fuel breaks, backfire areas, and staging areas that support safe fire suppression activities.

Moreover, the SBCoFD is responsible for maintaining and updating the Santa Barbara County Unit Strategic Fire Plan (USFP), which fulfills State requirements of a Unit Fire Management Plan for entities that act as an agent to Cal Fire. The USFP fulfills regulatory compliance of the 2003 Healthy Forests Restoration Act.

Eastern Goleta Valley Community Plan

The Eastern Goleta Valley Community Plan contains the following objectives and policies to support fire protection and emergency response services for the community.

Objective FIRE-EGV-1: Minimize the potential hazard to human and animal life, property, and the ecosystem of Eastern Goleta Valley due to fire.

> Policy FIRE-EGV-1.1: The County shall support and pursue collaborative fuel management and wildfire protection programs for the City of Santa Barbara, the City of Goleta, and Eastern Goleta Valley to encourage fire hazard reduction and protection of natural resources.

Environmental Determination

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact. The proposed Project does not require alterations to roads or throughways, nor does it include equipment or systems that would impair the effectiveness of GSD's emergency response plan. The Eos Z3 battery unit would comply with the state and local permitting requirements to ensure site suitability for potential fire risk and include sensors and monitoring to detect any operational issues that could lead to a fire. Moreover, the battery unit is tested to UL 9540A[4] requirements and incorporates active safety systems to ensure safe operating technology.

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?

[4] UL 9540A, the Standard for Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems, is the American and Canadian national standard for assessing fire propagation related to thermal runaway events in battery energy storage systems (BESS).

No Impact. The proposed Project site is not located within a CalFire designated moderate, high, or very high wildfire hazard severity zone. The site is highly developed, with minimal vegetation, and is adjacent to the paved runways of the Santa Barbara Municipal Airport. As such, the proposed Project would not contribute to the potential for uncontrolled spread of wildfire.

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

No Impact. The proposed Project site is not located within a CalFire designated moderate, high, or very high wildfire hazard severity zone. The GSD WRRF has the required facilities and plans in place related to health and safety precautions for emergencies and fire. Moreover, additional electrical utilities associated with the proposed Project will utilize existing underground routing. No further infrastructure is required to mitigate risk from wildfires.

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

No Impact. The proposed Project site is in a nearly flat coastal zone with a minimal risk of flooding or slope instability (see Section 3.4. VII). The GSD WRRF contains large ponds and is not expected to expose workers or the public to flooding or landslide risks that might result in the event of a wildfire.

Mitigation Measures:

None.

3.24 Mandatory Findings of Significance

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

Environmental Determination

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

Less Than Significant with Mitigation Incorporated. As discussed in the sections presented in this document, potentially significant impacts as a result of the proposed Project were determined to be towards biological, cultural, geological/paleontological and tribal resources. All other impacts analyzed are considered to be less than significant or of no impact. With mitigation

incorporated, the proposed Project is not expected to have a significant effect on the environment, habitats, populations, animal ranges, or planta or animal communities, or eliminate examples of periods of history. The mitigation measures that ensure this are MM-BIO-1, MM-BIO-2, MM-CUL-1, MM-CUL-2, MM-CUL-3, MM-CUL-4, MM-CUL-5, and MM-UTIL-1.

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

Less Than Significant with Mitigation Incorporated. Cumulative impacts are discussed for those topics where there is potential for the proposed Project to cause significant impacts. The surrounding areas (Santa Barbara Municipal Airport) and jurisdictions (City of Goleta, County of Santa Barbara) were reviewed for potential related projects. The surrounding airport, natural areas and CA-217 limit much potential development and related projects from overlapping with the Energy Storage Project. The Santa Barbara Municipal Airport is initiating a Terminal Improvement Project with construction expected in 2027, which is after the expected completion of the GSD Energy Storage Project. The GSD Solids Handling Improvement Project (SHIP) is expected to undergo construction in 2027-2029, which is after the expected completion of the GSD Energy Storage Project. The analyses conducted herein and in the separate SHIP MND conclude that impacts would be less than significant and not cumulatively considerable.

Given the nature of the solar array and battery project, construction and operation would be minimal. The GSD Energy Storage Project and SHIP projects would occur entirely within GSD's property. The solar array would have minor ground disturbance and result in a low-profile visual change that would not be visible from public access areas due to distance, topography, existing landscape, and the fence along GSD's property. The solar array construction process is short-term and likely scheduled outside peak phases of any other project. Noise limits and dust control regulations would apply to all projects. The nearest residential sensitive receptors are over 1,500 feet away, a distance that attenuates noise and vibration. The solar array does not create shared impact pathways such as operational vehicle trips or utilities generation (wastewater and solid waste). As stated in SBCAPCD's Environmental Review Guidelines (2015), "a project's potential contribution to cumulative impacts is assessed using the same significance criteria as those for project specific impacts". Since the impacts are considered "less than significant" in all other categories, the cumulative impacts are therefore considered less than significant.

With mitigation measures listed in Section 4, the potential for cumulative impacts from construction and operation of the Project is considered less than significant.

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

Less Than Significant Impact. The risk of substantial adverse effects on human beings is considered to be less than significant, as significant impact areas including air quality and health risk, GHG emissions, hazardous material, noise, and wildfire were determined to be less than significant.

4 MITIGATION MEASURES

The required mitigation measures are outlined below. A Mitigation Monitoring and Reporting Program (MMRP) is included in Appendix G.

MM-BIO-1 **Pre-construction Nesting Bird Surveys.** If project activities are proposed during the general avian breeding season of January 15th to September 15th, the Project biologist shall conduct a pre-construction survey for active nests within 500 feet of the construction area and submit a letter report to the County of Santa Barbara prior to the pre-construction meeting. If active nests are detected, clearing and construction within a minimum of 300 feet shall be postponed until the nest(s) is vacated, juveniles have fledged, and there is no evidence of a second attempt at nesting. If an active raptor or rare, threatened, endangered, or SSC bird nest is found, clearing and construction within a minimum of 500 feet shall be postponed until the nest(s) is vacated, juveniles have fledged, and there is no evidence of a second attempt at nesting. The report submitted to the County shall include mitigation measures including, but not limited to, (1) worker environmental awareness training, (2) daily biological monitoring during construction activities, and (3) the locations of flags and/or stakes to provide the appropriate avoidance buffers. If no nesting birds are detected during the pre-construction survey, no mitigation is required.

The Project biologist shall continue to perform site surveys during all construction activities to detect any nesting birds that may nest on the Project site after the pre-construction survey. Pre-construction clearance surveys shall be completed as required to comply with the federal Endangered Species Act, Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, California Fish and Game Code, and/or County regulations. If the biological monitor determines that Project activities are disturbing or disrupting nesting activities, the monitor will make recommendations to County staff to reduce the noise or disturbance in the vicinity. This may include recommendations such as (1) turning off vehicle engines and other equipment whenever possible to reduce noise, (2) working in other areas until the young have fledged, and (3) stopping work until young are independent of their nests (Development Standard ECO-EGV-2C in County of Santa Barbara 2021).

Requirements and Timing. Pre-construction nesting bird surveys shall be completed prior to any vegetation clearing or ground disturbance associated with construction or grading during the bird nesting season (January 15th to September 15th). The survey should be conducted within 1 week prior to construction or site preparation activities that would occur during the nesting/breeding season of native bird species potentially nesting on the site.

Monitoring. GSD shall ensure the pre-construction nesting bird surveys, and any avoidance requirements, are completed prior to commencement of any earthmoving activities. The results of the pre-construction nesting bird survey will be submitted to the County prior to the pre-

construction meeting to document compliance with applicable State and federal laws pertaining to the protection of native birds.

Potential indirect impacts could occur as a result of construction site runoff. These impacts may include accidental pollutant/chemical spills or discharge of materials from the use of concrete, oil/gas, water runoff, or on-site fueling stations. To minimize potential impacts to adjacent sensitive habitat and potential jurisdictional features, the following measure is recommended.

MM-BIO-2 **Erosion and Sediment Control Plan (ESCP).** Due to the Project impact of less than 1 acre, the Applicant shall prepare an ESCP to minimize the potential for discharge of pollutants during construction activities. The ESCP shall be designed to minimize erosion during construction, and it shall be implemented for the duration of the grading period and until re-graded areas have been stabilized by structures, long-term erosion control measures, or permanent landscaping. The ESCP shall include both structural and non-structural BMPs, including straw wattles around storm drains, silt fencing, and/or other physical controls to divert flows from exposed soil, spill prevention methods, and clean housekeeping methods for storing and refueling machinery. The ESCP shall use BMPs designed to stabilize the site, protect natural watercourses/creeks, prevent erosion, and convey storm water runoff to existing drainage systems, keeping contaminants and sediments on-site.

As part of the ESCP, the contractor shall include specifications, installation requirements, and locations of appropriate BMPs to control sediment, coarse particles, concrete, and other materials exposed during construction. During construction activities, washing of concrete or equipment shall occur only in areas where polluted water and materials can be contained for subsequent removal from the site. Washing will not be allowed in locations where the tainted water could enter storm drains.

There is a storm water conveyance swale located in the grassy field, south of the staging area. A 50-foot buffer is required from this feature. The southern boundary of the staging area will need appropriate BMPs, such as a silt fence, to protect storm water.

Requirements and Timing. The ESCP shall be submitted and approved prior to any ground disturbance. A County-approved ESCP is required in order to be issued a Grading Permit. ESCPs shall be developed by a professional knowledgeable in erosion and sediment control. It is recommended that a Certified Professional in Sediment and Erosion Control develop the ESCP. The responsible party shall designate an individual to be responsible for on-site installation, maintenance, and removal of ESCP measures. The ESCP requirements shall be implemented between November 1st and April 15th of each year, except pollution control measures, which shall be implemented year-round.

Monitoring. The contractor shall inspect BMPs regularly and prior to storm events. The contractor shall maintain BMPs in good condition at all times, and monitor the site's storm water measures,

prior to the start of construction, as well as throughout the duration of construction, to ensure they continue to function properly

MM-CUL-1 **Data Recovery.** Based on the determination that, despite efforts to avoid significant intact cultural deposits, the Proposed Project has the potential to impact cultural deposits of moderate and high density, the Project therefore has the potential to adversely affect a unique archeological resource and a historical resource pursuant to §15064.5. As such, pursuant to the California Environmental Quality Act (CEQA), data recovery is required to be implemented according to following tasks:

A qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, shall be retained to develop a data recovery program and research design prior to the data recovery efforts, and they shall make provision for adequately recovering the scientifically consequential information from, and about, the resource; this shall be prepared and adopted prior to any excavation being undertaken (CEQA Guidelines Section 15126.4(b)(3)(A)). As such, the data recovery plan shall include specific levels of effort and methods to obtain a statistically representative sample of significant archaeological deposits, as well as field and laboratory requirements, to ensure proper treatment of all materials, including documentation of results and curation of the archaeological collection. This plan shall be submitted to the District for review prior to implementation. Specifically, the data recovery plan shall, at the least, include the standards, guidelines, and performance criteria to ensure that the data recovery mitigation will be effective in "adequately recovering the scientifically consequential information from and about the historical resource" as stated in CEQA Guidelines Section 15126.4(b)(3)(C). The following are basic criteria, based on the California Office of Historic Preservation (OHP) Guidelines for Archaeological Research Designs (OHP 1991) from which a more detailed and comprehensive data recovery plan shall be formulated:

Professional Qualifications. The data recovery plan shall be designed by a qualified archaeologist meeting the Secretary of Interior's Professional Qualifications for archaeology, including at least 6 years documented supervisory experience in the study of prehistoric archaeological resources of the region.

Research Design. The research design shall be developed to satisfy the requirement for public benefit that can be derived from the data recovery efforts. The design shall focus research on one or more important hypotheses that have been carefully constructed to address current data gaps, new models, theories, investigative and conservation techniques, as well as priority research areas identified by state or federal agencies (OHP 1991; National Park Service 2020). The design shall have the following requirements for its goals, pursuant to OHP guidelines: focus on important goals; be realistic and attainable; establish efficient methods to accomplish the goals; understandable; provide a thorough and well-organized argument; and concise and flexible.

Fieldwork, Laboratory, and Curation Methods. The data recovery field methods shall be designed to recover the entire portion of the cultural resource (sandstone-lined well) that will be impacted as a result of the ground disturbance, plus a statistically significant assemblage of any surrounding resource deposit, sufficient to answer the research questions determined in the data recovery research design, that the site is potentially capable of addressing.

Report Elements. The data recovery efforts shall be thoroughly documented in a comprehensive report, including the following core elements: theoretical orientation; cultural context; definition of the formulated hypotheses presented in the original research design; all field, laboratory, and curation methods; results of research; and implications of the results, in light of current understanding, and its potential to contribute to future research and understanding. The qualified archaeologist shall provide an data recovery report to the District and the Southern San Joaquin Valley Information Center (SJVIC).

Requirements and Timing

Data recovery shall be completed prior to ground disturbance ground disturbance associated with grading or construction for the Project.

Monitoring

GSD shall ensure submittal of the Data Recovery Research Design and Work Plan prior to implementation of the data recovery excavation; that the data recovery excavation will be completed prior to any ground disturbance associated with Project implementation; and that the Final Data Recovery Report will be submitted to the District prior to completion of the Project.

MM-CUL-2 **Cultural Resource Inadvertent Discovery Plan.** Impacts to cultural resources should be minimized through implementation of pre- and post- construction tasks. Tasks pertaining to cultural resources include the development of a cultural resource inadvertent discovery plan (Plan). The purpose of the Plan is to outline a program of treatment and mitigation in the case of an inadvertent discovery of cultural resources during ground-disturbing phases and to provide for the proper identification, evaluation, treatment, and protection of any cultural resources in accordance with CEQA throughout the duration of the Project. This Plan should be created by a qualified archaeologist and define the process to be followed for the identification and management of cultural resources in the Project's ground disturbance areas during construction. Existence of and importance of adherence to this Plan should be stated on all Project construction plans intended for use by those conducting the ground disturbing activities. Prior to the development of the Plan, a qualified archaeologist should review all plans and any updated project descriptions to determine if/when proposed depths of disturbance will impact intact native soils and subsequently prescribe an appropriate monitoring plan.

Requirements and Timing

Cultural Resource Inadvertent Discovery Plan shall be completed prior to ground disturbance ground disturbance associated with grading or construction for the Project.

Monitoring

GSD shall ensure submittal of the Cultural Resource Inadvertent Discovery Plan (Plan) prior to ground disturbance associated with grading or construction for the Project and that all contractors associated with ground disturbance associated with grading or construction for the Project will be provided a copy and understand the importance of following the Plan.

MM-CUL-3 **Workers Environmental Awareness Program (WEAP) Training.** All construction personnel should be briefed regarding the general archaeological sensitivity of the Project site and the potential for the occurrence of inadvertent discoveries of cultural resources prior to the start of ground disturbing activities. A basic presentation shall be prepared and presented by a qualified archaeologist to inform all personnel working on the Project about the archaeological sensitivity of the area. The purpose of the WEAP training is to provide specific details on the kinds of cultural resource materials that may be identified during construction of the Project and explain the importance of and legal basis for the protection of significant cultural resources. Each worker should also be instructed on the proper procedures to follow in the event that cultural and/or tribal cultural resources and/or human remains are encountered during ground-disturbing activities. These procedures include the potential for work curtailment or redirection, and the immediate contact of the on-call qualified archaeologist and if appropriate, Tribal representative. Necessity of training attendance should be stated on all Project site plans intended for use by those conducting the ground disturbing activities.

Requirements and Timing

Workers Environmental Awareness Program Training shall be completed prior to ground disturbance associated with grading or construction for the Project. All construction personnel associated with ground disturbing activities shall be trained consistent with the Workers Environmental Awareness Program.

Monitoring

GSD shall ensure all contractors associated with ground disturbance associated with grading or construction for the Project will shall be trained consistent with the Workers Environmental Awareness Program.

MM-CUL-4 **Archaeological Monitoring.** A qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, shall oversee monitoring of all initial (first movement of soils within each ground disturbance location at complete horizontal and vertical extents) ground disturbances within the proposed Project improvement areas. A qualified archaeologist, meeting the Secretary of the

Interior's Professional Qualification Standards for a Principal Investigator, shall oversee and adjust monitoring efforts as needed (increase, decrease, or discontinue spot monitoring frequency), based on the observed potential for construction activities to encounter cultural deposits. The archaeological monitor shall be responsible for maintaining monitoring logs. Following the completion of construction, the qualified archaeologist shall provide an archaeological monitoring report to the District and the Southern San Joaquin Valley Information Center (SJVIC) with the results of the cultural monitoring program.

Requirements and Timing

Archaeological monitoring shall be conducted during ground disturbance activities associated with grading or construction for the Project and in accordance with the Cultural Resource Inadvertent Discovery Plan.

Monitoring

GSD shall ensure all contractors associated with ground disturbance associated with grading or construction for the Project communicate the construction schedule to the archaeological principal investigator, or their representative, to support implementation of archaeological monitoring in accordance with the Cultural Resource Inadvertent Discovery Plan.

MM-CUL-5 Inadvertent Discovery of Archaeological Resources. In the event that cultural resources (sites, features, or artifacts) are exposed during ground disturbing activities for the Project, all construction work occurring within 50 feet of the find should immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find under the California Environmental Quality Act (14 CCR 15064.5(f); California PRC Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. If the discovery is Native American in nature, consultation with and/or monitoring by a Tribal representative may be necessary.

Requirements and Timing

In the event there is an inadvertent Discovery of Archaeological Resources, the Cultural Resource Inadvertent Discovery Plan shall be followed by all contractors associated with ground disturbance associated with grading or construction for the Project

Monitoring

GSD shall ensure all contractors associated with ground disturbance associated with grading or construction adhere to the Cultural Resource Inadvertent Discovery Plan regarding the proper response to an inadvertent Discovery of Archaeological Resources.

MM-CUL-6 **Inadvertent Discovery of Human Remains.** If an inadvertent discovery of human remains or possible human remains occurs, the following procedures as set forth in the CEQA Guidelines Section 15064.5(e), the California Public Resources Code Section 5097.98, and the California Health and Safety Code Section 7050.5 shall be undertaken: 1) work at the location of discovery and surrounding vicinity (no less than 100 feet) shall halt immediately; 2) the Santa Barbara County Coroner shall be contacted immediately as well as a qualified archaeologist and the appropriate County staff; 3) the County coroner and qualified archaeologist shall determine the need for a field examination to determine the provenience and nature of the remains as well as the potential for additional remains to be present within the project site; 4) if the Coroner determines that the remains are Native American, the Coroner shall contact the California Native American Heritage Commission (NAHC) who will provide the name and contact information for the Most Likely Descendent (MLD) and consultation regarding treatment of the human remains shall occur between the MLD and the property owner; 5) in the event, the human remains are not Native American, the County coroner shall consult with the property owner regarding treatment; 6) a qualified archaeologist shall be retained to monitor all further subsurface disturbance in the area of the discovered human remains and if the remains are Native American, a tribal representative shall also be retained to monitor; 7) work in the vicinity of the discovery shall only proceed after the appropriate County staff grants authorization.

Requirements and Timing

In the event there is an inadvertent Discovery of Archaeological Resources, the Cultural Resource Inadvertent Discovery Plan shall be followed by all contractors associated with ground disturbance associated with grading or construction for the Project

Monitoring

GSD shall ensure all contractors associated with ground disturbance associated with grading or construction adhere to the Cultural Resource Inadvertent Discovery Plan regarding the proper response to an inadvertent Discovery of Archaeological Resources.

MM-GEO-1 **Paleontological Resources Impact Mitigation Program and Paleontological Monitoring.** Prior to commencement of any grading activity on-site, the applicant shall retain a qualified paleontologist, per the SVP (2010) guidelines. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the proposed Project. The PRIMP shall be consistent with the SVP (2010) guidelines and outline requirements for worker environmental awareness training and in what areas paleontological monitoring will occur based

on construction plans and/or geotechnical reports. The Plan will also include procedures and protocols for the implementation of paleontological monitoring, assessment and treatment of discovered resources, and the methods (including sediment sampling for microinvertebrate and microvertebrate fossils) for recovery/salvage, reporting, and collections management.

The qualified paleontologist, or their representative, shall conduct a WEAP training, and a qualified paleontological monitor shall be on-site during initial rough grading and other significant ground-disturbing activities (including augering) that occur within previously undisturbed, early Pleistocene to late Pliocene unnamed marine sedimentary units. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the ground disturbance will be temporarily halted and/or diverted to allow, as appropriate, for the assessment and recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once assessment, documentation and/or collection of the find is completed, ground disturbance will be allowed to continue in the area of the discovery. Authorization to continue ground disturbance within the area of discovery will be provided by the qualified paleontologist, or their representative, only.

Requirements and Timing

Paleontological Resources Impact Mitigation Program (PRIMP) shall be completed prior to ground disturbance ground disturbance associated with grading or construction for the Project. Paleontological monitoring shall be conducted during ground disturbance activities associated with grading or construction for the Project and in accordance with the PRIMP.

Monitoring

GSD shall ensure submittal of the PRIMP prior to ground disturbance associated with grading or construction for the Project and that all contractors associated with ground disturbance associated with grading or construction for the Project will be provided a copy and understand the importance of following the PRIMP.

GSD shall ensure all contractors associated with ground disturbance associated with grading or construction for the Project communicate the construction schedule to the paleontological principal investigator, or their representative, to support implementation of paleontological monitoring in accordance with the PRIMP.

MM-TCR-1 **Workers Environmental Awareness Program.** All interested tribes that requested and participated in formal AB 52 consultation shall be notified by the GSD of the time and location of the WEAP training no later than 72 hours prior to its scheduled occurrence. GSD shall provide all interested consulting tribes access and opportunity to participate in the WEAP training.

MM-TCR-2 **Retention of a Native American Monitor.** Prior to any ground-disturbance activities, GSD shall contact any interested tribes with notification of the commencement of ground-disturbing activities, including archaeological

excavations. The applicant shall make arrangements with the interested tribe(s) to enter into a Native American Monitoring Agreement with the intent of securing a total of one Native American monitor to be present during initial ground disturbance occurring from 1 foot above native soils and below. Initial ground disturbance is defined as initial construction-related earthmoving of sediments from their place of deposition; this includes archaeological investigations. As it pertains to cultural resource (archaeological or Native American) monitoring, this definition excludes movement of sediments after they have been initially disturbed or displaced by current Project-related construction. The need for cultural resource monitoring (archaeological and Native American) will be determined by a qualified archaeological principal investigator meeting the Secretary of the Interior's Professional Qualification Standards for a Principal Investigator, in consultation with interested tribes who shall oversee and adjust monitoring efforts as needed (increase, decrease, or discontinue monitoring frequency), based on the observed potential for construction activities to encounter cultural deposits or material. More than one monitor may be required if multiple areas within the Project site are simultaneously exposed to initial ground disturbance, as previously defined in these mitigation measures, causing monitoring to be hindered by the distance of the simultaneous activities. The need for an additional monitor shall be determined by the qualified archaeological principal investigator meeting the Secretary of the Interior's Professional Qualification Standards in consultation with interested tribes. The Native American Monitoring Agreement(s) shall include, but not be limited to, outlining provisions and requirements for establishing on-site Native American monitoring for professional tribal monitors during initial ground disturbance, as defined above. If multiple interested tribes request to be present during initial ground-disturbing activities, each interested tribe will be provided access to the Project site when initial ground-disturbing activities are occurring and with a 48-hour notice. However, one interested tribe at a time will be monetarily compensated for monitoring. If more than one interested tribe would like to be retained for monetary compensation, a schedule will be created to equally share the Native American monitoring duties.

MM-TCR-3 **Inadvertent Discovery of Tribal Cultural Resources.** In the event that TCRs (sites, features, or artifacts) are exposed during ground-disturbing activities for the Project, all construction work occurring within 50 feet of the find should immediately stop until a qualified archaeologist meeting the Secretary of the Interior's Professional Qualification Standards can evaluate the significance of the find, in consultation with interested tribe(s) as appropriate, and determine whether or not additional study is warranted. Depending upon the significance of the find under CEQA [14 CCR Section 15064.5(f); California PRC Section 21082], the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. If the discovery is Native American in nature, consultation with and/or monitoring by a tribal representative may be necessary. If a discovery consists of possible human remains, the Santa Barbara County Coroner shall be contacted immediately, as well as the qualified archaeological Principal Investigator and GSD. If the Coroner

determines that the remains are Native American, the Coroner shall contact the California NAHC, who will provide the name and contact information for the MLD. Treatment of the discovery shall be decided in consultation with the MLD provided by the NAHC. Additionally, a tribal representative shall be retained to monitor all further subsurface disturbance in the area of the find. In the event of the discovery of human remains, work in the area of discovery may only proceed after GSD grants authorization.

MM-UTIL-1 **Solid Waste Diversion from Landfill.** GSD will ensure that the construction contractor does not dispose of greater than 350 tons of solid waste in any California landfill. The contractor may exceed 350 tons only if they receive written permission from a landfill (for example, if the landfill want soil for barrier layers, or if they complete a solid waste mitigation plan that is approved by the Santa Barbara County Public Works Department (or another regional agency, if authorized to do so). Since this is a requirement placed on the construction contractor, GSD will enforce this through a contract mechanism or other legally binding requirement.

Requirements and Timing

Construction contractor shall not dispose of greater than 350 tons of solid waste in any California landfill throughout construction duration. Written permission from a landfill is required for exceedances greater than 350 tons.

Monitoring

No monitoring requirements.

5 REFERENCES AND PREPARERS

5.1 References

Association of Environmental Professionals (AEP). 2025. California Environmental Quality Act (CEQA) Statute and Guidelines.

Bolton, Herbert Eugene. 1927. Fray Juan Crespi: missionary explorer on the Pacific coast, 1769-1774. Berkeley: University of California Press.

Blount, Clinton, and Thomas S. Garlinghouse. 2014. Napamu': a sacred place study for the Alisal Ranch Reservoir Project EIR. Prepared for the Santa Barbara County Planning & Development Department, Santa Maria, CA, by Albion Environmental, Inc., Santa Cruz, CA, May 2014.

Brown, Alan K. 1967. The aboriginal population of the Santa Barbara channel. Archaeological Survey Report, No. 69. Berkeley: University of California Archaeological Research Facility.

California Air Pollution Control Officers Association (CAPCOA). 2021. *California Emissions Estimator Model (CalEEMod)*. https://www.caleemod.com/. Accessed November 2025.

California Air Pollution Control Officers Association (CAPCOA). 2021. *CalEEMod User Guide*. https://www.caleemod.com/documents/user-guide/01_User%20Guide.pdf. Accessed November 2025

California Department of Conservation (CDOC). 2025. California Important Farmland Finder. https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed October 2025.

CDOC. 2009. Santa Barbara County Tsunami Inundation Maps. Goleta Quadrangle map. https://www.conservation.ca.gov/cgs/Documents/Publications/Tsunami-Maps/Tsunami_Inundation_Goleta_Quad_SantaBarbara.pdf. Accessed October 2025.

California Department of Toxic Substances Control (DTSC). 2025. EnviroStor Database. https://www.envirostor.dtsc.ca.gov/public/. Accessed October 2025.

California Department of Transportation. 2018. Statewide Scenic Highway GIS Map. https://experience.arcgis.com/experience/47e2009986264718a5a13a2c81382774. Accessed October 2025.

California Department of Water Resources (DWR). 2004. Goleta Groundwater Basin. California's Groundwater Bulletin 118. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/3_016_Goleta.pdf. Accessed October 2025.

California DWR. 2024. SGMA Basin Prioritization Dashboard. https://gis.water.ca.gov/app/bp-dashboard/final/. Accessed October 2025.

California Geologic Energy Management Division (CalGEM). 2025. Well Finder, CalGEM GIS. https://maps.conservation.ca.gov/doggr/wellfinder. Accessed October 2025.

California State Water Resources Control Board (SWRCB). 2025. GeoTracker Database. https://geotracker.waterboards.ca.gov/. Accessed October 2025.

California State Water Resources Control Board (SWRCB). 2021. State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/2021/procedures.pdf. Accessed November 2025.

CDFW (California Department of Fish and Wildlife). 2025a. List of Vegetation Alliances and Associations (Natural and Sensitive Communities Lists). https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities. Accessed November 2025.

CDFW. 2025b. Special Vascular Plants, Bryophytes and Lichens List. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline. Accessed November 2025

CDFW. 2025c. Rarefind 5: Commercial version. Online database. California Natural Diversity Database. CDFW, Biogeographic Data Branch. https://wildlife.ca.gov/Data/CNDDB. Accessed November 2025.

City of Goleta. 2025. About Goleta. https://www.cityofgoleta.org/play/about-goleta. Accessed October 2025.

City of Goleta. 2016. General Plan/Coastal Land Use Plan, Fire, Flood, and Tsunami Hazards Map. https://www.cityofgoleta.org/home/showpublisheddocument/32159/638917080808570000. Accessed October 2025.

City of Goleta. 2025. Major Development Projects. https://www.cityofgoleta.org/your-city/planning-and-environmental-review/major-development-projects. Accessed November 2025.

CNPS (California Native Plant Society). 2025a. California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). http://www.rareplants.cnps.org. Accessed November 2025.

CNPS. (California Native Plant Society). 2025b. A Manual of California Vegetation, Online Edition. http://www.cnps.org/cnps/vegetation/. California Native Plant Society, Sacramento, CA. Accessed November 2025.

Coues, Elliot. 1900. On the trail of a Spanish pioneer: the diary and itinerary of Francisco Garcés (missionary priest) in his travels through Sonora, Arizona, and California. New York: Francis P. Harper.

Dartnell, P., J.E. Conrad, R.G. Stanley, and G.R. Cochrane. 2011. Onshore and Offshore Geological Map Coal Oil Point Area, Southern California. U.S. Geological Survey, Scientific Investigations Map SIM- 3124, 1;24,000.

Earth Systems Pacific. 2009. Fault Investigation Report, Goleta Sanitary District, Wastewater Treatment Plant Upgrade, Goleta Area of Santa Barbara County, California.

Federal Emergency Management Agency (FEMA). 2018. National Flood Insurance Program, Flood Insurance Rate Map, Santa Barbara County, California and Incorporated Areas. Panel 1362 of 1835, Map Number 06083C1362H. https://msc.fema.gov/portal/search#searchresultsanchor. Accessed October 2025.

Gamble, Lynn H. 2008. The Chumash world at European contact: power, trade, and feasting among complex hunter-gatherers. Berkeley: University of California Press.

Geiger, Maynard. 1969. Franciscan missionaries in Hispanic California: 1769-1848. San Marino, CA: The Huntington Library. Washington D.C.: Smithsonian Institution. p 290-324.

Geiger, Maynard, and Clement W. Meighan. 1976. As the padres saw them: California Indian life and customs as reported by the Franciscan Missionaries 1813-1815. Santa Barbara: Santa Barbara Mission Archive Library.

Gelles, Paul H. 2013. Chumash renaissance: Indian casinos, education, and cultural politics in rural California. Santa Barbara, CA: Solitude Canyon Press.

Gill, Kristina M., Mikael Fauvelle, and Jon M. Erlandson, eds. 2019. *An archaeology of abundance: reevaluating the marginality of California's islands*, *Society and ecology in island and coastal archaeology*. Gainesville, FL: University Press of Florida.

Goddard I. 1996. The classification of the Native languages of North America. In: Goddard I, editor. Handbook of North American Indians, Volume 17, Languages.

Golla, Victor. 2011. *California Indian languages*. Berkeley: University of California Press.

Grant, Campbell. 1978a. "Chumash: introduction." In *Handbook of North American Indians*, edited by Robert F. Heizer, 505-508. Washington: Smithsonian Institution.

1978b. "Eastern Coastal Chumash." In *Handbook of North American Indians*, edited by Robert F. Heizer, 509-519. Washington: Smithsonian Institution

Haley, Brian D., and Larry R. Wilcoxon. 1997. "Anthropology and the making of Chumash tradition." *Current Anthropology* 38 (5): 761-794.

1999. "Point Conception and the Chumash Land of the Dead: revisions from Harrington's notes." *Journal of California and Great Basin Anthropology* 21 (2): 213-235.

Johnson, John R. 1982. "An ethnohistoric study of the Island Chumash." MA, Anthropology, University of California, Santa Barbara.

1988. "Chumash social organization: an ethnohistoric perspective." PhD, Anthropology, University of California, Santa Barbara.

Hudson, Travis, and Thomas C. Blackburn. 1979. *The material culture of the Chumash interaction sphere. Volume I: Food procurement and transportation.Ballena Press Anthropological Papers, No. 25*. Los Altos and Santa Barbara: Ballena Press and the Santa Barbara Museum of Natural History.

1983. *The material culture of the Chumash interaction sphere. Volume II: Food preparation and shelter.Ballena Press Anthropological Papers, No. 27*. Los Altos and Santa Barbara: Ballena Press and the Santa Barbara Museum of Natural History.

1985. *The material culture of the Chumash interaction sphere. Volume III: Clothing, ornamentation, and grooming.Ballena Press Anthropological Papers, No. 28*. Los Altos and Santa Barbara: Ballena Press and the Santa Barbara Museum of Natural History.

1986. *The material culture of the Chumash interaction sphere. Volume IV: Ceremonial paraphernalia, games, and amusements.Ballena Press Anthropological Papers, No. 30*. Los Altos and Santa Barbara: Ballena Press and the Santa Barbara Museum of Natural History.

Hudson, Travis, Thomas C. Blackburn, Rosario Curletti, and Janice Timbrook. 1981. *The eye of the flute: Chumash traditional history and ritual as told by Fernando Librado Kitsepawit to John P. Harrington*. Santa Barbara: Santa Barbara Museum of Natural History.

Jepson Herbaria. 2025. Jepson Index to California Plant Names. Berkeley, California: University of California. https://ucjeps.berkeley.edu/db/icpn/. Accessed November 2025.

King, Charles D. 1976. "Chumash intervillage economic exchange." In *Native Californians: theoretical retrospective*, edited by Lowell John Bean and Thomas C. Blackburn, 289-318. Ramona: Ballena Press.

1978. "Protohistoric and historic archaeology." In *Handbook of North American Indians*, edited by Robert F. Heizer, 58-68. Washington: Smithsonian Institution.

1990. *Evolution of Chumash society: a comparative study of artifacts used for social system maintenance in the Santa Barbara Channel region before A.D. 1804*. New York: Garland.

King, Linda B. 1969. "The Medea Creek cemetery (LAN-243): an investigation of social organization from mortuary practices." In *Archaeological Survey Annual Report*, 23-68. Los Angeles: University of California, Los Angeles.

Kroeber, Alfred L. 1925. *Handbook of the Indians of California*. *Smithsonian Institution, Bureau of American Ethnology Bulleting 78*. Washington DC: Government Printing Office.

Natural Resources Conservation Service. *PLANTS Database*. United States Department of Agriculture. https://plants.usda.gov. Accessed November 2025.

Ninyo & Moore. 2021. Geotechnical Evaluation, Digester 4 Biosolids and Energy Design – Phase I, Goleta Sanitary District, Goleta, California.

Ninyo & Moore. 2022. DRAFT Geotechnical Evaluation, New FOG Receiving Station and Thermal Drying Facility – Goleta Sanitary District, Goleta, California.

Priestley, Herbert I. 1937. A historical, political, and natural description of California by Pedro Fages, soldier of Spain, dutifully made for the Viceroy in the year 1775. Berkeley: University of California Press.

Regional Water Quality Control Board. 2024. Water Quality Control Plan for the Central Coastal Basin. Central Coast Region, State Water Resources Control Board, California Environmental Protection Agency. https://www.waterboards.ca.gov/rwqcb3/water_issues/programs/basin_plan/docs/2024_basin_plan_r3.pdf. Accessed November 2025.

Roders, J. A. 2018. Archaeology of the Prehistoric Past. University of California Press, Berkeley.

Santa Barbara Airport. 2023. Land Use Compatibility Plan.

Santa Barbara Airport. 2025. Terminal Improvement Project. https://flysba.santabarbaraca.gov/projects/terminal-improvement-project. Accessed November 2025.

Santa Barbara City. 2025. Environmental Thresholds and Guidelines Manual. https://content.civicplus.com/api/assets/3a8f7de7-7ec5-4971-8ec4-326ec1dc3f23. Accessed November 2025.

Santa Barbara County Air Pollution Control District (SBCAPCD). 2015. *APCD CEQA Guidelines*. https://www.ourair.org/wp-content/uploads/APCDCEQAGuidelinesApr2015.pdf. Accessed November 2025.

Santa Barbara County Air Pollution Control District (SBCAPCD). 2022. *Scope and Content of the 2022 Ozone Plan – Limited Updates*. https://www.ourair.org/wp-content/uploads/ScopeContentJanuary2022-LimitedUpdates.pdf. Accessed November 2025.

Santa Barbara County Air Pollution Control District (SBCAPCD). 2022. *2022 Ozone Plan*. https://www.ourair.org/wp-content/uploads/2022-Ozone-Plan.pdf. Accessed November 2025.

Santa Barbara County Air Pollution Control District (SBCAPCD). 2025. *Rule 802 – Fugitive Dust Control Requirements*. https://www.ourair.org/wp-content/uploads/Rule802.pdf. Accessed November 2025.

Santa Barbara County Air Pollution Control District (SBCAPCD). 2025. *Land Use Frequently Asked Questions*. https://www.ourair.org/apcd/land-use-frequently-asked-questions/#:~:text=The%20APCD%20has%20no%20adopted,which%20the%20project%20is%20located. Accessed November 2025.

Santa Barbara County Association of Governments (SBCAG). 2025. *Connected 2050 Regional Transportation Plan and Sustainable Communities Strategy*. https://www.sbcag.org/wp-content/uploads/2025/08/Connected2050_August2025.pdf. Accessed November 2025.

Santa Barbara Local Agency Formation Commission (LAFCO). 2021. *Environmental Thresholds Amended January 2021*. https://www.sblafco.org/files/f2915ea5d/Information_Item_No_1__Attachment_B_Environmental_Thresholds_Amended_January_2021.pdf. Accessed November 2025.

Santa Barbara County. 2025. Code of Ordinances. https://library.municode.com/ca/santa_barbara_county/codes/code_of_ordinances?nodeId=16322. Accessed October 2025.

Santa Barbara County. 2015 (Modified 2017). "Agricultural Preserve (Williamson Act) Of Santa Barbara County, 2015." https://sbcblueprint.databasin.org/datasets/293bb2006edc4c8986d6b564d4502527/. Accessed October 2025.

Santa Barbara County. 2019. Coastal Land Use Plan. Santa Barbara County Comprehensive Plan. Planning and Development, County of Santa Barbara. Adopted 1982. Republished June 2019. https://cosantabarbara.app.box.com/s/cx95k0r4hnfo58hg291fi5gzf5rrdurd. Accessed November 2025.

Santa Barbara County. 2025. Cumulative Projects List. https://www.countyofsb.org/821/Cumulative-Projects-List. Accessed November 2025.

Santa Barbara County. 2025. Eastern Goleta Valley Community Plan.

Santa Barbara County. 2014. Santa Barbara County Comprehensive Plan: Circulation Element.

Santa Barbara County. 2010. Santa Barbara County Comprehensive Plan: Conservation Element.

Santa Barbara County. 2009. Santa Barbara County Comprehensive Plan: Hazardous Waste Element.

Santa Barbara County. 2023. Santa Barbara County Comprehensive Plan: Housing Element Update.

Santa Barbara County. 2024. Santa Barbara County Comprehensive Plan: Land Use Element.

Santa Barbara County. 2009. Santa Barbara County Comprehensive Plan: Noise Element.

Santa Barbara County. 2009. Santa Barbara County Comprehensive Plan: Open Space Element.

Santa Barbara County. 2023. Santa Barbara County Comprehensive Plan: Seismic Safety & Safety Element.

Santa Barbara County, Sustainability Division. 2019. Strategic Energy Plan for the County of Santa Barbara.

Santa Barbara County. Planning and Development. Revised 2021. Environmental Thresholds and Guidelines Manual. https://www.sblafco.org/files/f2915ea5d/Information_Item_No_1___Attachment_B_Environmental_Thresholds_Amended_January_2021.pdf. Accessed November 2025.

Santa Barbara County Air Pollution Control District. Environmental Review Guidelines. 2015. https://www.ourair.org/wp-content/uploads/APCDCEQAGuidelinesApr2015.pdf. Accessed November 2025.

Santa Barbara County Air Pollution Control District (SBCAPCD). 2015. *APCD CEQA Guidelines*. https://www.ourair.org/wp-content/uploads/APCDCEQAGuidelinesApr2015.pdf. Accessed November 2025.

Santa Barbara County Air Pollution Control District (SBCAPCD). 2022. *Scope and Content of the 2022 Ozone Plan – Limited Updates*. https://www.ourair.org/wp-content/uploads/ScopeContentJanuary2022-LimitedUpdates.pdf. Accessed November 2025.

Santa Barbara County Air Pollution Control District (SBCAPCD). 2022. *2022 Ozone Plan*. https://www.ourair.org/wp-content/uploads/2022-Ozone-Plan.pdf. Accessed November 2025.

Santa Barbara County Air Pollution Control District (SBCAPCD). 2025. *Rule 802 – Fugitive Dust Control Requirements*. https://www.ourair.org/wp-content/uploads/Rule802.pdf. Accessed November 2025.

Santa Barbara County Air Pollution Control District (SBCAPCD). 2025. *Land Use Frequently Asked Questions*. https://www.ourair.org/apcd/land-use-frequently-asked-questions/#:~:text=The%20APCD%20has%20no%20adopted,which%20the%20project%20is%20located. Accessed November 2025.

Santa Barbara County Association of Governments (SBCAG). 2025. *Connected 2050 Regional Transportation Plan and Sustainable Communities Strategy*. https://www.sbcag.org/wp-content/uploads/2025/08/Connected2050_August2025.pdf. Accessed November 2025.

Santa Barbara Local Agency Formation Commission (LAFCO). 2021. *Environmental Thresholds Amended January 2021*. https://www.sblafco.org/files/f2915ea5d/Information_Item_No_1___Attachment_B_Environmental_Thresholds_Amended_January_2021.pdf. Accessed November 2025.

Sawyer, J., T. Keeler-Wolf, J. Evens. 2009. Manual of California Vegetation, 2nd ed. California Native Plant Society, Sacramento.

SoCalGas. 2025. La Goleta Natural Gas Storage Facility. https://www.socalgas.com/sustainability/pipeline-and-storage-safety/storage-facility-safety/goleta. Accessed October 2025.

U.S. Fish and Wildlife Service. 2025. Information for Planning and Consulting (IPaC). Environmental Conservation Online System. Website: https://ecos.fws.gov/ipac/. U.S. Geological Survey. Areas of Land Subsidence in California. https://ca.water.usgs.gov/land_subsidence/california-subsidence-areas.html. Accessed November 2025.

The Climate Registry (TCR), 2025. 2025 default emission factors. Website: https://theclimateregistry.org/wp-content/uploads/2025/03/2025-Default-Emission-Factors-03-2025.pdf. Accessed November 2025.

United States Department of Agriculture Soil Conservation Service (USDA). 2025. Web Soil Survey. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed October 2025.

United States Department of Agriculture Soil Conservation Service (USDA). Soil Survey: Santa Barbara Area California.1958.

United States Geological Survey (USGS). 2008. National Seismic Hazard Maps. https://www.usgs.gov/centers/geologic-hazards-science-center. Accessed October 2025.

USGS. 2018. Areas of Land Subsidence in California Web Tool. https://www.usgs.gov/tools/areas-land-subsidence-california. Accessed October 2025.

Wagner, Henry R. 1929. Spanish voyages to the northwest coast of North America in the Sixteenth Century. San Francisco: California Historical Society.

Wilken, D. 2018. DRAFT Rare Plants of Santa Barbara County. Santa Barbara Botanical Garden (SBBG). Version 2.0. March. Accessed November 2025.\

Yorke Engineering, LLC. 2022. DRAFT Goleta Sanitary district Mitigated Negative Declaration for Biosolids and Energy Phase I Project (SCH No. 2022040242).

Yorke Engineering, LLC. 2025. Goleta Sanitary District Mitigated Negative Declaration for Solids Handling Improvement Project (SCH No. 2025100842).

5.2 Preparers

5.2.1 Langan CA, Inc.

Heather McDaniel McDevitt – Cultural Resources/Tribal Cultural Resources/CEQA

Seth Wulkan – CEQA Senior Environmental Planner

Hanna Jugo – CEQA Environmental Planner

David Murray – Biologist

5.2.2 Goleta Sanitary District

Steve Wagner – General Manager/District Engineer

Reese Wilson – Engineering Manager

APPENDIX A – Air Quality Modeling

GSD Energy Storage Detailed Report

Table of Contents

1. Basic Project Information
   1.1. Basic Project Information
   1.2. Land Use Types
   1.3. User-Selected Emission Reduction Measures by Emissions Sector
2. Emissions Summary
   2.1. Construction Emissions Compared Against Thresholds
   2.2. Construction Emissions by Year
      2.2.1. Total Construction Emissions by Year, Unmitigated
      2.2.2. Onsite Construction Emissions by Year, Unmitigated
      2.2.3. Offsite Construction Emissions by Year, Unmitigated
   2.3. Operations Emissions Compared Against Thresholds
   2.4. Operations Emissions by Sector, Unmitigated
3. Construction Emissions Details
   3.1. Demolition (2027)
      3.1.1. Onsite - Unmitigated
      3.1.2. Offsite - Unmitigated
   3.2. Site Preparation (2027)
      3.2.1. Onsite - Unmitigated

3.2.2. Offsite - Unmitigated
3.3. Directional Boring (2027)
3.3.1. Onsite - Unmitigated
3.3.2. Offsite - Unmitigated
3.4. Panel Installation (2027)
3.4.1. Onsite - Unmitigated
3.4.2. Offsite - Unmitigated
3.5. Battery Unit Placement (2027)
3.5.1. Onsite - Unmitigated
3.5.2. Offsite - Unmitigated
3.6. Battery Pad (2027)
3.6.1. Onsite - Unmitigated
3.6.2. Offsite - Unmitigated
4. Operations Emissions Details
4.1. Mobile Emissions by Land Use
4.1.1. Unmitigated
4.2. Energy
4.2.1. Electricity Emissions By Land Use - Unmitigated
4.2.3. Natural Gas Emissions By Land Use - Unmitigated
4.3. Area Emissions by Source
4.3.1. Unmitigated
4.4. Water Emissions by Land Use

4.4.1. Unmitigated
4.5. Waste Emissions by Land Use
4.5.1. Unmitigated
4.6. Refrigerant Emissions by Land Use
4.6.1. Unmitigated
4.7. Offroad Emissions By Equipment Type
4.7.1. Unmitigated
4.8. Stationary Emissions By Equipment Type
4.8.1. Unmitigated
4.9. User Defined Emissions By Equipment Type
4.9.1. Unmitigated
4.10. Soil Carbon Accumulation By Vegetation Type
4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated
4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated
4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated
5. Activity Data
5.1. Construction Schedule
5.2. Off-Road Equipment
5.2.1. Unmitigated
5.3. Construction Vehicles
5.3.1. Unmitigated
5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies
5.5. Architectural Coatings
5.6. Dust Mitigation
5.6.1. Construction Earthmoving Activities
5.6.2. Construction Earthmoving Control Strategies
5.7. Construction Paving
5.8. Construction Electricity Consumption and Emissions Factors
5.9. Operational Mobile Sources
5.9.1. Unmitigated
5.10. Operational Area Sources
5.10.1. Hearths
5.10.2. Architectural Coatings
5.10.3. Landscape Equipment
5.11. Operational Energy Consumption
5.11.1. Unmitigated
5.12. Operational Water and Wastewater Consumption
5.12.1. Unmitigated
5.13. Operational Waste Generation
5.13.1. Unmitigated
5.14. Operational Refrigeration and Air Conditioning Equipment
5.14.1. Unmitigated
5.15. Operational Off-Road Equipment

5.15.1. Unmitigated
5.16. Stationary Sources
5.16.1. Emergency Generators and Fire Pumps
5.16.2. Process Boilers
5.17. User Defined
5.18. Vegetation
5.18.1. Land Use Change
5.18.1.1. Unmitigated
5.18.1. Biomass Cover Type
5.18.1.1. Unmitigated
5.18.2. Sequestration
5.18.2.1. Unmitigated
6. Climate Risk Detailed Report
6.1. Climate Risk Summary
6.2. Initial Climate Risk Scores
6.3. Adjusted Climate Risk Scores
6.4. Climate Risk Reduction Measures
7. Health and Equity Details
7.1. CalEnviroScreen 4.0 Scores
7.2. Healthy Places Index Scores
7.3. Overall Health & Equity Scores
7.4. Health & Equity Measures

7.5. Evaluation Scorecard
7.6. Health & Equity Custom Measures
8. User Changes to Default Data
8.1. Justifications
8.3. Land Use
8.4. Construction
8.4.1. Construction Phases
8.4.2. Off-Road Equipment
8.4.6. Trips and VMT
8.5. Operations
8.5.4. Water and Waste Water

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	GSD Energy Storage
Construction Start Date	3/12/2027
Operational Year	2027
Lead Agency	Goleta Sanitary District
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.40000
Precipitation (days)	24.0000
Location	34.4225448702758, -119.83408889631693
County	Santa Barbara
City	Unincorporated
Air District	Santa Barbara County APCD
Air Basin	South Central Coast
TAZ	3370
EDFZ	8
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

Data Field	Value
App Version	2022.1.1.45

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Industrial	1.000000	User Defined Unit	1.30000	0.00000	0.00000	—	—	Solar array

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.82870	0.74380	6.81528	25.7043	0.03775	0.18185	2.72477	2.90662	0.17216	1.35441	1.52658	—	4,253.70	4,253.70	0.17182	0.05746	0.78081	4,275.90
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.43352	1.25362	11.7802	31.2641	0.04689	0.28180	2.79381	3.07561	0.26458	1.36857	1.63315	—	4,806.63	4,806.63	0.19603	0.07427	0.02559	4,833.69

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.32517	0.27882	2.71633	5.14948	0.00941	0.05360	0.25197	0.30556	0.04982	0.11785	0.16767	—	994.333	994.333	0.04025	0.01095	0.07398	998.675
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.05934	0.05089	0.49573	0.93978	0.00172	0.00978	0.04598	0.05577	0.00909	0.02151	0.03060	—	164.623	164.623	0.00666	0.00181	0.01225	165.342

2.2. Construction Emissions by Year

2.2.1. Total Construction Emissions by Year, Unmitigated

Includes both onsite and offsite emissions.

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.82870	0.74380	6.81528	25.7043	0.03775	0.18185	2.72477	2.90662	0.17216	1.35441	1.52658	—	4,253.70	4,253.70	0.17182	0.05746	0.78081	4,275.90
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.43352	1.25362	11.7802	31.2641	0.04689	0.28180	2.79381	3.07561	0.26458	1.36857	1.63315	—	4,806.63	4,806.63	0.19603	0.07427	0.02559	4,833.69
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.32517	0.27882	2.71633	5.14948	0.00941	0.05360	0.25197	0.30556	0.04982	0.11785	0.16767	—	994.333	994.333	0.04025	0.01095	0.07398	998.675
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2027	0.05934	0.05089	0.49573	0.93978	0.00172	0.00978	0.04598	0.05577	0.00909	0.02151	0.03060	—	164.623	164.623	0.00666	0.00181	0.01225	165.342

2.2.2. Onsite Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.76475	0.65236	6.77493	24.9224	0.03690	0.18019	2.55550	2.73568	0.17050	1.31333	1.48383	—	3,995.25	3,995.25	0.16206	0.03241	0.00000	4,008.96
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.31338	1.15104	11.4029	30.3455	0.04550	0.27907	2.59115	2.87022	0.26186	1.31873	1.58059	—	4,457.66	4,457.66	0.18082	0.03616	0.00000	4,472.96
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.29710	0.25317	2.68312	4.93892	0.00935	0.05347	0.21033	0.26380	0.04970	0.10799	0.15768	—	946.731	946.731	0.03840	0.00768	0.00000	949.980
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.05422	0.04620	0.48967	0.90135	0.00171	0.00976	0.03839	0.04814	0.00907	0.01971	0.02878	—	156.742	156.742	0.00636	0.00127	0.00000	157.280

2.2.3. Offsite Construction Emissions by Year, Unmitigated

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

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2027	0.10426	0.09144	0.24074	0.78188	0.00085	0.00167	0.16927	0.17094	0.00167	0.04108	0.04275	—	258.447	258.447	0.00976	0.02505	0.78081	266.936
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.12014	0.10258	0.37727	0.91866	0.00139	0.00272	0.20266	0.20539	0.00272	0.04984	0.05256	—	348.969	348.969	0.01521	0.03811	0.02559	360.731
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.02808	0.02565	0.03322	0.21055	0.00007	0.00013	0.04163	0.04176	0.00013	0.00986	0.00998	—	47.6015	47.6015	0.00184	0.00327	0.07398	48.6946
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.00512	0.00468	0.00606	0.03843	0.00001	0.00002	0.00760	0.00762	0.00002	0.00180	0.00182	—	7.88097	7.88097	0.00031	0.00054	0.01225	8.06195

2.3. Operations Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00875	0.00875	< 0.00005	< 0.00005	0.00000	0.00878
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00875	0.00875	< 0.00005	< 0.00005	0.00000	0.00878
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Unmit.	0.00019	0.00017	0.00024	0.00181	< 0.00005	< 0.00005	0.00046	0.00046	< 0.00005	0.00012	0.00012	0.00000	0.50525	0.50525	0.00002	0.00002	0.00080	0.51302
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.00004	0.00003	0.00004	0.00033	< 0.00005	< 0.00005	0.00008	0.00008	< 0.00005	0.00002	0.00002	0.00000	0.08365	0.08365	< 0.00005	< 0.00005	0.00013	0.08494

2.4. Operations Emissions by Sector, Unmitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Area	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00875	0.00875	< 0.00005	< 0.00005	—	0.00878
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00875	0.00875	< 0.00005	< 0.00005	0.00000	0.00878
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Area	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00875	0.00875	< 0.0000 05	< 0.0000 05	—	0.00878
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00875	0.00875	< 0.0000 05	< 0.0000 05	0.00000	0.00878
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00019	0.00017	0.00024	0.00181	< 0.0000 05	< 0.0000 05	0.00046	0.00046	< 0.0000 05	0.00012	0.00012	—	0.49650	0.49650	0.00002	0.00002	0.00080	0.50424
Area	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00875	0.00875	< 0.0000 05	< 0.0000 05	—	0.00878
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00019	0.00017	0.00024	0.00181	< 0.0000 05	< 0.0000 05	0.00046	0.00046	< 0.0000 05	0.00012	0.00012	0.00000	0.50525	0.50525	0.00002	0.00002	0.00080	0.51302
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00004	0.00003	0.00004	0.00033	< 0.0000 05	< 0.0000 05	0.00008	0.00008	< 0.0000 05	0.00002	0.00002	—	0.08220	0.08220	< 0.0000 05	< 0.0000 05	0.00013	0.08348
Area	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00145	0.00145	< 0.0000 05	< 0.0000 05	—	0.00145
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	0.00004	0.00003	0.00004	0.00033	< 0.000005	< 0.000005	0.00008	0.00008	< 0.000005	0.00002	0.00002	0.00000	0.08365	0.08365	< 0.000005	< 0.000005	0.00013	0.08494

3. Construction Emissions Details

3.1. Demolition (2027)

3.1.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24386	0.20908	2.78028	3.60990	0.00551	0.03487	—	0.03487	0.03247	—	0.03247	—	499.307	499.307	0.02025	0.00405	—	501.021
Demolition	—	—	—	—	—	—	0.03565	0.03565	—	0.00540	0.00540	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.00200	0.00172	0.02285	0.02967	0.00005	0.00029	—	0.00029	0.00027	—	0.00027	—	4.10390	4.10390	0.00017	0.00003	—	4.11798
Demolition	—	—	—	—	—	—	0.00029	0.00029	—	0.00004	0.00004	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00037	0.00031	0.00417	0.00541	0.00001	0.00005	—	0.00005	0.00005	—	0.00005	—	0.67945	0.67945	0.00003	0.00001	—	0.68178
Demolition	—	—	—	—	—	—	0.00005	0.00005	—	0.00001	0.00001	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01723	0.01601	0.01198	0.13221	0.00000	0.00000	0.02487	0.02487	0.00000	0.00583	0.00583	—	23.6958	23.6958	0.00097	0.00113	0.00246	24.0589
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00354	0.00096	0.06479	0.02190	0.00031	0.00059	0.01207	0.01265	0.00059	0.00338	0.00397	—	47.1392	47.1392	0.00256	0.00751	0.00212	49.4433

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00014	0.00013	0.00010	0.00105	0.00000	0.00000	0.00020	0.00020	0.00000	0.00005	0.00005	—	0.19495	0.19495	0.00001	0.00001	0.00034	0.19823
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00003	0.00001	0.00054	0.00018	< 0.00005	< 0.00005	0.00010	0.00010	< 0.00005	0.00003	0.00003	—	0.38737	0.38737	0.00002	0.00006	0.00029	0.40659
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00003	0.00002	0.00002	0.00019	0.00000	0.00000	0.00004	0.00004	0.00000	0.00001	0.00001	—	0.03228	0.03228	< 0.00005	< 0.00005	0.00006	0.03282
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00001	< 0.00005	0.00010	0.00003	< 0.00005	< 0.00005	0.00002	0.00002	< 0.00005	0.00001	0.00001	—	0.06413	0.06413	< 0.00005	0.00001	0.00005	0.06731

3.2. Site Preparation (2027)

3.2.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25003	0.25003	2.39728	17.0725	0.02266	0.04614	—	0.04614	0.04614	—	0.04614	—	2,453.14	2,453.14	0.09951	0.01990	—	2,461.56

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	2.55549	2.55549	—	1.31333	1.31333	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25003	0.25003	2.39728	17.0725	0.02266	0.04614	—	0.04614	0.04614	—	0.04614	—	2,453.14	2,453.14	0.09951	0.01990	—	2,461.56
Dust From Material Movement	—	—	—	—	—	—	2.55549	2.55549	—	1.31333	1.31333	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02055	0.02055	0.19704	1.40322	0.00186	0.00379	—	0.00379	0.00379	—	0.00379	—	201.628	201.628	0.00818	0.00164	—	202.320
Dust From Material Movement	—	—	—	—	—	—	0.21004	0.21004	—	0.10794	0.10794	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00375	0.00375	0.03596	0.25609	0.00034	0.00069	—	0.00069	0.00069	—	0.00069	—	33.3818	33.3818	0.00135	0.00027	—	33.4964
Dust From Material Movement	—	—	—	—	—	—	0.03833	0.03833	—	0.01970	0.01970	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03411	0.03168	0.02152	0.25616	0.00000	0.00000	0.04974	0.04974	0.00000	0.01166	0.01166	—	48.3786	48.3786	0.00159	0.00226	0.18976	49.2808
Vendor	0.00444	0.00209	0.07687	0.03542	0.00035	0.00070	0.01334	0.01404	0.00070	0.00368	0.00439	—	51.2100	51.2100	0.00193	0.00747	0.11379	53.5992
Hauling	0.00288	0.00080	0.05031	0.01733	0.00025	0.00047	0.00965	0.01012	0.00047	0.00271	0.00318	—	37.6994	37.6994	0.00205	0.00601	0.06524	39.6063
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03446	0.03203	0.02395	0.26441	0.00000	0.00000	0.04974	0.04974	0.00000	0.01166	0.01166	—	47.3917	47.3917	0.00194	0.00226	0.00493	48.1179
Vendor	0.00437	0.00202	0.07953	0.03639	0.00035	0.00070	0.01334	0.01404	0.00070	0.00368	0.00439	—	51.2514	51.2514	0.00200	0.00747	0.00295	53.5315
Hauling	0.00283	0.00076	0.05183	0.01752	0.00025	0.00047	0.00965	0.01012	0.00047	0.00271	0.00318	—	37.7113	37.7113	0.00205	0.00601	0.00170	39.5547

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00280	0.00260	0.00194	0.02104	0.00000	0.00000	0.00403	0.00403	0.00000	0.00094	0.00094	—	3.89892	3.89892	0.00014	0.00019	0.00673	3.96457
Vendor	0.00036	0.00017	0.00651	0.00294	0.00003	0.00006	0.00108	0.00114	0.00006	0.00030	0.00036	—	4.21045	4.21045	0.00016	0.00061	0.00403	4.40164
Hauling	0.00024	0.00006	0.00428	0.00143	0.00002	0.00004	0.00078	0.00082	0.00004	0.00022	0.00026	—	3.09899	3.09899	0.00017	0.00049	0.00232	3.25268
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00051	0.00048	0.00035	0.00384	0.00000	0.00000	0.00073	0.00073	0.00000	0.00017	0.00017	—	0.64551	0.64551	0.00002	0.00003	0.00111	0.65638
Vendor	0.00007	0.00003	0.00119	0.00054	0.00001	0.00001	0.00020	0.00021	0.00001	0.00005	0.00007	—	0.69709	0.69709	0.00003	0.00010	0.00067	0.72874
Hauling	0.00004	0.00001	0.00078	0.00026	< 0.00005	0.00001	0.00014	0.00015	0.00001	0.00004	0.00005	—	0.51307	0.51307	0.00003	0.00008	0.00038	0.53852

3.3. Directional Boring (2027)

3.3.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07875	0.07875	1.21092	4.78333	0.00632	0.01293	—	0.01293	0.01293	—	0.01293	—	685.209	685.209	0.02780	0.00556	—	687.561
Dust From Material Movement	—	—	—	—	—	—	0.00001	0.00001	—	< 0.00005	< 0.00005	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07875	0.07875	1.21092	4.78333	0.00632	0.01293	—	0.01293	0.01293	—	0.01293	—	685.209	685.209	0.02780	0.00556	—	687.561
Dust From Material Movement	—	—	—	—	—	—	0.00001	0.00001	—	< 0.000005	< 0.000005	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00647	0.00647	0.09953	0.39315	0.00052	0.00106	—	0.00106	0.00106	—	0.00106	—	56.3186	56.3186	0.00228	0.00046	—	56.5119
Dust From Material Movement	—	—	—	—	—	—	< 0.000005	< 0.000005	—	< 0.000005	< 0.000005	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00118	0.00118	0.01816	0.07175	0.00009	0.00019	—	0.00019	0.00019	—	0.00019	—	9.32419	9.32419	0.00038	0.00008	—	9.35618

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	< 0.000005	< 0.000005	—	< 0.000005	< 0.000005	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02558	0.02376	0.01614	0.19212	0.00000	0.00000	0.03731	0.03731	0.00000	0.00874	0.00874	—	36.2839	36.2839	0.00119	0.00169	0.14232	36.9606
Vendor	0.00148	0.00070	0.02562	0.01181	0.00012	0.00023	0.00445	0.00468	0.00023	0.00123	0.00146	—	17.0700	17.0700	0.00064	0.00249	0.03793	17.8664
Hauling	0.00018	0.00005	0.00314	0.00108	0.00002	0.00003	0.00060	0.00063	0.00003	0.00017	0.00020	—	2.35621	2.35621	0.00013	0.00038	0.00408	2.47539
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02585	0.02402	0.01796	0.19831	0.00000	0.00000	0.03731	0.03731	0.00000	0.00874	0.00874	—	35.5438	35.5438	0.00146	0.00169	0.00370	36.0884
Vendor	0.00146	0.00067	0.02651	0.01213	0.00012	0.00023	0.00445	0.00468	0.00023	0.00123	0.00146	—	17.0838	17.0838	0.00067	0.00249	0.00098	17.8438
Hauling	0.00018	0.00005	0.00324	0.00109	0.00002	0.00003	0.00060	0.00063	0.00003	0.00017	0.00020	—	2.35696	2.35696	0.00013	0.00038	0.00011	2.47217
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00210	0.00195	0.00145	0.01578	0.00000	0.00000	0.00302	0.00302	0.00000	0.00071	0.00071	—	2.92419	2.92419	0.00011	0.00014	0.00505	2.97343
Vendor	0.00012	0.00006	0.00217	0.00098	0.00001	0.00002	0.00036	0.00038	0.00002	0.00010	0.00012	—	1.40348	1.40348	0.00005	0.00020	0.00134	1.46721

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Hauling	0.00001	< 0.000005	0.00027	0.00009	< 0.000005	< 0.000005	0.00005	0.00005	< 0.000005	0.00001	0.00002	—	0.19369	0.19369	0.00001	0.00003	0.00015	0.20329
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00038	0.00036	0.00027	0.00288	0.00000	0.00000	0.00055	0.00055	0.00000	0.00013	0.00013	—	0.48413	0.48413	0.00002	0.00002	0.00084	0.49229
Vendor	0.00002	0.00001	0.00040	0.00018	< 0.000005	< 0.000005	0.00007	0.00007	< 0.000005	0.00002	0.00002	—	0.23236	0.23236	0.00001	0.00003	0.00022	0.24291
Hauling	< 0.000005	< 0.000005	0.00005	0.00002	< 0.000005	< 0.000005	0.00001	0.00001	< 0.000005	< 0.000005	< 0.000005	—	0.03207	0.03207	< 0.000005	0.00001	0.00002	0.03366

3.4. Panel Installation (2027)

3.4.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76475	0.64035	6.77493	8.96247	0.01991	0.13621	—	0.13621	0.12565	—	0.12565	—	1,972.44	1,972.44	0.08001	0.01600	—	1,979.21
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76475	0.64035	6.77493	8.96247	0.01991	0.13621	—	0.13621	0.12565	—	0.12565	—	1,972.44	1,972.44	0.08001	0.01600	—	1,979.21

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26190	0.21930	2.32018	3.06934	0.00682	0.04665	—	0.04665	0.04303	—	0.04303	—	675.492	675.492	0.02740	0.00548	—	677.810
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04780	0.04002	0.42343	0.56015	0.00124	0.00851	—	0.00851	0.00785	—	0.00785	—	111.835	111.835	0.00454	0.00091	—	112.219
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06396	0.05939	0.04034	0.48030	0.00000	0.00000	0.09326	0.09326	0.00000	0.02186	0.02186	—	90.7099	90.7099	0.00298	0.00423	0.35580	92.4015
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Worker	0.06462	0.06005	0.04491	0.49578	0.00000	0.00000	0.09326	0.09326	0.00000	0.02186	0.02186	—	88.8594	88.8594	0.00364	0.00423	0.00924	90.2210
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02190	0.02034	0.01515	0.16435	0.00000	0.00000	0.03145	0.03145	0.00000	0.00736	0.00736	—	30.4603	30.4603	0.00113	0.00145	0.05259	30.9732
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00400	0.00371	0.00277	0.02999	0.00000	0.00000	0.00574	0.00574	0.00000	0.00134	0.00134	—	5.04305	5.04305	0.00019	0.00024	0.00871	5.12797
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5. Battery Unit Placement (2027)

3.5.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.38509	0.32358	2.92742	3.06661	0.00791	0.12112	—	0.12112	0.11143	—	0.11143	—	856.906	856.906	0.03476	0.00695	—	859.846

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00211	0.00177	0.01604	0.01680	0.00004	0.00066	—	0.00066	0.00061	—	0.00061	—	4.69537	4.69537	0.00019	0.00004	—	4.71149
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00039	0.00032	0.00293	0.00307	0.00001	0.00012	—	0.00012	0.00011	—	0.00011	—	0.77737	0.77737	0.00003	0.00001	—	0.78004
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03411	0.03168	0.02152	0.25616	0.00000	0.00000	0.04974	0.04974	0.00000	0.01166	0.01166	—	48.3786	48.3786	0.00159	0.00226	0.18976	49.2808
Vendor	0.00148	0.00070	0.02562	0.01181	0.00012	0.00023	0.00445	0.00468	0.00023	0.00123	0.00146	—	17.0700	17.0700	0.00064	0.00249	0.03793	17.8664
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00019	0.00017	0.00013	0.00140	0.00000	0.00000	0.00027	0.00027	0.00000	0.00006	0.00006	—	0.25993	0.25993	0.00001	0.00001	0.00045	0.26430
Vendor	0.00001	< 0.000005	0.00014	0.00007	< 0.000005	< 0.000005	0.00002	0.00003	< 0.000005	0.00001	0.00001	—	0.09357	0.09357	< 0.000005	0.00001	0.00009	0.09781
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00003	0.00003	0.00002	0.00026	0.00000	0.00000	0.00005	0.00005	0.00000	0.00001	0.00001	—	0.04303	0.04303	< 0.000005	< 0.000005	0.00007	0.04376
Vendor	< 0.000005	< 0.000005	0.00003	0.00001	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	—	0.01549	0.01549	< 0.000005	< 0.000005	0.00001	0.01619
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6. Battery Pad (2027)

3.6.1. Onsite - Unmitigated

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

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.74075	0.61319	5.01446	4.87975	0.01100	0.18513	—	0.18513	0.17032	—	0.17032	—	820.007	820.007	0.03326	0.00665	—	822.821
Paving	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00406	0.00336	0.02748	0.02674	0.00006	0.00101	—	0.00101	0.00093	—	0.00093	—	4.49319	4.49319	0.00018	0.00004	—	4.50861
Paving	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00074	0.00061	0.00501	0.00488	0.00001	0.00019	—	0.00019	0.00017	—	0.00017	—	0.74390	0.74390	0.00003	0.00001	—	0.74645
Paving	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6.2. Offsite - Unmitigated

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

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02585	0.02402	0.01796	0.19831	0.00000	0.00000	0.03731	0.03731	0.00000	0.00874	0.00874	—	35.5438	35.5438	0.00146	0.00169	0.00370	36.0884
Vendor	0.00437	0.00202	0.07953	0.03639	0.00035	0.00070	0.01334	0.01404	0.00070	0.00368	0.00439	—	51.2514	51.2514	0.00200	0.00747	0.00295	53.5315
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00014	0.00013	0.00010	0.00105	0.00000	0.00000	0.00020	0.00020	0.00000	0.00005	0.00005	—	0.19495	0.19495	0.00001	0.00001	0.00034	0.19823
Vendor	0.00002	0.00001	0.00043	0.00020	< 0.00005	< 0.00005	0.00007	0.00008	< 0.00005	0.00002	0.00002	—	0.28070	0.28070	0.00001	0.00004	0.00027	0.29344
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00003	0.00002	0.00002	0.00019	0.00000	0.00000	0.00004	0.00004	0.00000	0.00001	0.00001	—	0.03228	0.03228	< 0.00005	< 0.00005	0.00006	0.03282
Vendor	< 0.00005	< 0.00005	0.00008	0.00004	< 0.00005	< 0.00005	0.00001	0.00001	< 0.00005	< 0.00005	< 0.00005	—	0.04647	0.04647	< 0.00005	0.00001	0.00004	0.04858
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Landscape Equipment	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00875	0.00875	< 0.000005	< 0.000005	—	0.00878
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00875	0.00875	< 0.000005	< 0.000005	—	0.00878
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00875	0.00875	< 0.000005	< 0.000005	—	0.00878
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00875	0.00875	< 0.000005	< 0.000005	—	0.00878

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00145	0.00145	< 0.000005	< 0.000005	—	0.00145
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00145	0.00145	< 0.000005	< 0.000005	—	0.00145

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

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

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

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

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

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

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

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

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

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

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

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	3/15/2027	3/17/2027	5.00000	3.00000	—
Site Preparation	Site Preparation	3/12/2027	4/22/2027	5.00000	30.0000	—
Directional Boring	Grading	3/12/2027	4/22/2027	5.00000	30.0000	—

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Panel Installation	Building Construction	4/23/2027	10/14/2027	5.00000	125.000	—
Battery Unit Placement	Building Construction	4/14/2027	4/15/2027	5.00000	2.00000	—
Battery Pad	Paving	3/12/2027	3/15/2027	5.00000	2.00000	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.000000	8.00000	33.0000	0.73000
Demolition	Skid Steer Loaders	Diesel	Tier 4 Final	1.000000	8.00000	74.0000	0.37000
Site Preparation	Excavators	Diesel	Tier 4 Final	2.00000	8.00000	162.000	0.41000
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Final	1.000000	8.00000	130.000	0.40000
Site Preparation	Skid Steer Loaders	Diesel	Tier 4 Final	1.000000	8.00000	74.0000	0.37000
Site Preparation	Rollers	Diesel	Tier 4 Final	1.000000	8.00000	130.000	0.38000
Directional Boring	Bore/Drill Rigs	Diesel	Tier 4 Final	1.000000	8.00000	130.000	0.41000
Directional Boring	Excavators	Diesel	Tier 4 Final	1.000000	8.00000	50.0000	0.40000
Panel Installation	Bore/Drill Rigs	Diesel	Average	1.000000	6.00000	367.000	0.29000
Panel Installation	Pumps	Diesel	Average	1.000000	6.00000	80.0000	0.20000
Panel Installation	Skid Steer Loaders	Diesel	Tier 4 Final	1.000000	6.00000	84.0000	0.37000
Panel Installation	Welders	Diesel	Average	1.000000	8.00000	46.0000	0.45000
Panel Installation	Generator Sets	Diesel	Average	1.000000	8.00000	14.0000	0.74000

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Panel Installation	Aerial Lifts	Diesel	Average	4.00000	8.00000	46.0000	0.31000
Battery Unit Placement	Cranes	Diesel	Average	1.000000	6.00000	367.000	0.29000
Battery Unit Placement	Forklifts	Diesel	Average	1.000000	6.00000	82.0000	0.20000
Battery Pad	Cement and Mortar Mixers	Diesel	Average	1.000000	6.00000	80.0000	0.56000
Battery Pad	Plate Compactors	Diesel	Average	1.000000	6.00000	74.0000	0.42000
Battery Pad	Skid Steer Loaders	Diesel	Average	1.000000	8.00000	74.0000	0.36000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	Worker	4.00000	8.80000	LDA,LDT1,LDT2
Demolition	Vendor	—	5.30000	HHDT,MHDT
Demolition	Hauling	0.66667	20.0000	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	Worker	8.00000	8.80000	LDA,LDT1,LDT2
Site Preparation	Vendor	3.00000	5.30000	HHDT,MHDT
Site Preparation	Hauling	0.53333	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Directional Boring	Worker	6.00000	8.80000	LDA,LDT1,LDT2

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Directional Boring	Vendor	1.000000	5.30000	HHDT,MHDT
Directional Boring	Hauling	0.03333	20.0000	HHDT
Directional Boring	Onsite truck	—	—	HHDT
Panel Installation	Worker	15.0000	8.80000	LDA,LDT1,LDT2
Panel Installation	Vendor	0.00000	5.30000	HHDT,MHDT
Panel Installation	Hauling	0.00000	20.0000	HHDT
Panel Installation	Onsite truck	—	—	HHDT
Battery Unit Placement	Worker	8.00000	8.80000	LDA,LDT1,LDT2
Battery Unit Placement	Vendor	1.000000	5.30000	HHDT,MHDT
Battery Unit Placement	Hauling	0.00000	20.0000	HHDT
Battery Unit Placement	Onsite truck	—	—	HHDT
Battery Pad	Worker	6.00000	8.80000	LDA,LDT1,LDT2
Battery Pad	Vendor	3.00000	5.30000	HHDT,MHDT
Battery Pad	Hauling	0.00000	20.0000	HHDT
Battery Pad	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00000	0.00000	0.00000	108.000	0.00000
Site Preparation	—	125.000	15.0000	0.00000	0.00000
Directional Boring	—	8.00000	0.00000	0.00000	0.00000

5.6.2. Construction Earthmoving Control Strategies

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

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00000	531.983	0.03300	0.00400

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	0.00000	0.00000	0.00000	12.0000	0.00000	0.00000	0.00000	240.000

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
User Defined Industrial	Wood Fireplaces	0	0
User Defined Industrial	Gas Fireplaces	0	0
User Defined Industrial	Propane Fireplaces	0	0
User Defined Industrial	Electric Fireplaces	0	0
User Defined Industrial	No Fireplaces	0	0
User Defined Industrial	Conventional Wood Stoves	0	0
User Defined Industrial	Catalytic Wood Stoves	0	0
User Defined Industrial	Non-Catalytic Wood Stoves	0	0
User Defined Industrial	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0.00000	0.00000	0.00000	0.00000	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	180.000

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
User Defined Industrial	0.00000	531.983	0.0330	0.0040	0.00000

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
User Defined Industrial	0.00000	1,552.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
User Defined Industrial	0.00000	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	7.98000	annual days of extreme heat
Extreme Precipitation	7.00000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00000	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

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

6.2. Initial Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—

Indicator	Result for Project Census Tract
AQ-Ozone	20.8463
AQ-PM	13.8270
AQ-DPM	20.4107
Drinking Water	—
Lead Risk Housing	—
Pesticides	17.5517
Toxic Releases	26.5691
Traffic	50.8750
Effect Indicators	—
CleanUp Sites	19.9141
Groundwater	68.9191
Haz Waste Facilities/Generators	35.9762
Impaired Water Bodies	82.9693
Solid Waste	22.0848
Sensitive Population	—
Asthma	25.9222
Cardio-vascular	41.1640
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	—
Housing	—

Indicator	Result for Project Census Tract
Linguistic	—
Poverty	—
Unemployment	—

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	—
Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—
Voting	—

Indicator	Result for Project Census Tract
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	0.0
Asthma ER Admissions	97.4
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0

Indicator	Result for Project Census Tract
Diagnosed Diabetes	0.0
Life Expectancy at Birth	0.0
Cognitively Disabled	99.8
Physically Disabled	99.8
Heart Attack ER Admissions	98.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	0.0
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	12.9
Children	99.4
Elderly	99.8
English Speaking	0.0

Indicator	Result for Project Census Tract
Foreign-born	0.0
Outdoor Workers	98.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	82.5
Traffic Density	0.0
Traffic Access	0.0
Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

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

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

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Land Use	Land uses based on site plan.
Construction: Construction Phases	Construction schedule provided by applicant and contractor.
Construction: Off-Road Equipment	Construction equipment provided by applicant and contractor.
Construction: Trips and VMT	Construction workers and vendors provided by applicant and contractor.
Operations: Water and Waste Water	Maintenance assumptions provided by applicant.

8.3. Land Use

Model Parameter	Units	Default Value	New Value
Lot Area	acre	0.00000	1.30000
Landscape Area	sq. ft	—	0.00000

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Demolition	Demolition	Start Date	3/12/2027	3/15/2027
Demolition	Demolition	End Date	4/9/2027	3/17/2027
Demolition	Demolition	Work Days per Phase	20.0000	3.00000
Site Preparation	Site Preparation	Start Date	4/10/2027	3/12/2027
Site Preparation	Site Preparation	End Date	4/12/2027	4/22/2027
Site Preparation	Site Preparation	Work Days per Phase	2.00000	30.0000

8.4.2. Off-Road Equipment

Phase Name	Equipment Type	Model Parameter	Default Value	New Value
Demolition	Skid Steer Loaders	Engine Tier	Average	Tier 4 Final
Demolition	Skid Steer Loaders	Number per Day	3.00000	1.000000
Demolition	Skid Steer Loaders	Horsepower	84.0000	74.0000
Site Preparation	Excavators	Engine Tier	Average	Tier 4 Final
Site Preparation	Excavators	Number per Day	1.000000	2.00000
Site Preparation	Excavators	Horsepower	148.000	162.000
Site Preparation	Rubber Tired Dozers	Engine Tier	Average	Tier 4 Final
Site Preparation	Rubber Tired Dozers	Hours Per Day	7.00000	8.00000
Site Preparation	Rubber Tired Dozers	Horsepower	367.000	130.000
Site Preparation	Skid Steer Loaders	Engine Tier	Average	Tier 4 Final

Phase Name	Equipment Type	Model Parameter	Default Value	New Value
Site Preparation	Skid Steer Loaders	Horsepower	84.0000	74.0000
Directional Boring	Bore/Drill Rigs	Engine Tier	Average	Tier 4 Final
Directional Boring	Bore/Drill Rigs	Horsepower	148.000	130.000
Directional Boring	Excavators	Engine Tier	Average	Tier 4 Final
Directional Boring	Excavators	Horsepower	367.000	50.0000
Panel Installation	Pumps	Horsepower	82.0000	80.0000
Panel Installation	Skid Steer Loaders	Engine Tier	Average	Tier 4 Final
Panel Installation	Welders	Number per Day	3.00000	1.000000
Battery Pad	Cement and Mortar Mixers	Horsepower	10.00000	80.0000
Battery Pad	Plate Compactors	Horsepower	81.0000	74.0000
Battery Pad	Skid Steer Loaders	Horsepower	89.0000	74.0000

8.4.6. Trips and VMT

Phase Name	Trip Type	Model Parameter	Default Value	New Value
Demolition	Worker	One-Way Trips per Day	5.00000	4.00000
Site Preparation	Worker	One-Way Trips per Day	12.5000	8.00000
Directional Boring	Worker	One-Way Trips per Day	5.00000	6.00000
Panel Installation	Worker	One-Way Trips per Day	0.00000	15.0000
Battery Unit Placement	Worker	One-Way Trips per Day	0.00000	8.00000
Battery Unit Placement	Vendor	One-Way Trips per Day	0.00000	1.000000
Battery Pad	Worker	One-Way Trips per Day	7.50000	6.00000

8.5. Operations

8.5.4. Water and Waste Water

Land Use	Model Parameter	Units	Default Value	New Value
User Defined Industrial	Outdoor Water	gal/year	0.00000	1,552.00

APPENDIX B - Biological Species List

Plant Species Observed

Scientific Name	Common Name	Notes
Acacia baileyana	Cootamundra wattle	Non-native
Agave americana	American century plant	Non-native
Albizia lophantha	Plume albizia	Non-native
Aloe maculata	Aloe maculata	Non-native
Brugmansia versicolor	Angel's trumpet	Non-native
Chenopodium macrospermum	Largeseed goosefoot	Non-native
Chenopodium murale	Nettleleaf goosefoot	Non-native
Corymbia citriodora	Lemon-scented gum	Non-native
Cotula australis	Australian waterbuttons	Non-native
Cynodon dactylon	Bermudagrass	Non-native
Eucalyptus globulus	Tasmanian bluegum	Non-native
Festuca californica	California fescue	Native
Festuca perennis	Perennial ryegrass	Non-native
Ficus microcarpa	Chinese banyan	Non-native
Frankenia salina	Alkali heath	Native
Juglans regia	English walnut	Non-native
Malva parviflora	Cheeseweed mallow	Non-native
Medicago polymorpha	Burclover	Non-native
Melaleuca viminalis	Weeping bottlebrush	Non-native
Myoporum laetum	Myoporum	Non-native
Opuntia occidentalis	Pricklypear	Native
Phoenix canariensis	Canary Island date palm	Non-native
Plantago lanceolata	Narrowleaf plantain	Non-native
Polygonum aviculare	Prostrate knotweed	Non-native
Rhaphiolepis indica	Indian hawthorn	Non-native
Schinus terebinthifolius	Brazilian peppertree	Non-native
Sonchus oleraceus	Common sowthistle	Non-native
Strelitzia nicolai	Giant bird of paradise	Non-native

Animal Species Observed

Scientific Name	Common Name	Notes
Avian		
Anas platyrhynchos	Mallard	Native
Buteo jamaicensis	Red-tailed hawk	Native
Calypte anna	Anna's hummingbird	Native
Chamaea fasciata	Wrentit	Native
Charadrius vociferus	Killdeer	Native
Corvus brachyrhynchos	American crow	Native
Fulica americana	American coot	Native
Haemorhous mexicanus	House finch	Native
Himantopus mexicanus	Black-necked stilt	Native
Junco hyemalis	Dark-eyed junco	Native
Larus occidentalis	Western gull	Native
Leiothlypis celata	Orange-crowned warbler	Native
Melanerpes formicivorus	Acorn woodpecker	Native
Melospiza melodia	Song sparrow	Native
Melozone crissalis	California towhee	Native
Mimus polyglottos	Northern mockingbird	Native
Sayornis nigricans	Black phoebe	Native
Setophaga coronata	Yellow-rumped warbler	Native
Setophaga townsendi	Townsend's warbler	Native
Spinus tristis	American goldfinch	Native
Streptopelia decaocto	Eurasian collared-dove	Non-native
Sturnus vulgaris	European starling	Non-native
Zenaida macroura	Mourning dove	Native
Zonotrichia leucophrys	White-crowned sparrow	Native
Mammals		
Spermophilus beecheyi	California ground squirrel	Native

APPENDIX C – (Confidential) Cultural Technical Study

APPENDIX D – Geotechnical Reports

Geotechnical Evaluation
Digester 4
Biosolids and Energy Design - Phase 1
Goleta Sanitary District
Goleta, California

Hazen and Sawyer

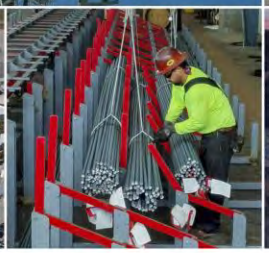
11260 El Camino Real, Suite 102 | San Diego, California 92130

January 29, 2021 | Project No. 2115730001












Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore

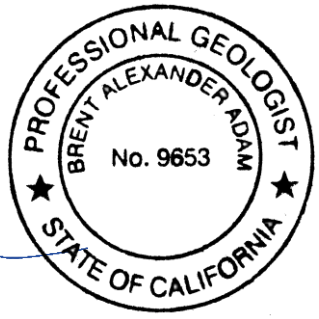
Geotechnical & Environmental Sciences Consultants

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

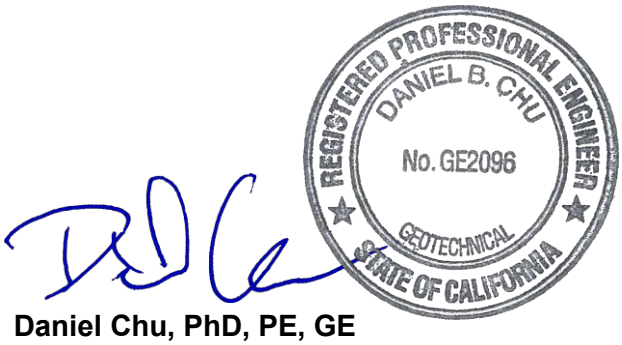
Geotechnical Evaluation
Digester 4
Biosolids and Energy – Phase 1
Goleta Sanitary District
Goleta, California

Mr. Tim Suydam
Hazen and Sawyer
11260 El Camino Real, Suite 102 | San Diego, California 92130

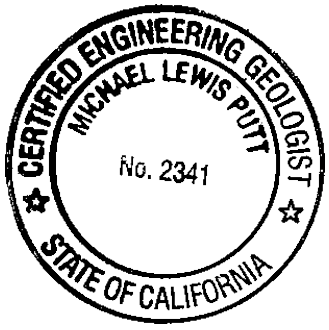
January 29, 2021 | Project No. 2115730001



Brent Adam, PG
Senior Staff Geologist



Daniel Chu, PhD, PE, GE
Chief Geotechnical Engineer



Michael Putt, PG, CEG
Principal Geologist

BAA/DBC/MLP/mlc

CONTENTS

1 INTRODUCTION 1
2 SCOPE OF SERVICES 1
3 SITE DESCRIPTION AND PROPOSED CONSTRUCTION 1
4 SUBSURFACE EVALUATION AND LABORATORY TESTING 2
5 GEOLOGIC AND SUBSURFACE CONDITIONS 2
5.1 Regional Geologic Setting 2
5.2 Site Geology 3
5.3 Groundwater 3
6 SEISMICITY 3
6.1 Surface Ground Rupture 5
6.2 Site-Specific Ground Motion 5
6.3 Liquefaction Potential 6
6.4 Flood and Tsunami Hazards 7
6.5 Landslides 7
7 CONCLUSIONS 7
8 RECOMMENDATIONS 8
8.1 Earthwork 8
8.1.1 Pre-Construction Conference 9
8.1.2 Site Preparation 9
8.1.3 Remedial Grading for Proposed Structures 9
8.1.4 Excavation Characteristics 10
8.1.5 Excavation Stability and Temporary Shoring 10
8.1.6 Fill Material 11
8.1.7 Fill Placement and Compaction 11
8.2 Underground Utilities 12
8.2.1 Pipe Bedding 12
8.2.2 Modulus of Soil Reaction for Pipe Design 12
8.3 Seismic Design Considerations 13
8.4 Foundations 13
8.4.1 Spread Footings 13

8.4.2 Mat Foundation 14
8.5 Corrosivity 14
8.6 Concrete Placement 15
8.7 Drainage 15
9 CONSTRUCTION OBSERVATION 15
10 LIMITATIONS 16
11 REFERENCES 18

TABLES

1 – Principal Active Faults 4
2 – 2019 California Building Code Seismic Design Criteria 13

FIGURES

1 – Site Location
2 – Site Plan
3 – Regional Geology
4 – Fault Locations
5 – Acceleration Response Spectra
6 – Liquefaction Hazard
7 – Flood and Tsunami Hazard
8 – Lateral Earth Pressures for Temporary Cantilevered Shoring
9 – Lateral Earth Pressures for Braced Excavations

APPENDICES

A – Boring Logs
B – Laboratory Testing

1 INTRODUCTION

In accordance with your request, we have performed a geotechnical evaluation for Digester 4 that will be constructed as part of Phase 1 of the Goleta Sanitary District Biosolids and Energy Strategic Plan at the Water Resource Recovery Facility (WRRF) project in Goleta, California (Figure 1). The purpose of our geotechnical services was to evaluate the soil and geologic conditions at the project site and to provide conclusions and recommendations regarding the geotechnical aspects of the planned new construction.

2 SCOPE OF SERVICES

Our scope of services included the following:

- Project coordination and review of readily available geologic maps, published literature, and aerial photographs.
- Site reconnaissance to evaluate the surficial geologic conditions at the site and to locate the proposed borings for coordination with Underground Services Alert for underground utility location.
- Subsurface exploration consisting of the excavation, sampling, and logging of two small-diameter borings to depths of up to approximately 67 feet. The borings were logged by a representative of our firm and relatively undisturbed and bulk samples were obtained at selected intervals from the borings for testing.
- Laboratory testing of representative soil samples. Laboratory tests included evaluation of in-situ moisture and density, percentage of particles finer than No. 200 sieve, direct shear strength, and soil corrosivity.
- Data compilation and engineering analysis of the information obtained from our background review, subsurface evaluation, and laboratory testing.
- Preparation of this geotechnical report presenting our findings, conclusions, and geotechnical recommendations for the project.

3 SITE DESCRIPTION AND PROPOSED CONSTRUCTION

The subject site is located on the northern portion of Mescalitan Island and to the east of the Goleta Slough within the Goleta Basin in Santa Barbara County. The site is bounded to the north and west by the Santa Barbara Municipal Airport, which is located within the Goleta Slough. San Pedro Creek is located to the east of the WRRF. New Digester 4 will be located north of existing Digester 3 and west of existing Digester 1, which will be converted for biogas storage. The Digester 4 area is relatively flat with elevations at the site of approximately 30 feet above mean sea level (MSL) (United States Geological Survey [USGS], 2018) and is currently covered with grass. Numerous above ground and buried pipelines, and other pad mounted equipment associated with the existing digesters and biofilters are present within the area.

We understand that the project includes the construction of a new anerobic digester and combined heat and power (CHP) system and converting the existing Digester 1 for biogas storage (Hazen and Sawyer, 2020). The proposed new Digester 4 will have an anticipated 0.55 MG capacity, with an approximate inside diameter of 55 feet. The bottom of the digester is conical-shaped with an approximate cone depth of 6 feet. The proposed new CHP system container weighs approximately 15,375 pounds and will be mounted to a concrete slab. The CHP system will be located adjacent to the existing power and maintenance building. Based on our understanding of the project, we anticipate that excavations on the order of 8 feet will be needed to construct the new digester. The approximate locations of the planned improvements are shown on Figure 2.

4 SUBSURFACE EVALUATION AND LABORATORY TESTING

Our subsurface exploration at the site was performed on December 23, 2020, and consisted of the drilling, logging, and sampling of two small-diameter borings to depths of up to approximately 67 feet below the surface. The borings were drilled using a truck mounted drill rig utilizing 8-inch-diameter hollow stem augers. The borings were excavated to evaluate the subsurface conditions and to collect samples for laboratory testing, and were logged by a representative from our firm. Bulk and relatively undisturbed soil and bedrock samples were obtained at selected depths for laboratory testing. The approximate locations of the borings are presented on Figure 2. The logs of the exploratory borings are presented in Appendix A.

Laboratory testing of representative soil samples included tests to evaluate in-situ moisture and density, percentage of particles finer than No. 200 sieve, consolidation, direct shear strength, and soil corrosivity. The results of the in-situ moisture content and dry density tests are presented on the boring logs in Appendix A. The remaining laboratory testing results are presented in Appendix B.

5 GEOLOGIC AND SUBSURFACE CONDITIONS

5.1 Regional Geologic Setting

The project site is situated within the northwestern portion of the Transverse Ranges geomorphic province of southern California (Norris and Webb, 1990). The Transverse Ranges geomorphic province is characterized by generally east to west-trending mountain ranges and fault systems, and is generally underlain by thick sequences of marine sedimentary rock.

The project site is located on the Santa Barbara coastal alluvial plain south of the south flank of the Santa Ynez Mountains. The site vicinity is underlain by alluvium associated with deposition of sediments from Santa Ynez Mountains. Regional geologic mapping indicates that the site is

underlain by older Pleistocene siltstone terrace deposits and Miocene-age siliceous deposits of the Monterey formation (USGS, 2006). A regional geologic map is shown in Figure 3.

5.2 Site Geology

Based on our review of regional geologic publications, and our subsurface exploration, the project area is underlain by fill, terrace deposits, and at depth by the Monterey Formation. Fill materials were encountered in both of our exploratory borings to depths of up to approximately 8 feet below the ground surface (bgs). The fill encountered consisted predominantly of silty sand that was generally observed to be moist and very loose to medium dense. Terrace deposits were encountered beneath the fill in our exploratory borings to a depth of approximately 63 feet bgs. The terrace deposits generally consisted of unconsolidated sandy soils, silty claystone and silty sandstone materials. Monterey Formation was encountered beneath the terrace deposits in boring B-1 to the total depth explored of approximately 67 feet and consisted of clayey siltstone. Auger refusal was encountered in boring B-1 in the Monterey formation on siliceous bedrock.

5.3 Groundwater

Groundwater was encountered in boring B-1 at a depth of approximately 57 feet during drilling. Groundwater was measured at a property located approximately 1,400 feet northeast of the site, on the east side of San Pedro Creek, at depths as shallow as approximately 3 feet deep, which corresponds to an approximate elevation of 6 feet above MSL. Fluctuations in the level of groundwater may occur due to variations in ground surface topography, subsurface stratification, rainfall, irrigation practices, groundwater pumping, tidal fluctuations and other factors that may not have been evident at the time of our field evaluation.

6 SEISMICITY

The subject site is not located within a State of California Earthquake Fault Zone (formerly known as Alquist-Priolo Special Studies Zone) (Hart and Bryant, 1997). Although not zoned by the State of California, the site is located in close proximity to the More Ranch Fault Zone (part of the Mission Ridge Fault System), which is considered active by the County of Santa Barbara. The location of the More Ranch Fault is not consistent in the various geologic publications that we reviewed. Evaluation of the surface rupture hazard at the WRRF was performed by Earth Systems Pacific (2009). New Digester 4 will be located near Area 2 of the study performed by Earth Systems Pacific, and they concluded that breaks or offset geologic units suggestive of tectonic faulting were not observed in Area 2. Additional evaluation of surface fault rupture was beyond the scope of our services for this project.

The site is located in a seismically active area, as is the majority of southern California, and the potential for strong ground motion in the project areas is considered significant during the design life of the proposed improvements. The approximate locations of major faults in the region and their geographic relationship to the site are shown on Figure 4.

Based on our document review, the potentially active Mission Ridge Fault Zone is located approximately 0.5 mile from the site. Table 1 lists selected principal known active faults that may affect the subject site and the maximum moment magnitude (M_{max}) as published by the United States Geological Survey (USGS, 2008). The approximate fault-to-site distances were calculated using the USGS fault parameters web-based design tool (USGS, 2008).

In addition to mapped faults shown on Figure 4, the Channel Islands blind thrust fault is located approximately 31 miles south of the site. Blind thrust faults are low-angle faults at depths that do not break the surface and are, therefore, not shown on Figure 4. Although blind thrust faults do not have a surface trace, they can be capable of generating damaging earthquakes and are included in Table 1.

Table 1 – Principal Active Faults

Fault	Approximate Fault-to-Site Distance miles (kilometers)	Maximum Moment Magnitude (Mmax)
Mission Ridge	0.5 (0.8)	6.9
Red Mountain	3.1 (5.0)	7.4
North Channel	5.5 (8.9)	6.8
Pitas Point	6.1 (9.8)	7.3
Santa Ynez	8.5 (13.7)	7.3
Oak Ridge	14.7 (23.7)	7.4
Ventura	16.2 (26.0)	7.0
Los Alamos-West Baseline	19.6 (31.5)	6.9
Santa Cruz Island	25.8 (41.6)	7.2
Santa Rosa Island	28.7 (46.2)	6.9
Lions Head	29.8 (47.9)	6.8
Channel Islands Thrust	31.0 (49.9)	7.3
San Luis Range	37.4 (60.2)	7.2
San Cayetano	38.5 (62.0)	6.7
Casmalia	41.2 (66.2)	6.8
San Andreas	43.2 (69.6)	7.7
Simi-Santa Rosa	44.2 (71.2)	6.9

The principal seismic hazards at the subject site are surface fault rupture and strong ground motion. Liquefaction is not a consideration for the project due to the shallow depth of bedrock materials at the site. A brief description of these hazards and the potential for their occurrences on site are discussed below.

6.1 Surface Ground Rupture

Based on our review of the referenced literature and our site reconnaissance, no faults that are considered active by the State of California are known to cross the project site. However, as described above, the site is located in the More Ranch Fault Zone that is considered active by the County of Santa Barbara. A previous fault rupture study concluded that breaks or offset geologic units suggestive of tectonic faulting were not observed in the vicinity of the proposed Digester 4. Based on the findings from the prior surface fault rupture study, the probability of damage from surface ground rupture is considered to be low. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

6.2 Site-Specific Ground Motion

Considering the proximity of the site to active faults capable of producing a maximum moment magnitude of 6.0 or more, the project area has a high potential for experiencing strong ground motion. The 2019 California Building Code (CBC) specifies that the risk-targeted maximum considered earthquake (MCE_R) ground motion response accelerations be used to evaluate seismic loads for design of buildings and other structures. Per the 2019 CBC, a site-specific ground motion hazard analysis shall be performed for structures on Site Class D with a mapped MCE_R, 5 percent damped, spectral response acceleration parameter at a period of 1 second (S_1) greater than or equal to 0.2g in accordance with Sections 21.2 and 21.3 of the American Society of Civil Engineers (ASCE) Publication 7-16 (2016) for the Minimum Design Loads and Associated Criteria for Building and Other Structures. We calculated that the S_1 for the site is equal to 0.83g using the 2020 Applied Technology Council (ATC) seismic design tool (web-based); therefore, a site-specific ground motion hazard analysis was performed for the project area.

The site-specific ground motion hazard analysis consisted of the review of available seismologic information for nearby faults and performance of probabilistic seismic hazard analysis (PSHA) and deterministic seismic hazard analysis (DSHA) to develop acceleration response spectrum (ARS) curves corresponding to the MCE_R for 5 percent damping. Prior to the site-specific ground motion hazard analysis, we obtained the mapped seismic ground motion values and developed the general MCE_R response spectrum for 5 percent damping in accordance with Section 11.4 of ASCE 7-16 (ATC, 2020). The average shear wave velocity (V_S) for the upper 30 meters of soil (V_{S30}) is assumed to be 300 meters per second (m/s) (California Geological Survey/Willis Site Classification Map) and the depths to V_S = 1,000 m/s and V_S = 2,500 m/s are assumed to be 760 meters and 3,85 kilometers, respectively (Southern California Earthquake Center Community Velocity Model Version 4 Basin Depth). These values were evaluated using the Open Seismic Hazard Analysis software developed by USGS (USGS, 2020a).

The 2014 new generation attenuation (NGA) West-2 relationships were used to evaluate the site-specific ground motions. The NGA relationships that we used for developing the probabilistic and deterministic response spectra are by Chiou and Youngs (2014), Campbell and Bozorgnia (2014), Boore, Stewart, Seyhan, and Atkinson (2014), and Abrahamson, Silva, and Kamai (2014). The Open Seismic Hazard Analysis software developed by USGS (USGS, 2020a) was used for performing the PSHA. The Calculation of Weighted Average 2014 NGA Models spreadsheet by the Pacific Earthquake Engineering Research Center was used for performing the DSHA (Seyhan, 2014).

PSHA was performed for earthquake hazards having a 2 percent chance of being exceeded in 50 years multiplied by the risk coefficients per ASCE 7-16. The maximum rotated components of ground motions were considered in PSHA with 5 percent damping. For the DSHA, we analyzed accelerations from characteristic earthquakes on active faults within the region using the California Department of Transportation (Caltrans) ARS (Caltrans, 2019) seismic design tool (web-based) and the hazard curves and deaggregation plots at the site using the USGS Unified Hazard Tool application (USGS, 2020b). A magnitude 7.4 event on the Red Mountain fault with a rupture distance of 4.1 kilometers from the site was evaluated to be the controlling earthquake. Hence, the deterministic seismic hazard analysis was performed for the site using this event and corrections were made to the spectral accelerations for the 84th percentile of the maximum rotated component of ground motion with 5 percent damping.

The site-specific MCE_R response spectrum was taken as the lesser of the spectral response acceleration at any period from the PSHA and DSHA, and the site-specific general response spectrum was determined by taking two-thirds of the MCE_R response spectrum with some conditions in accordance with Section 21.3 of ASCE 7-16. Figure 5 presents the site-specific MCE_R response spectrum and the site-specific design response spectrum. The general mapped design response spectrum calculated in accordance with Section 11.4 of ASCE 7-16 is also presented on Figure 5 for comparison. The site-specific spectral response acceleration parameters, consistent with the 2019 CBC, are provided in Section 8.4 for the evaluation of seismic loads on buildings and other structures. The site-specific modified peak ground acceleration, PGA_M, was calculated as 1.05 g.

6.3 Liquefaction Potential

Liquefaction is the phenomenon in which loosely deposited granular soils and non-plastic silts located below the water table undergo rapid loss of shear strength when subjected to strong earthquake-induced ground shaking. Ground shaking of sufficient duration results in the loss of grain-to-grain contact due to a rapid rise in pore water pressure, and causes the soil to behave

as a fluid for a short period of time. Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet. Factors known to influence liquefaction potential include composition and thickness of soil layers, grain size, relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking.

The Santa Barbara County Comprehensive Plan Seismic Safety & Safety Element (County of Santa Barbara, 2010) indicates that the subject site is located in an area with a moderate rating for liquefaction (Figure 6). Based on the relatively shallow depth to claystone and sandstone bedrock materials encountered during our subsurface exploration, liquefaction is not a design consideration for the project.

6.4 Flood and Tsunami Hazards

Based on our review of the City of Goleta Fire, Flood and Tsunami Hazards map (City of Goleta, 2016), the project site is not located in the 100-year Flood Hazard Zone, but is located within the 500-year flood zone (Figure 7).

Tsunamis are long wavelength seismic, sea waves (long compared to ocean depth) generated by the sudden movements of the ocean floor during submarine earthquakes, landslides, or volcanic activity. The project area is not mapped within an area considered susceptible to tsunami inundation. Therefore, damage due to tsunamis is not a design consideration for this project.

6.5 Landslides

Based on our site reconnaissance and review of published geologic maps, and stereoscopic aerial photographs as well as review of the City of Goleta Geologic Hazards Map (City of Goleta, 2009), landslides are not considered to be a potential hazard at the site.

7 CONCLUSIONS

Based on our evaluation, it is our opinion that proposed construction is feasible from a geotechnical perspective, provided the recommendations presented in this report are incorporated into the design and construction of the project. In general, the following additional conclusions were made:

- The site is underlain by fill soils consisting of silty sand, terrace deposits consisting of unconsolidated sand, silty sandstone and silty claystone, and siltstone bedrock materials of the Monterey Formation.

- The existing fill materials have relatively low blow counts and are not considered suitable to support the new digester. Remedial grading will be appropriate to remove the fill to competent native materials. The fill may be reused provided it is placed as engineered, compacted fill.

- The existing fill soils and terrace deposits generally are composed of granular soils that may be subject to caving. These materials should be considered Type C soils in accordance with Occupational Safety and Health Administration (OSHA) soil classifications.

- Based on materials observed during our site reconnaissance and encountered in our exploratory borings, excavations in fill, terrace deposits are considered feasible with heavy duty equipment in good working order.

- Groundwater was encountered at a depth of 57 feet during drilling. Groundwater is not anticipated to be encountered during excavations for this project. However, fluctuations in the groundwater level may occur as a result of variations in seasonal precipitation, irrigation practices, and other factors.

- The subject site is not located within a State of California Earthquake Fault Zone. However, the site is located near the More Ranch Fault, which is considered active by the County of Santa Barbara.

- The site modified PGA_M was estimated to be 1.05g.

- Our laboratory corrosion testing indicates that the near-surface site soils should be considered non-corrosive based on California Department of Transportation (Caltrans, 2018) corrosion guidelines.

8 RECOMMENDATIONS

The following sections present our geotechnical recommendations for construction of the proposed improvements. These recommendations are based on our evaluation of the site geotechnical conditions and our understanding of the proposed construction. The proposed construction should be performed in accordance with the recommendations presented in this report, project specifications, the Goleta Sanitary District, and appropriate agency standards.

8.1 Earthwork

Earthwork at the site is anticipated to consist of the following:

- Excavations on the order of 8 feet deep for the proposed new digester.

- Remedial grading to remove fill and loose native materials to competent materials in the area of the new digester.

- Cut and fill grading to create a pad for the proposed new CHP

- Excavation and backfill of trenches for new pipelines.

Earthwork operations should be performed in accordance with the requirements of applicable governing agencies and the recommendations presented in the following sections of this report.

Detailed construction drawings were not available for our review at the time this report was prepared. When construction drawings are available, they should be reviewed by Ninyo & Moore. Revised remedial grading recommendations may be appropriate.

8.1.1 Pre-Construction Conference

We recommend that a pre-construction conference be held. The owner and/or their representative, the governing agencies' representatives, the civil engineer, Ninyo & Moore, and the contractor should be in attendance to discuss the work plan and project schedule and earthwork requirements.

8.1.2 Site Preparation

Prior to performing excavations or other earthwork, the site should be cleared of existing debris, vegetation, and loose or otherwise unsuitable soils. Obstructions that extend below the finished grade should be removed and the resulting holes filled with compacted soil. Materials generated from the clearing operations should be removed from the project site and disposed of at a legal dump site.

8.1.3 Remedial Grading for Proposed Structures

Based on our subsurface exploration, approximately 8 feet of fill is present beneath the proposed Digester 4 and CHP. The existing fill was observed to be relatively loose and remedial grading is recommended to prepare the areas for the new structures. The majority of the existing fill will be removed by the planned excavation for Digester 4, However, where the fill is not removed, additional excavation should be performed such that the undocumented fill and loose surficial soils are removed to expose competent native materials. The remedial grading should extend approximately 5 feet beyond the perimeter of the digester.

We understand that the CHP system container will be mounted to a concrete slab. We recommend that remedial grading is performed to provide approximately 3 feet of compacted fill below the bottom of the mat foundation. The limits of the excavation should extend laterally so that the bottom of the excavation is approximately 3 feet beyond the edge of the mat foundation.

The excavation bottoms should be evaluated by our representative during construction. Additional overexcavation of loose, soft, wet and/or undocumented fill may be appropriate depending on the conditions exposed during grading. The exposed subgrade should be scarified to approximately 8 inches deep, moisture conditioned, and compacted prior to the placement of new fill.

8.1.4 Excavation Characteristics

Based on our exploratory borings and review of geologic background materials, we anticipate that excavations on the order of 8 feet deep within the fill and terrace deposits at the site may generally be accomplished with grading and excavating equipment in good operating condition. Excavations are not anticipated to encounter the deeper claystone and sandstone terrace deposit materials that would involve additional excavating effort.

8.1.5 Excavation Stability and Temporary Shoring

There is limited working space due to existing structures and buried pipelines that will be protected in-place during construction of the project, therefore, shoring is anticipated in order to perform excavations for the proposed digester and other pipeline excavations. Temporary near-vertical excavations not exceeding a depth of approximately 4 feet should be feasible; however, excavations that expose friable sand and silt with low cohesion may be subject to caving. Excavations that are unstable or deeper than 4 feet should be laid back to slope inclinations of approximately 1½:1 (horizontal to vertical) or flatter. Where excavations cannot be laid back, shoring is appropriate. Excavations should be performed in accordance with OSHA's regulations. On-site soils should be considered as Type C soils in accordance with OSHA guidelines.

If shoring systems are used for site excavations, they should be designed for the anticipated soil conditions using the lateral earth pressure values presented on Figures 8 and 9 for cantilevered and braced shoring systems, respectively. The recommended design pressures are based on the assumption that the shoring system is constructed without raising the ground surface elevation behind the shored sidewalls of the excavation, that there are no surcharge loads, such as soil stockpiles and construction materials, and that no loads act above a 1:1 (horizontal to vertical) plane ascending from the base of the shoring system. For a shoring system subjected to the above-mentioned surcharge loads, the contractor should include the effect of these loads on the lateral earth pressures acting on the shored walls.

We anticipate that settlement of the ground surface will occur behind the shored excavation. The amount of settlement depends heavily on the type of shoring system, the contractor's workmanship, and soil conditions. To reduce the potential for distress to adjacent improvements, we recommend that the shoring system be designed to limit the ground settlement behind the shoring system to ½ inch or less. Possible causes of settlement that should be addressed include settlement during installation of the shoring elements, excavation for structure construction, construction vibrations, and removal of the support system. We recommend that shoring installation be evaluated carefully by the contractor prior

to construction and that ground vibration and settlement monitoring be performed during construction.

The contractor should retain a qualified and experienced engineer to design the shoring system. The shoring parameters presented in this report are minimum requirements, and the contractor should evaluate the adequacy of these parameters and make the appropriate modifications for their design. We recommend that the contractor take appropriate measures to protect workers. OSHA requirements pertaining to worker safety should be observed.

8.1.6 Fill Material

In general, the on-site soils should be suitable for use as fill materials provided the soils are free of trash, debris, roots, contamination, deleterious materials, and cobbles or hard lumps of material over 4 inches in diameter. Cobbles or hard lumps larger than 4 inches should be broken into small fragments or removed from the site. Wet soils, or soil with a relatively high moisture content, if encountered during excavation, should be allowed to dry to near the laboratory optimum moisture content prior to their placement as backfill. In the event that drying of on-site soil is not feasible, imported granular soil should be used for backfill.

Imported soil should consist of clean, granular material that generally meets Standard Specifications for Public Works Construction (Greenbook) criteria for structure backfill. Soil should also be tested for corrosive properties prior to importing. We recommend that the imported materials meet the Caltrans (2018) criteria for non-corrosive soils (i.e., soils having a chloride concentration of 500 parts per million (ppm) or less, a soluble sulfate content of approximately 0.20 percent (2,000 ppm) or less, a pH value of 5.5 or higher, and a resistivity of 1,100 ohm-centimeters [ohm-cm] or higher). Materials for use as fill should be evaluated by the project geotechnical consultant prior to importing. The contractor should be responsible for the uniformity of import material brought to the site.

8.1.7 Fill Placement and Compaction

Fill material, including trench backfill, should be moisture conditioned and compacted in horizontal lifts to a relative compaction of 90 percent or more as evaluated by ASTM International (ASTM) D 1557. Fill material should be moisture-conditioned to slightly above the laboratory optimum moisture content. The lift thickness for fill soils will depend on the type of compaction equipment used but generally should not exceed 8 inches in loose thickness. Special care should be exercised to avoid damaging pipes during compaction of trench backfill. Placement and compaction of the fill soils should be in general accordance with applicable grading ordinances and good construction practice.

8.2 Underground Utilities

We anticipate that utility pipelines will be installed as a part of the subject project that will be supported on fill and, depending on the depths, on terrace deposits. The depths of the pipelines are not known; however, we anticipate that the pipe invert depths will not exceed 10 feet. Trenches should not be excavated adjacent to footing foundations of existing structures or earthen berms. If needed, trenches can be excavated adjacent to a continuous footing or berms provided that the bottom of the trench is located above a 1:1 plane projected downward from the bottom of the adjacent footing or toe of the berm. Utility lines that cross beneath footings or berms should be encased in concrete below the footing/berm.

8.2.1 Pipe Bedding

We recommend that bedding material be placed around pipe zones 1 foot or more above the top of the pipe. The bedding material should be classified as sand, be generally free of organic material, and have a sand equivalent (SE) of 30 or more. We do not recommend crushed rock be used for bedding material because of the fine-grained nature of the subsurface material. It has been our experience that the voids within a crushed rock material are sufficiently large to allow fines to migrate into the voids, thereby creating the potential for sinkholes and depressions to develop at the ground surface. Where soft, wet soil conditions are encountered, the trench excavation should be excavated approximately 1 to 2 feet or more below the pipe invert and should be backfilled with gravel wrapped in filter fabric.

Special care should be taken not to allow voids beneath and around the pipe. Compaction of the bedding material and backfill should proceed up both sides of the pipe. Trench backfill, including bedding material, should be placed in accordance with the recommendations presented in the preceding section.

8.2.2 Modulus of Soil Reaction for Pipe Design

The modulus of soil reaction is used to characterize the stiffness of soil backfill placed at the sides of buried flexible pipelines for the purpose of evaluating deflection caused by the weight of the backfill above the pipe. A soil reaction modulus of 1,000 pounds per square inch (psi) may be used for an excavation depth of up to about 5 feet when backfilled with granular soil and compacted. A soil reaction modulus of 1,200 psi may be used for trenches deeper than 5 feet.

8.3 Seismic Design Considerations

Design of the proposed improvements should be performed in accordance with the requirements of governing jurisdictions and applicable building codes. Table 2 presents the seismic design parameters for the site in accordance with the CBC (2019) guidelines (ATC, 2020).

Table 2 – 2019 California Building Code Seismic Design Criteria

Site Coefficients and Spectral Response Acceleration Parameters	Values
Site Class	D
Mapped Spectral Response Acceleration at 0.2-second Period, S_s	2.366g
Mapped Spectral Response Acceleration at 1.0-second Period, S_1	0.830g
Site-Specific Spectral Response Acceleration at 0.2-second Period, S_{MS}	2.386g
Site-Specific Spectral Response Acceleration at 1.0-second Period, S_{M1}	2.176g
Site-Specific Design Spectral Response Acceleration at 0.2-second Period, S_{DS}	1.591g
Site-Specific Design Spectral Response Acceleration at 1.0-second Period, S_{D1}	1.451g
Site-Specific Modified Peak Ground Acceleration, PGA_M	1.047g

8.4 Foundations

The proposed digester and CHP may be supported on shallow foundations including spread footings, and mat foundation bearing on compacted fill prepared in accordance with the recommendations presented in the Earthwork section of this report. Foundations should be designed in accordance with structural considerations and the following recommendations. In addition, requirements of the appropriate governing jurisdictions and applicable building codes should be considered in the design of the structures.

8.4.1 Spread Footings

Spread footings should extend 24 inches or more below the adjacent finished grade and bear on compacted fill. Spread footings should be reinforced with two No. 4 steel reinforcing bars, one placed near the top and one placed near the bottom of the footings, and further detailed in accordance with the recommendations of the structural engineer.

Footings, as described above and bearing on compacted fill, may be designed using an allowable bearing capacity of 3,000 pounds per square foot (psf). The allowable bearing capacity may be increase by 400 and 800 psf for each additional foot of width and depth, respectively, to a value of 5,000 psf. The allowable bearing capacity may be increased by one-third when considering loads of short duration such as wind or seismic forces. Total and differential settlement for footings under static load are estimated to be less than approximately 1 inch and ½ inch over a horizontal span of 40 feet, respectively.

Footings bearing on compacted fill may be designed using a coefficient of friction of 0.35, where the total frictional resistance equals the coefficient of friction times the dead load. Footings may be designed using a passive resistance of 350 psf per foot of depth for level ground condition up to a value of 3,500 psf. The allowable lateral resistance can be taken as the sum of the frictional resistance and passive resistance provided the passive resistance does not exceed one-half of the total allowable resistance. The passive resistance may be increased by one-third when considering loads of short duration such as wind or seismic forces.

8.4.2 Mat Foundation

Based on our analysis, it is our opinion that the proposed structures may be supported by mat foundations. Mat foundations should be founded approximately 2 feet below the adjacent finish grade and designed using a net allowable bearing capacity of 2,500 psf and a coefficient of friction for sliding resistance of 0.35. Under the static loading condition, the total and differential settlement corresponding to this allowable bearing load are estimated to be less than approximately 1 inch and ½ inch over a horizontal span of 30 feet, respectively.

Mat foundations typically experience some deflection due to loads placed on the mat and the reaction of the soils directly underlying the mat. A design modulus of subgrade reaction (K) of 30 tons per cubic foot (tcf) may be used for the subgrade soils in evaluating such deflections.

8.5 Corrosivity

Laboratory testing was performed on representative samples of near-surface soil to evaluate soil pH, electrical resistivity, water-soluble chloride content, and water-soluble sulfate content. The soil pH and electrical resistivity tests were performed in general accordance with California Test Method (CT) 643. Chloride content tests were performed in general accordance with CT 422. Sulfate testing was performed in general accordance with CT 417.

The pH of the tested sample was measured at approximately 7.6, the electrical resistivity was measured at approximately 11,034 ohm-centimeters, the chloride content was measured at approximately 170 ppm, and the sulfate content was measured at approximately 0.002 percent (i.e., 20 ppm). Based on the laboratory test results and Caltrans (2018) corrosion criteria, the project site can be classified as a non-corrosive site, which is defined as having earth materials with less than 500 ppm chlorides, less than 0.20 percent sulfates (i.e., 2,000 ppm), a pH of 5.5 or more, or an electrical resistivity of 1,100 ohm-centimeters or more. If corrosion-susceptible

improvements are planned on site, we recommend that a corrosion engineer be consulted for further evaluation and recommendations.

8.6 Concrete Placement

Concrete in contact with soil or water that contains high concentrations of soluble sulfates can be subject to chemical and/or physical deterioration. Based on the CBC criteria (2016) and American Concrete Institute (ACI) criteria (ACI, 2012), the potential for sulfate attack is considered negligible for water-soluble sulfate contents in soil less than 0.10 percent by weight (1,000 ppm). The sample tested during this evaluation indicated water-soluble sulfate contents of approximately 0.002 percent by weight (i.e., about 20 ppm). Accordingly, the on-site soils are considered to have a negligible potential for sulfate attack. However, due to the potential variability in soil conditions across the site, we recommend that Type V cement with a water/cement ratio of 0.45 or less be considered for the project.

In order to reduce the potential for shrinkage cracks in the concrete during curing, we recommend that the concrete be placed with a slump of 4 inches based on ASTM C 143. The slump should be checked periodically at the site prior to concrete placement. We also recommend that crack control joints be provided in concrete sidewalks in accordance with the recommendations of the project structural engineer to reduce the potential for distress due to minor soil movement and concrete shrinkage. The project structural engineer should be consulted for additional concrete specifications.

8.7 Drainage

Proper surface drainage is imperative for satisfactory site performance. Positive drainage should be provided and maintained to direct surface water away from foundations and other site improvements. Positive drainage is defined as a slope of 2 percent or more over a distance of 5 feet away from the foundations and tops of slopes. Runoff should then be directed by the use of swales or pipes into a collective drainage system. Surface waters should not be allowed to pond adjacent to footings or pavements.

9 CONSTRUCTION OBSERVATION

The recommendations provided in this report are based on our understanding of the proposed project and on our evaluation of the data collected based on subsurface conditions disclosed by two exploratory borings. It is imperative that the interpolated subsurface conditions be checked by a qualified person during construction. Observation of foundation excavations and observation and testing of compacted fill and backfill should be performed by a qualified person during

construction. In addition, the project plans and specifications should be reviewed by Ninyo & Moore to check for conformance with the recommendations of this report prior to construction. It should be noted that, upon review of these documents, some recommendations presented in this report might be revised or modified.

During construction we recommend that the duties of the geotechnical consultant include, but not be limited to:

- Observing remedial grading and excavation bottoms and the placement and compaction of fill, including trench backfill.
- Evaluating imported materials prior to their use as fill, if used.
- Performing field tests to evaluate fill compaction.
- Observing foundation excavations for bearing materials and cleaning prior to placement of reinforcing steel or concrete.
- Performing material testing services including concrete compressive strength and steel tensile strength tests and inspections.

10 LIMITATIONS

The field evaluation, laboratory testing, and geotechnical analyses presented in this geotechnical report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding the conclusions, recommendations, and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation will be performed upon request.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report is intended for design purposes only. It does not provide sufficient data to prepare an accurate bid by contractors. It is suggested that the bidders and their geotechnical consultant perform an independent evaluation of the subsurface conditions in the project areas. The independent evaluations may include, but not be limited to, review of other geotechnical reports

prepared for the adjacent areas, site reconnaissance, and additional exploration and laboratory testing.

Our conclusions, recommendations, and opinions are based on an analysis of the observed site conditions. If geotechnical conditions different from those described in this report are encountered, our office should be notified, and additional recommendations, if warranted, will be provided upon request. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

11 REFERENCES

Abrahamson, N.A., Silva, W.J. and Kamai, R., 2014, Summary of the ASK14 Ground Motion Relation for Active Crustal Regions, Earthquake Spectra: Vol. 30, No. 3, pp. 1025-1055, dated August.

American Concrete Institute, 2019, Building Code Requirements for Structural Concrete (ACI 318-14) and Commentary (ACI 318-14).

American Society of Civil Engineers (ASCE), 2016, Minimum Design Loads and Associated Criteria for Building and Other Structures, ASCE Standard 7-16.

ASTM International (ASTM), 2018, Annual Book of ASTM Standards, West Conshohocken, Pennsylvania.

Applied Technology Council, 2020, Hazards by Location, https://hazards.atcouncil.org/.Boore, D.M., Stewart, J.P., Seyhan, E., and Atkinson, G.M., 2014, NGA-West2 Equations for Predicting PGA, PGV, and 5% Damped PSA for Shallow Crustal Earthquakes, Earthquake Spectra, Vol. 30, No. 3, pp. 1057-1085, dated August.

Bowles, J.E., 1996, Foundation Analysis and Design, Fifth Edition, The McGraw-Hill Companies, Inc.

Building News, 2018, “Greenbook” Standard Specifications for Public Works Construction: BNI Publications.

California Building Standards Commission, 2019, California Building Code: California Code of Regulations, Title 24, Part 2, Volumes 1 and 2, based on the 2018 International Building Code.

California Department of Conservation, Division of Mines and Geology, 1994, Fault Rupture Hazard Zones in California: Special Publication 42.

California Department of Conservation, Division of Mines and Geology, 1996, Probabilistic Seismic Hazard Assessment for the State of California, Open-File Report 96-08.

California Department of Transportation, 2018, Corrosion Guidelines, Version 3.0, dated March.

California Geologic Survey, 2002, California Geomorphic Provinces, Note 36.

California Geological Survey, 2008, Guidelines for Evaluating and Mitigating Seismic Hazards in California, Special Publication 117A, dated June.

Campbell, K.W., and Bozorgnia, Y., 2014, NGA-West2 Ground Motion Model for the Average Horizontal Components of PGA, PGV, and 5% Damped Linear Acceleration Response Spectra, Earthquake Spectra, Vol. 30, No. 3, pp. 1087-1115, dated August.

Chiou, B. S.-J., and Youngs, R.R., 2014, Update of the Chiou and Youngs NGA Model for the Average Horizontal Component of Peak Ground Motion and Response Spectra, Earthquake Spectra, August 2014, Vol. 30, No. 3, dated August.

City of Goleta, 2009, Geologic Hazards Map, General Plan/Coastal Land Use Plan, Dated November 11.

City of Goleta, 2016, Fire, Flood, and Tsunami Hazards Map, General Plan/Coastal Land Use Plan, Dated November 11.

Earth Systems Pacific, 2009, Fault Investigation Report, Goleta Sanitary District, Wastewater Treatment Plant Upgrade, Goleta Area of Santa Barbara County, California, dated August 3.

GeoTracker, 2021, www.geotracker.waterboards.ca.gov.

GoogleEarth, 2021, Website for Viewing Aerial Photographs, http://maps.google.com/.

Hart, E.W., and Bryant, W.A., 2007, Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps: California Geological Survey, Special Publication 42, with Supplement 1 added in 2012, Supplement 2 added in 2014, Supplement 3 added in 2015, and Supplement 4 added in 2016.

Hazen and Sawyer, 2020, Goleta Sanitary District, Biosolids & Energy – Phase 1, Preliminary Design Report, Project #20063-012, Dated September 23.

Jennings, C.W., and Bryant, W.A., 2010, Fault Activity Map: California Geological Survey, California Geologic Data Map Series, Map No. 6, Scale 1:750,000.

Ninyo & Moore, 2020, Proposal for Geotechnical Consulting Services, New Digester 4 and Associated Piping, Goleta Sanitary District, City of Goleta, California, Proposal No. 04-03006, dated October 16.

Norris, R.M., and Webb, R.W., 1990, Geology of California, Second Edition: John Wiley & Sons.

Seyhan, E, 2014, Weighted Average 2014 NGA West-2 GMPE, Pacific Earthquake Engineering Research Center.

United States Geological Survey, 2006, Preliminary Geologic Map of the Santa Barbara Coastal Plain Area, Santa Barbara County, California, Open Filer Report 02-136, Scale 1:24,000

United States Geological Survey, 2008, National Seismic Hazard Maps – Fault Parameters; https://earthquake.usgs.gov/cfusion/hazfaults_2008_search/query_results.cfm

United States Geological Survey and Southern California Earthquake Center, 2020a, Open Seismic Hazard Analysis, http://www.opensha.org/.

United States Geological Survey, 2020b, Unified Hazard Tool; https://earthquake.usgs.gov/hazards/interactive/.

FIGURES



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: USGS, 2018.

N

FEET

0 2,000 4,000

211573001_SL.dwg 01/25/2021 JDP

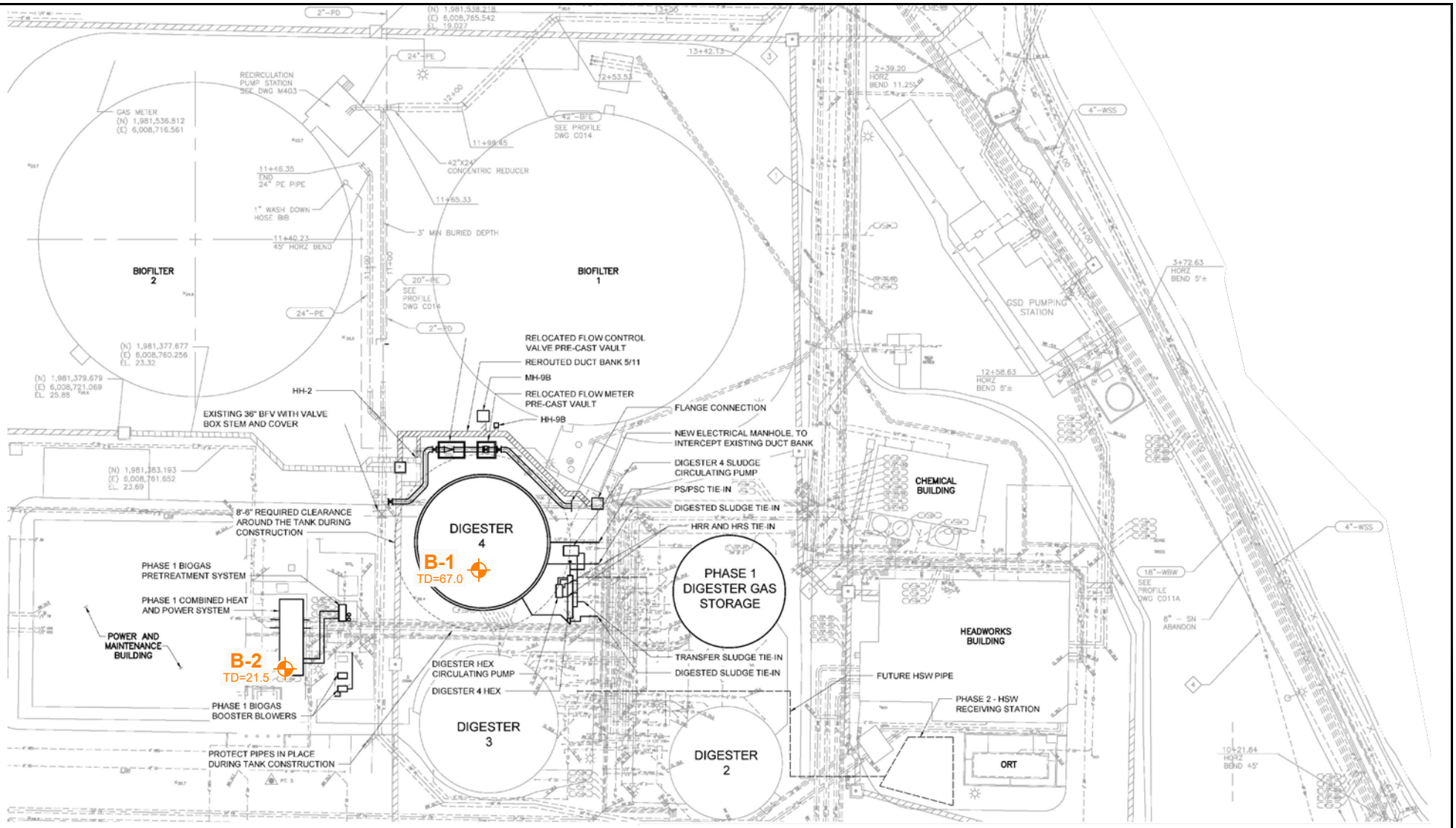
FIGURE 1

SITE LOCATION

DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT
GOLETA SANITARY DISTRICT
GOLETA, CALIFORNIA

211573001 I 1/21

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



LEGEND

B-2 TD=21.5 — BORING; TD=TOTAL DEPTH IN FEET

N

FEET

0 60 120

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: HAZEN AND SAWYER, 2020.

211573001_SP.dwg 01/25/2021 JDP

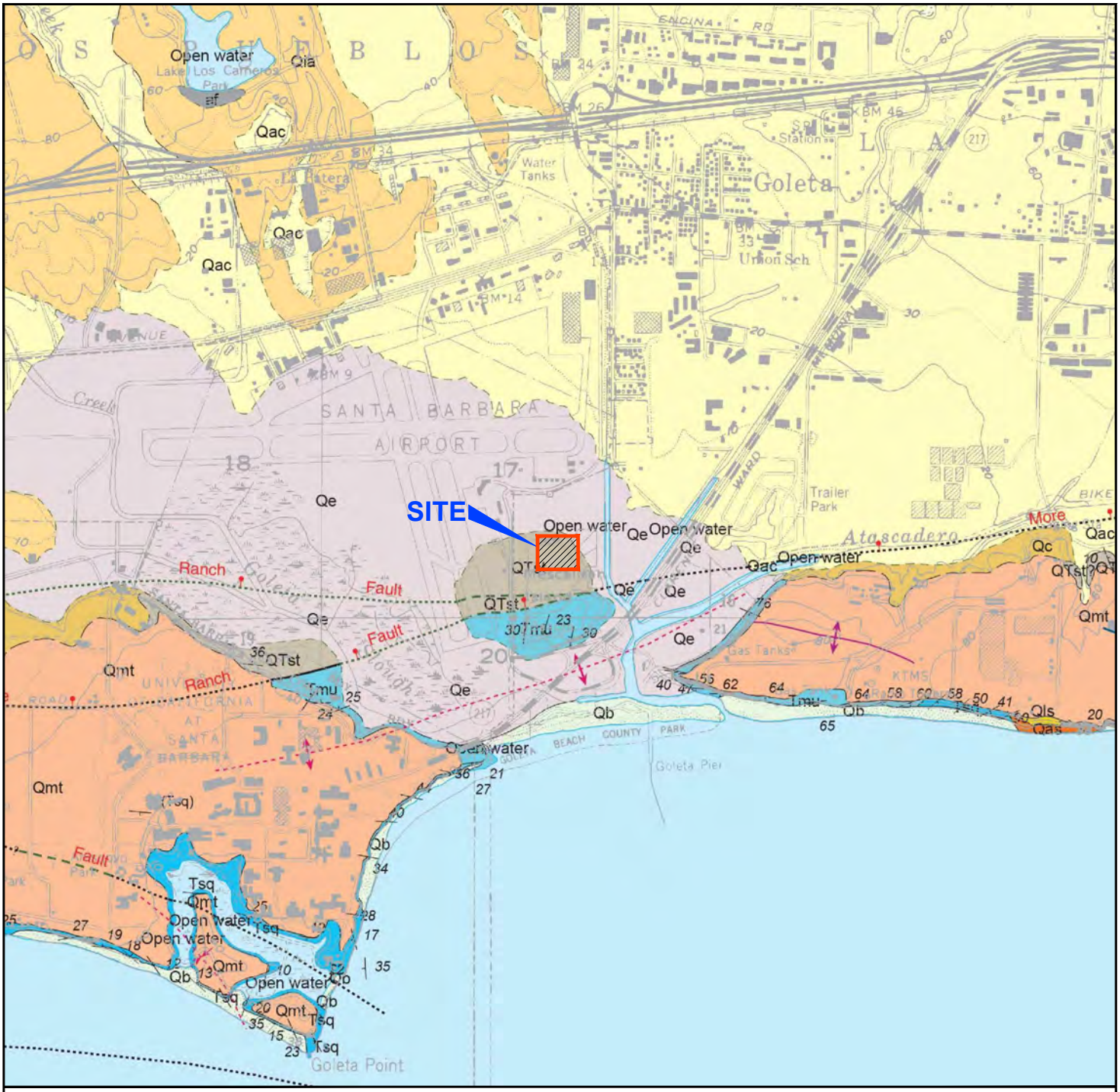
FIGURE 2

SITE PLAN

DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT
GOLETA SANITARY DISTRICT
GOLETA, CALIFORNIA

211573001 I 1/21

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



LEGEND

Qb	BEACH DEPOSITS	Tmu	MONTEREY FORMATION, UPPER SILICEOUS UNIT
Qe	ESTUARINE DEPOSITS	— — —	FAULT (DASHED WHERE INFERRED, DOTTED WHERE CONCEALED)
Qmt	MARINE TERRACE DEPOSITS	~	GEOLOGIC CONTACT
QTst	SILTSTONE UNIT		

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: SCOTT A. MINOR, ET AL., 2006.

N

FEET

0 2,000 4,000

211573001_RG.dwg 01/25/2021 JDP

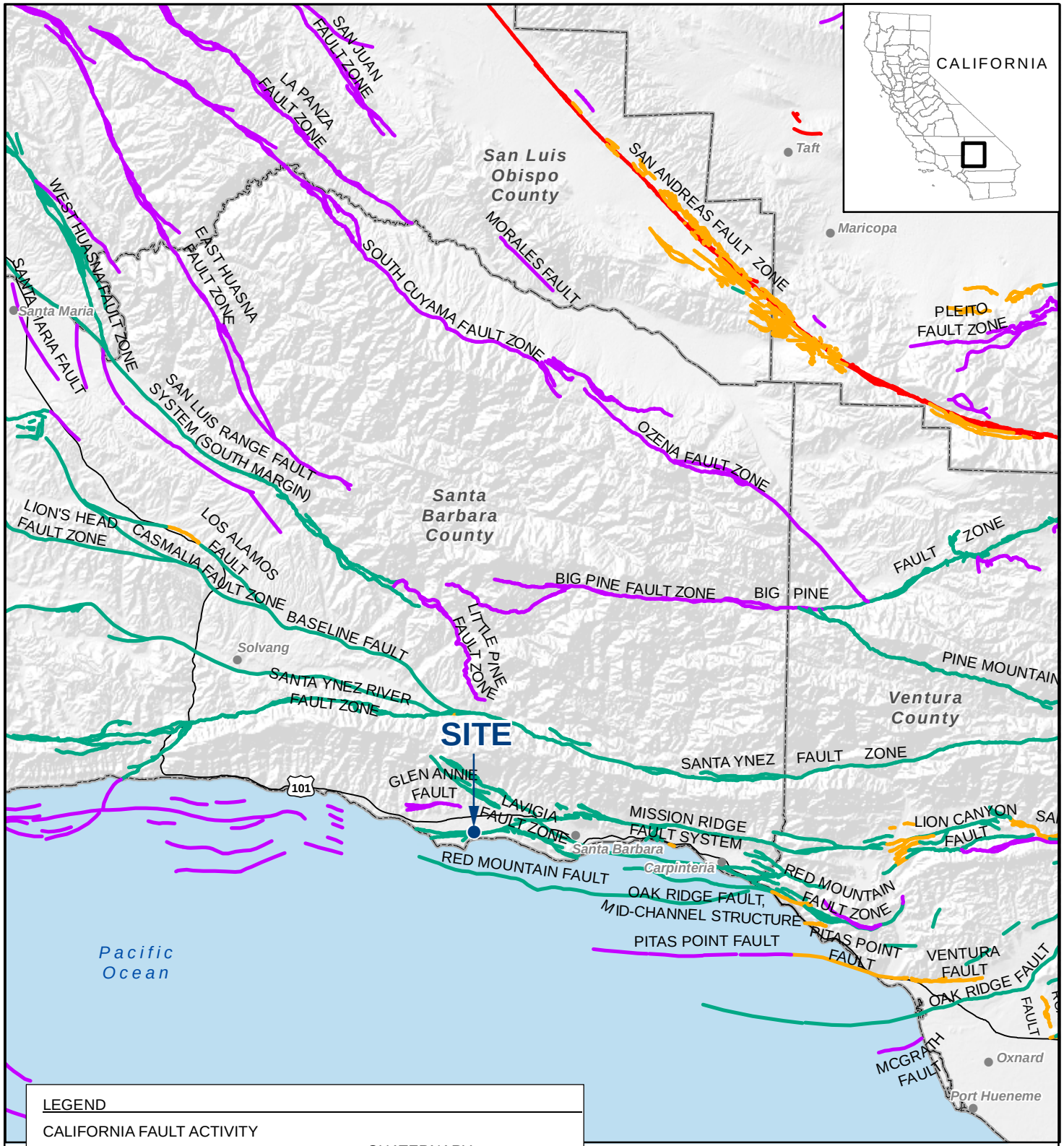
FIGURE 3

REGIONAL GEOLOGY

DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT
GOLETA SANITARY DISTRICT
GOLETA, CALIFORNIA

211573001 I 1/21

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



SOURCES: CALIFORNIA DIVISION OF MINES AND GEOLOGY, 1976, ENVIRONMENTAL GEOLOGY OF ORANGE COUNTY, CALIFORNIA, OPEN FILE REPORT 79-8.; JENNINGS, C.W., AND BRYANT, 2010, FAULT ACTIVITY MAP OF CALIFORNIA; ESRI SHADED RELIEF, 2017

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

211231003_FL2.mxd 1/21/2021 JDL

FIGURE 4

FAULT LOCATIONS

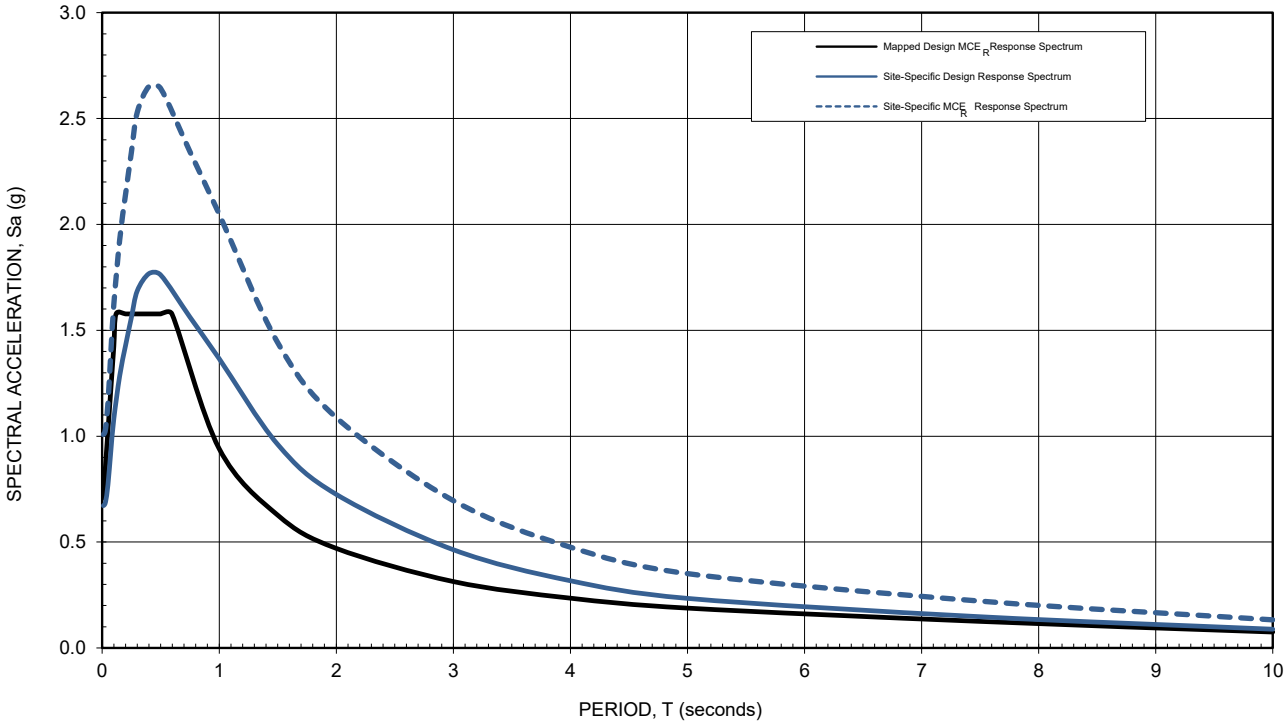
DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1
PROJECT GOLETA SANITARY DISTRICT
GOLETA, CALIFORNIA
211573001 | 1/21

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

PERIOD (seconds)	SITE-SPECIFIC MCE_R RESPONSE SPECTRUM Sa (g)	SITE-SPECIFIC DESIGN RESPONSE SPECTRUM Sa (g)
0.010	1.008	0.672
0.020	1.014	0.676
0.030	1.037	0.691
0.050	1.157	0.771
0.075	1.399	0.933
0.100	1.623	1.082
0.150	1.927	1.284
0.200	2.142	1.428
0.250	2.340	1.560
0.300	2.529	1.686
0.400	2.651	1.768

PERIOD (seconds)	SITE-SPECIFIC MCE_R RESPONSE SPECTRUM Sa (g)	SITE-SPECIFIC DESIGN RESPONSE SPECTRUM Sa (g)
0.500	2.642	1.761
0.750	2.344	1.562
1.000	2.049	1.366
1.500	1.442	0.961
2.000	1.088	0.725
3.000	0.696	0.464
4.000	0.476	0.317
5.000	0.351	0.234
7.500	0.221	0.148
10.000	0.133	0.089

S_{DS} =	1.591 g	S_{D1} =	1.451 g	S_{MS} =	2.386 g	S_{M1} =	2.176 g	PGA_M =	1.047 g



NOTES:

1 The probabilistic ground motion spectral response accelerations are based on the risk-targeted Maximum Considered Earthquake (MCE_R) having a 2% probability of exceedance in 50 years in the maximum direction using the Chiou & Youngs (2014), Campbell & Bozorgnia (2014), Boore et al. (2014), and Abrahamson et al. (2014) attenuation relationships and the risk coefficients.

2 The deterministic ground motion spectral response accelerations are for the 84th percentile of the geometric mean values in the maximum direction using the Chiou & Youngs (2014), Campbell & Bozorgnia (2014), Boore et al. (2014), and Abrahamson et al. (2014) attenuation relationships for deep soil sites considering a Mw 7.4 event on the Red Mountain Fault fault zone located 4.1 kilometers from the site. It conforms with the lower bound limit per ASCE 7-16 Section 21.2.2.

3 The Site-Specific MCE_R Response Spectrum is the lesser of spectral ordinates of deterministic and probabilistic accelerations at each period per ASCE 7-16 Section 21.2.3. The Site-Specific Design Response Spectrum conforms with lower bound limit per ASCE 7-16 Section 21.3.

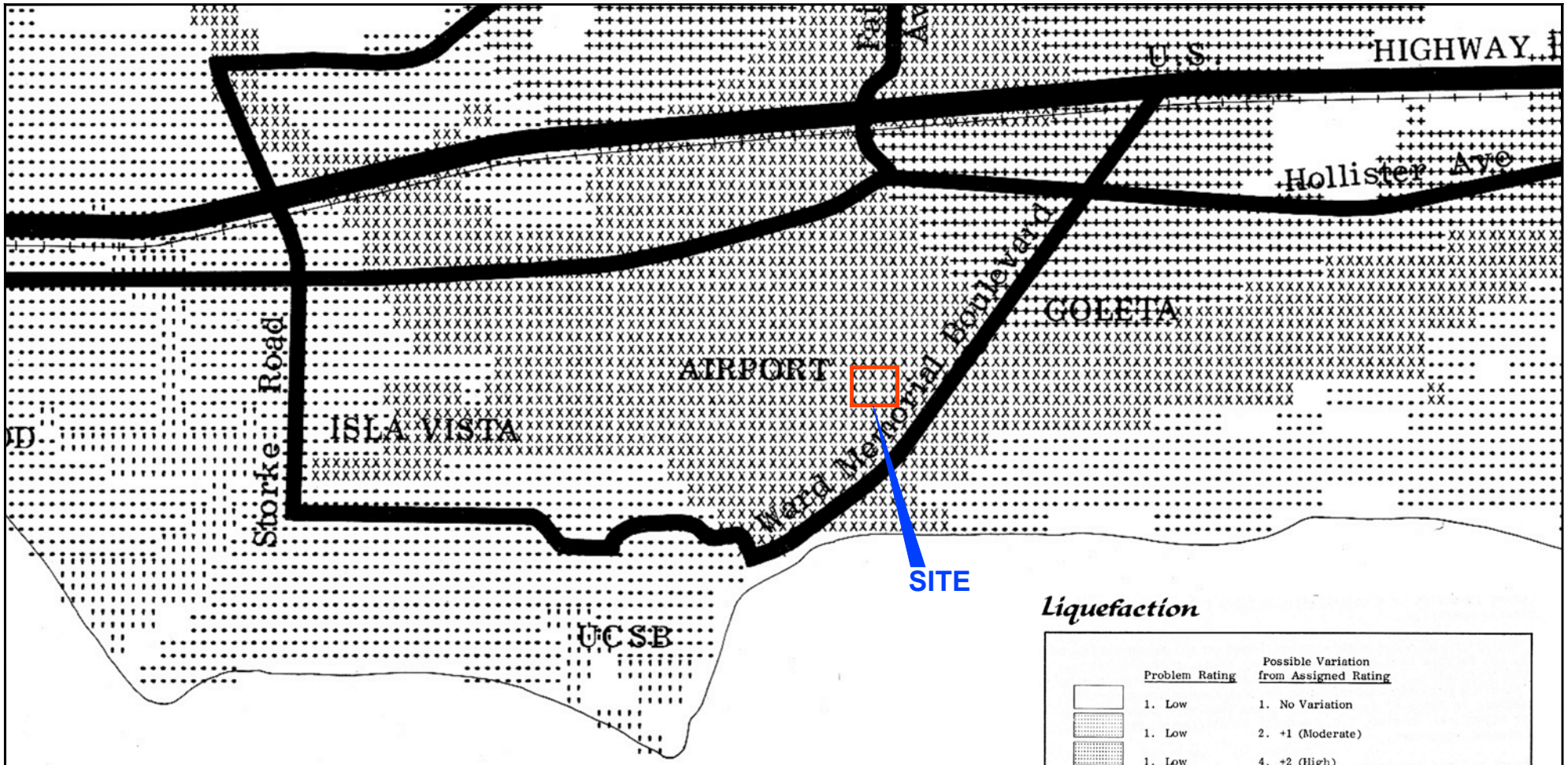
4 The Mapped Design MCE_R Response Spectrum is computed from mapped spectral ordinates modified for Site Class D (stiff soil profile) per ASCE 7-16 Section 11.4. It is presented for the sake of comparison.

FIGURE 5

ACCELERATION RESPONSE SPECTRA

DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT
GOLETA, CALIFORNIA

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE:

211573001_LH.dwg 01/25/2021 JDP

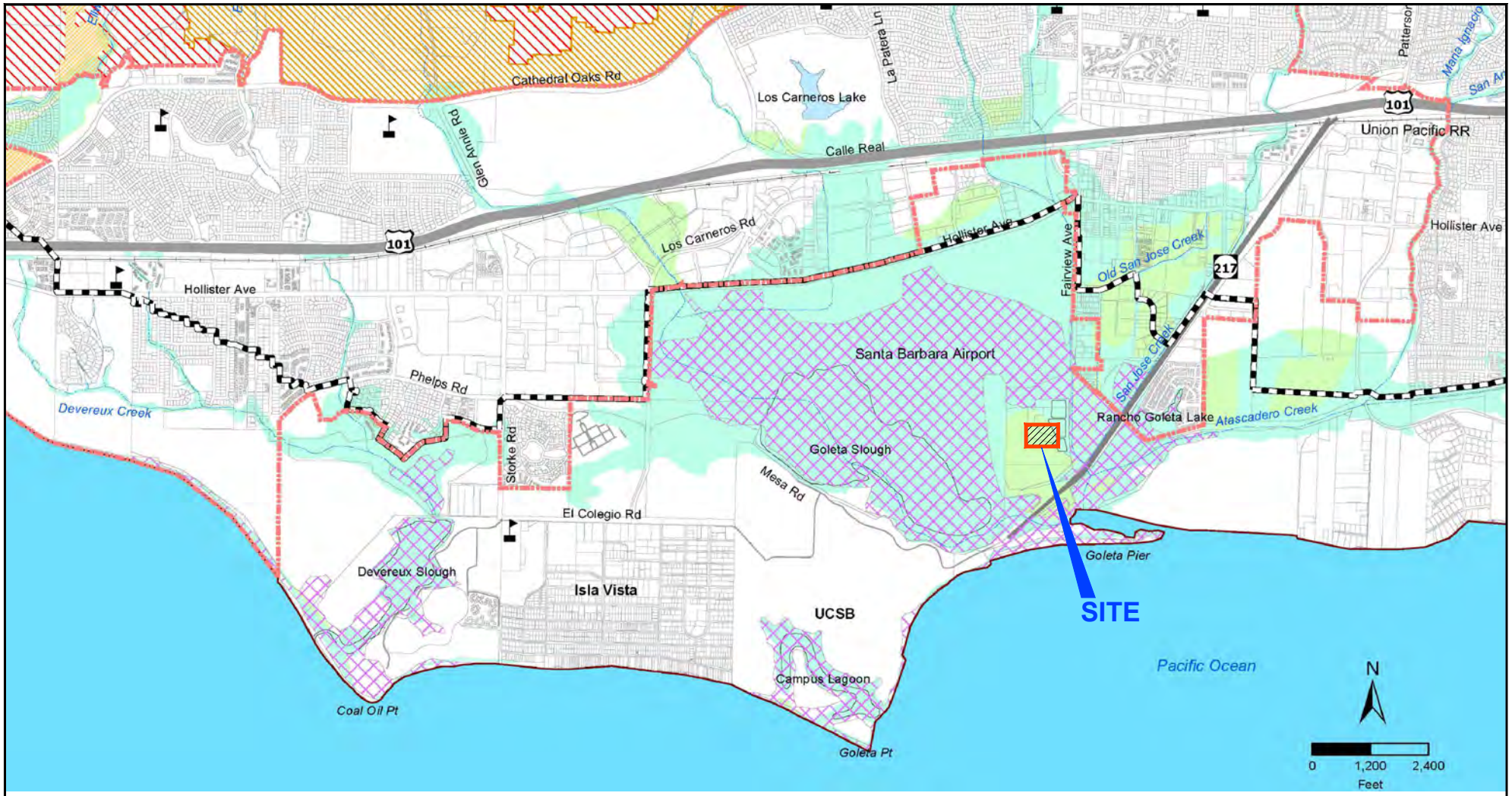
FIGURE 6

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

LIQUEFACTION HAZARD

DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT
GOLETA SANITARY DISTRICT
GOLETA, CALIFORNIA

211573001 I 1/21



LEGEND

Flood Hazard
- 500 Year Flood Zone
- 100 Year Flood Zone

Fire Hazard Severity Zones
State Responsibility Area
- Moderate
- High
- Very High

Tsunami Hazard
- Tsunami Inundation Area

Other Features
- Goleta City Boundary
- Coastal Zone
- Creeks
- Schools

Source:
The fire hazard severity zones were obtained from the California Department of Forestry and Fire Protection Fire Hazard Severity Zones map dated 11/07/07. The 100 and 500 year flood zone was mapped by the Federal Emergency Management Agency (FEMA), per flood Insurance Rate Map (FIRM) dated September 30, 2005. The tsunami inundation area was modeled by the University of Southern California, funded through the California Emergency Management Agency by the National Tsunami Hazard Mitigation Program, and depicted on the Tsunami Map for Emergency Planning, Dos Pueblos Canyon and Goleta Quadrangles, dated 01/31/09.

N

FEET
0
3,000
6,000

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE:

211573001_FTH.dwg 01/25/2021 JDP

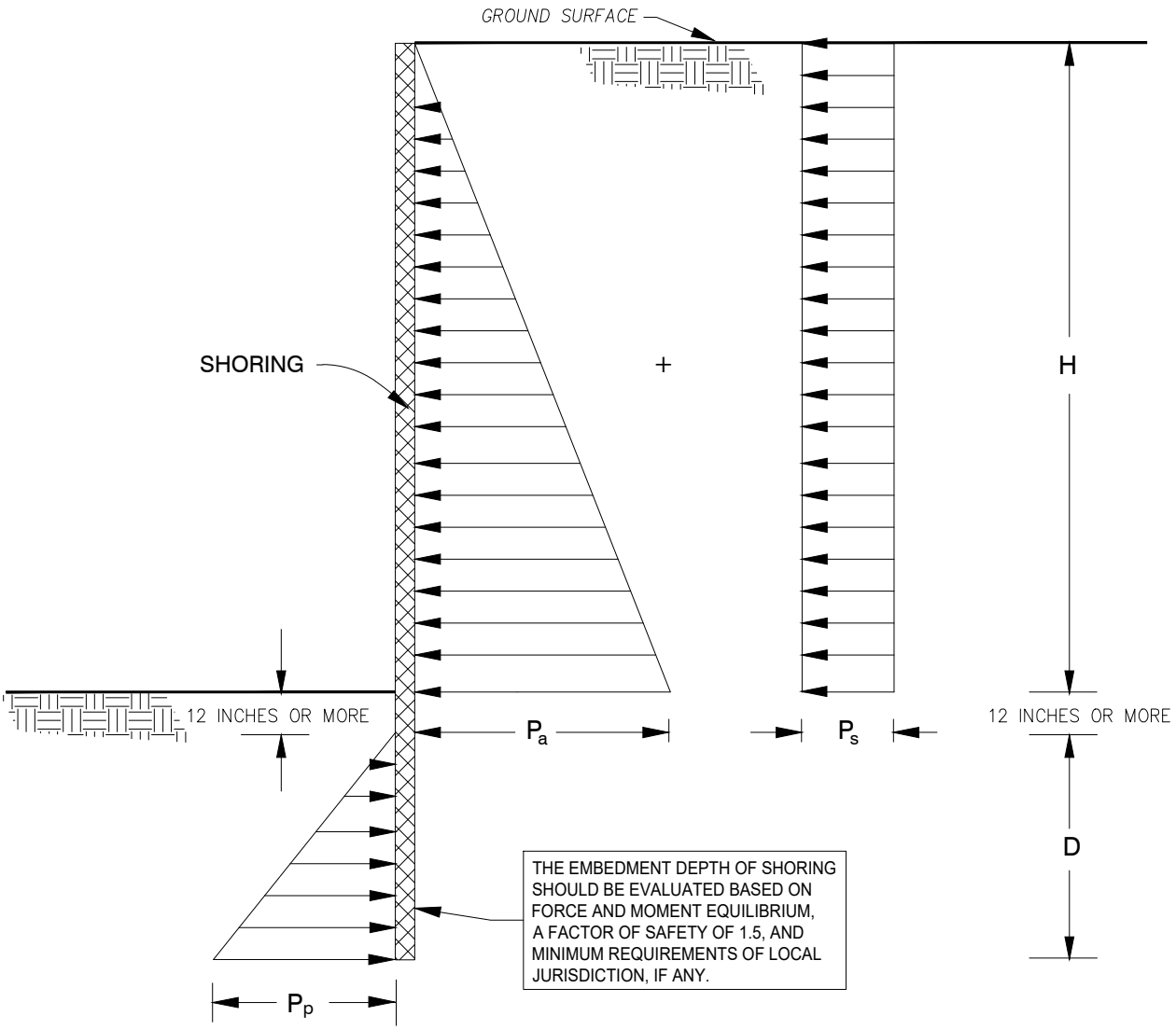
FIGURE 7

FLOOD AND TSUNAMI HAZARD

DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT
GOLETA SANITARY DISTRICT
GOLETA, CALIFORNIA

211573001 I 1/21

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



NOTES:

1. ACTIVE LATERAL EARTH PRESSURE, P_a
   P_a = 33H psf
2. CONSTRUCTION TRAFFIC INDUCED SURCHARGE PRESSURE, P_s
   P_s = 72 psf
3. PASSIVE LATERAL EARTH PRESSURE, P_p
   P_p = 350D psf
4. ASSUMES GROUNDWATER IS NOT PRESENT
5. H AND D ARE IN FEET

NOT TO SCALE

211573001_LEP-CS1.dwg 01/29/2021 GK

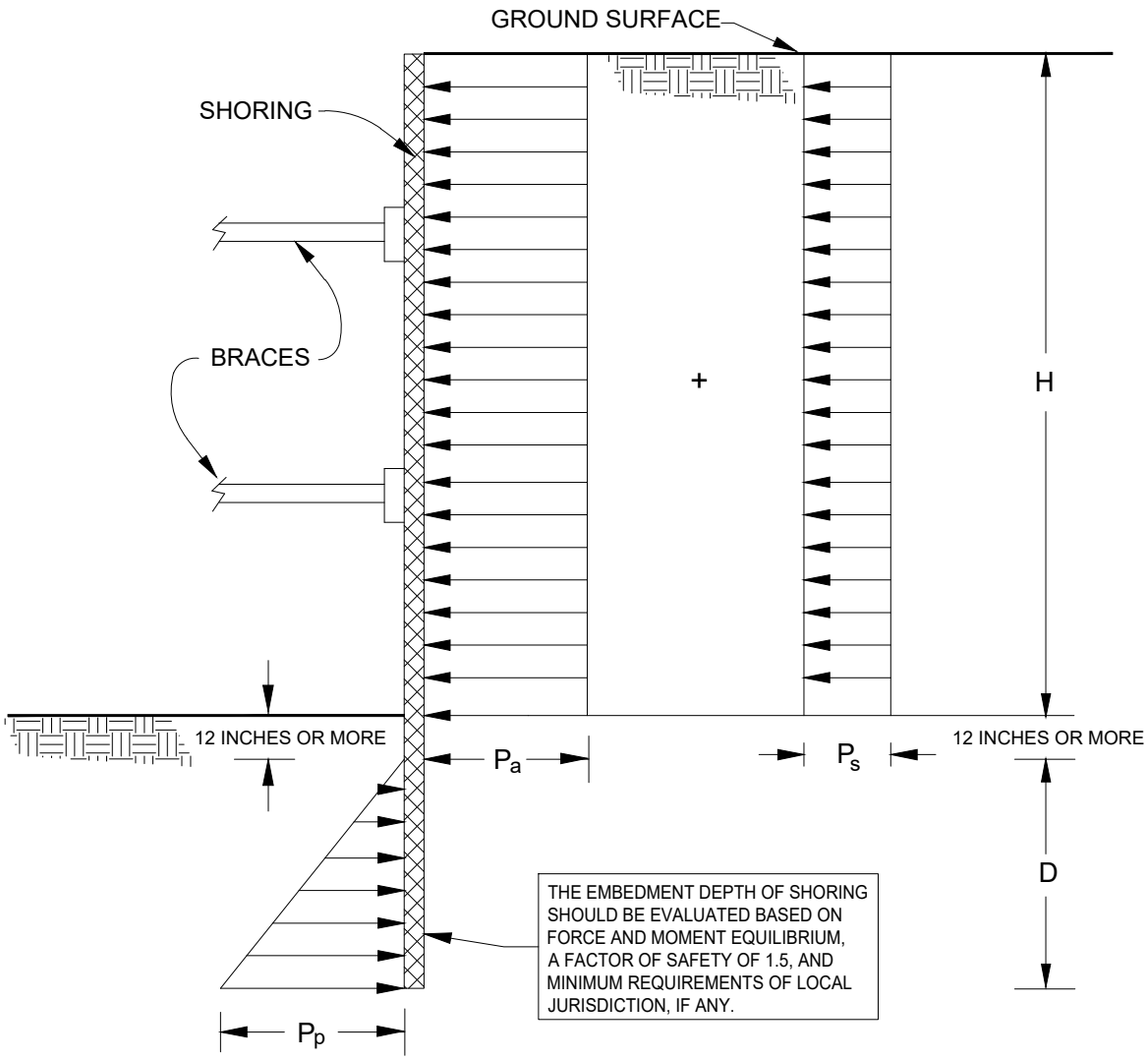
FIGURE 8

LATERAL EARTH PRESSURES FOR TEMPORARY CANTILEVERED SHORING

DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT
GOLETA SANITARY DISTRICT
GOLETA, CALIFORNIA

211573001 I 1/21

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



NOTES:

1. APPARENT LATERAL EARTH PRESSURE, P_a
   P_a = 22H psf
2. CONSTRUCTION TRAFFIC INDUCED SURCHARGE PRESSURE, P_s
   P_s = 120 psf
3. PASSIVE LATERAL EARTH PRESSURE, P_p
   P_p = 350D psf
4. ASSUMES GROUNDWATER IS NOT PRESENT
5. SURCHARGES FROM EXCAVATED SOIL OR CONSTRUCTION MATERIALS ARE NOT INCLUDED
6. H AND D ARE IN FEET

NOT TO SCALE

211573001_LEP-BE(GS).dwg 01/29/2021 GK

FIGURE 9

LATERAL EARTH PRESSURES FOR BRACED EXCAVATION (GRANULAR SOIL)

DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT
GOLETA SANITARY DISTRICT
GOLETA, CALIFORNIA

211573001 I 1/21

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

APPENDIX A

Boring Logs

APPENDIX A

BORING LOG

Field Procedure for the Collection of Disturbed Samples
Disturbed soil samples were obtained in the field using the following method.

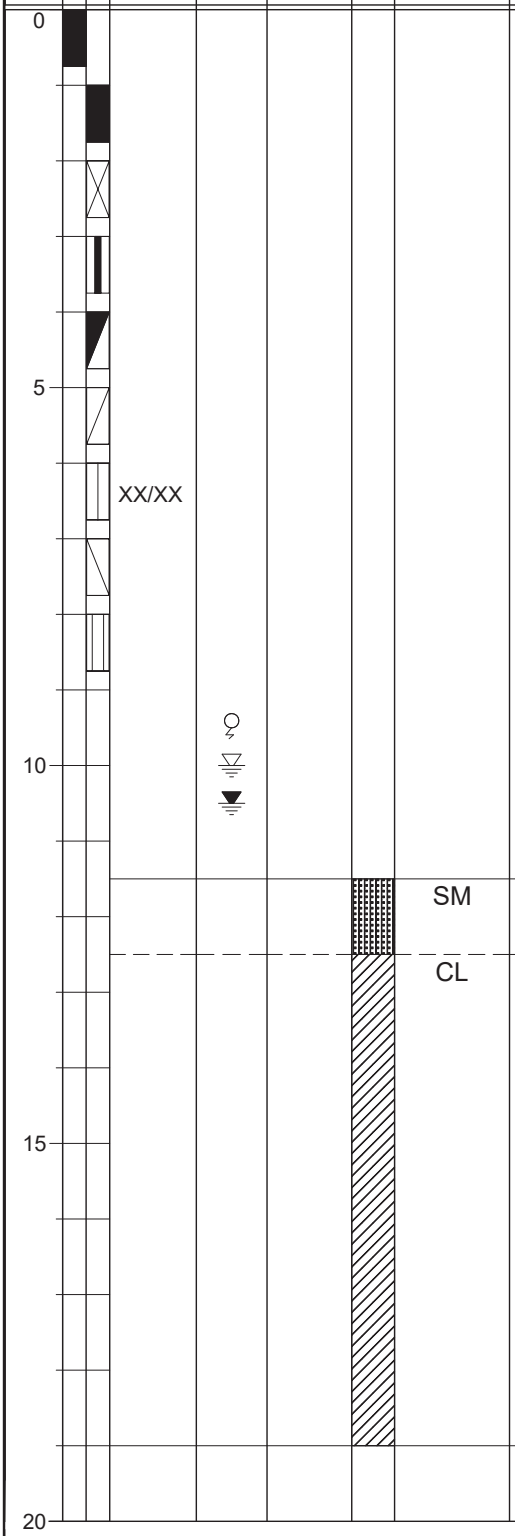
Bulk Samples
Bulk samples of representative earth materials were obtained from the exploratory borings. The samples were bagged and transported to the laboratory for testing.

The Standard Penetration Test (SPT) Sampler
Disturbed drive samples of earth materials were obtained by means of a Standard Penetration Test sampler. The sampler is composed of a split barrel with an external diameter of 2 inches and an unlined internal diameter of 1-3/8 inches. The sampler was driven into the ground 12 to 18 inches with a 140-pound hammer falling freely from a height of 30 inches in general accordance with ASTM D 1586. The blow counts were recorded for every 6 inches of penetration; the blow counts reported on the logs are those for the last 12 inches of penetration. Soil samples were observed and removed from the sampler, bagged, sealed and transported to the laboratory for testing.

Field Procedure for the Collection of Relatively Undisturbed Samples
Relatively undisturbed soil samples were obtained in the field using the following method.

The Modified Split-Barrel Drive Sampler
The sampler, with an external diameter of 3 inches, was lined with 1-inch-long, thin brass rings with inside diameters of approximately 2.4 inches. The sample barrel was driven into the ground with the weight of a hammer in general accordance with ASTM D 3550-01. The driving weight was permitted to fall freely. The approximate length of the fall, the weight of the hammer, and the number of blows per foot of driving are presented on the boring logs as an index to the relative resistance of the materials sampled. The samples were removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

BORING LOG EXPLANATION SHEET



Bulk sample.

Modified split-barrel drive sampler.

No recovery with modified split-barrel drive sampler.

Sample retained by others.

Standard Penetration Test (SPT).

No recovery with a SPT.

Shelby tube sample. Distance pushed in inches/length of sample recovered in inches.

No recovery with Shelby tube sampler.

Continuous Push Sample.

Seepage.

Groundwater encountered during drilling.

Groundwater measured after drilling.

SM

MAJOR MATERIAL TYPE (SOIL):

Solid line denotes unit change.

CL

Dashed line denotes material change.

Attitudes: Strike/Dip
b: Bedding
c: Contact
j: Joint
f: Fracture
F: Fault
cs: Clay Seam
s: Shear
bss: Basal Slide Surface
sf: Shear Fracture
sz: Shear Zone
sbs: Shear Bedding Surface

The total depth line is a solid line that is drawn at the bottom of the boring.

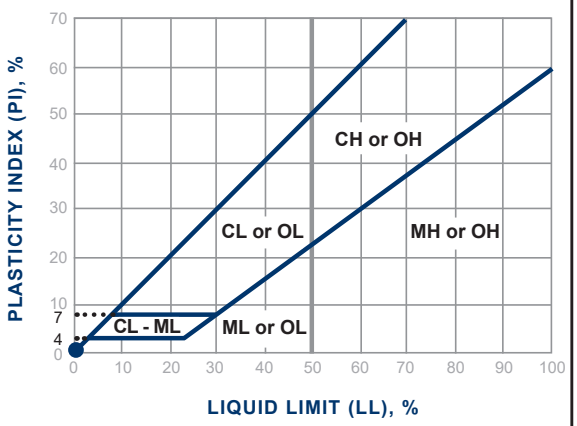
Soil Classification Chart Per ASTM D 2488

Primary Divisions			Secondary Divisions	
			Group Symbol	Group Name
COARSE-GRAINED SOILS more than 50% retained on No. 4 sieve	**GRAVEL** more than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVEL less than 5% fines	GW	well-graded GRAVEL
			GP	poorly graded GRAVEL
		GRAVEL with DUAL CLASSIFICATIONS 5% to 12% fines	GW-GM	well-graded GRAVEL with silt
			GP-GM	poorly graded GRAVEL with silt
			GW-GC	well-graded GRAVEL with clay
			GP-GC	poorly graded GRAVEL with clay
		GRAVEL with FINES more than 12% fines	GM	silty GRAVEL
			GC	clayey GRAVEL
			GC-GM	silty, clayey GRAVEL
	SAND 50% or more of coarse fraction passes No. 4 sieve	CLEAN SAND less than 5% fines	SW	well-graded SAND
			SP	poorly graded SAND
		SAND with DUAL CLASSIFICATIONS 5% to 12% fines	SW-SM	well-graded SAND with silt
			SP-SM	poorly graded SAND with silt
			SW-SC	well-graded SAND with clay
			SP-SC	poorly graded SAND with clay
		SAND with FINES more than 12% fines	SM	silty SAND
			SC	clayey SAND
			SC-SM	silty, clayey SAND
FINE-GRAINED SOILS 50% or more passes No. 200 sieve	**SILT and CLAY** liquid limit less than 50%	INORGANIC	CL	lean CLAY
			ML	SILT
			CL-ML	silty CLAY
		ORGANIC	OL (PI > 4)	organic CLAY
			OL (PI < 4)	organic SILT
	SILT and CLAY liquid limit 50% or more	INORGANIC	CH	fat CLAY
			MH	elastic SILT
		ORGANIC	OH (plots on or above "A"-line)	organic CLAY
			OH (plots below "A"-line)	organic SILT
	Highly Organic Soils		PT	Peat

Grain Size

Description		Sieve Size	Grain Size	Approximate Size
Boulders		> 12"	> 12"	Larger than basketball-sized
Cobbles		3 - 12"	3 - 12"	Fist-sized to basketball-sized
Gravel	Coarse	3/4 - 3"	3/4 - 3"	Thumb-sized to fist-sized
	Fine	#4 - 3/4"	0.19 - 0.75"	Pea-sized to thumb-sized
Sand	Coarse	#10 - #4	0.079 - 0.19"	Rock-salt-sized to pea-sized
	Medium	#40 - #10	0.017 - 0.079"	Sugar-sized to rock-salt-sized
	Fine	#200 - #40	0.0029 - 0.017"	Flour-sized to sugar-sized
Fines		Passing #200	< 0.0029"	Flour-sized and smaller

Plasticity Chart



Apparent Density - Coarse-Grained Soil

Apparent Density	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Loose	≤ 4	≤ 8	≤ 3	≤ 5
Loose	5 - 10	9 - 21	4 - 7	6 - 14
Medium Dense	11 - 30	22 - 63	8 - 20	15 - 42
Dense	31 - 50	64 - 105	21 - 33	43 - 70
Very Dense	> 50	> 105	> 33	> 70

Consistency - Fine-Grained Soil

Consis-tency	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Soft	< 2	< 3	< 1	< 2
Soft	2 - 4	3 - 5	1 - 3	2 - 3
Firm	5 - 8	6 - 10	4 - 5	4 - 6
Stiff	9 - 15	11 - 20	6 - 10	7 - 13
Very Stiff	16 - 30	21 - 39	11 - 20	14 - 26
Hard	> 30	> 39	> 20	> 26

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

USCS METHOD OF SOIL CLASSIFICATION

DATE DRILLED 12/23/20 BORING NO. B-1

GROUND ELEVATION 29' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (S/G Drilling)

DRIVE WEIGHT 40 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY BAA LOGGED BY BAA REVIEWED BY MLP

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL: Brown, moist, medium dense, silty SAND.
		8					Loose.
10		37	8.3	92.6		SP-SM	TERRACE DEPOSITS: Pale yellow, moist, medium dense, poorly graded SAND with silt.
		17					Orange brown, moist, soft, weakly indurated, silty CLAYSTONE; pale yellow silty sand lenses (1 to 2 inches thick).
20		14	35.6	98.9			@ 20': Gray-brown with iron oxide staining.
		14					
30		90/11"					Orange to pale yellow, moist, moderately hard, weakly cemented, silty SANDSTONE.
		50/5"					
40							

FIGURE A- 1

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT
GOLETA, CALIFORNIA

DATE DRILLED 12/23/20 BORING NO. B-1

GROUND ELEVATION 29' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (S/G Drilling)

DRIVE WEIGHT 40 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY BAA LOGGED BY BAA REVIEWED BY MLP

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40			69					TERRACE DEPOSITS: (Continued) Orange to pale yellow, moist, moderately hard, weakly cemented, silty SANDSTONE.
			50/5"					
50			57					
			50/4"	▽				@ 55': Pale yellow to white, moist, moderately hard, weakly indurated, SANDSTONE lens (approximately 2 to 4 inches thick).
60			50/5"					
			81/9"					MONTEREY FORMATION: Gray to dark gray, wet, moderately hard, weakly to moderately indurated, clayey SILTSTONE. @ 67': Difficult drilling; siliceous sandstone.
70								Auger Refusal at 67 feet. Backfilled with cement-grout upon completion. Groundwater encountered at approximately 57 feet during drilling. Notes: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
80								

DATE DRILLED 12/23/20 BORING NO. B-2

GROUND ELEVATION 29' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (S/G Drilling)

DRIVE WEIGHT 40 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY BAA LOGGED BY BAA REVIEWED BY MLP

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL: Brown to dark brown, moist, loose, silty SAND.
		5	9.8	95.4			Very loose.
10		29	9.6	91.8		SM	TERRACE DEPOSITS: Pale yellow, moist, medium dense, silty SAND.
		38	11.3	94.3			Pale yellow to gray brown with iron staining, moist, soft, friable, silty SANDSTONE; trace clay; mottling.
20		45	22.1	102.0			Increase in silt and clay content.
							Total Depth = 21.5 feet. Groundwater not encountered during drilling. Backfilled with cement-grout upon completion. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
30							
40							

APPENDIX B

Laboratory Testing

APPENDIX B

LABORATORY TESTING

Classification
Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488-00. Soil classifications are indicated on the logs of the exploratory borings in Appendix B.

In-Place Moisture and Density Tests
The moisture content and dry density of relatively undisturbed samples obtained from the exploratory borings were evaluated in general accordance with ASTM D 2937-04. The test results are presented on the logs of the exploratory borings in Appendix B.

200 Wash
An evaluation of the percentage of particles finer than the No. 200 sieve in selected soil samples was performed in general accordance with ASTM D 1140. The results of the tests are presented on Figure B-1.

Consolidation Tests
Consolidation tests were performed on selected relatively undisturbed soil samples in general accordance with ASTM D 2435. The samples were inundated during testing to represent adverse field conditions. The percent of consolidation for each load cycle was recorded as a ratio of the amount of vertical compression to the original height of the sample. The results of the tests are summarized on Figures B-2.

Direct Shear Tests
Direct shear tests were performed on relatively undisturbed and remolded samples in general accordance with ASTM D 3080 to evaluate the shear strength characteristics of selected materials. The samples were inundated during shearing to represent adverse field conditions. The results are shown on Figures B-3.

Soil Corrosivity Tests
Soil pH, and minimum resistivity tests were performed on representative samples in general accordance with CT 643. The sulfate and chloride contents of the selected samples were evaluated in general accordance with CT 417 and 422, respectively. The test results are presented on Figure B-4.

SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS (TOTAL SAMPLE)
B-1	10.0-11.5	POORLY GRADED SAND WITH SILT	100	6	SP-SM
B-2	15.0-16.5	SILTY SANDSTONE	100	9	SP-SM
B-2	20.0-21.5	SILTY SANDSTONE	100	46	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140

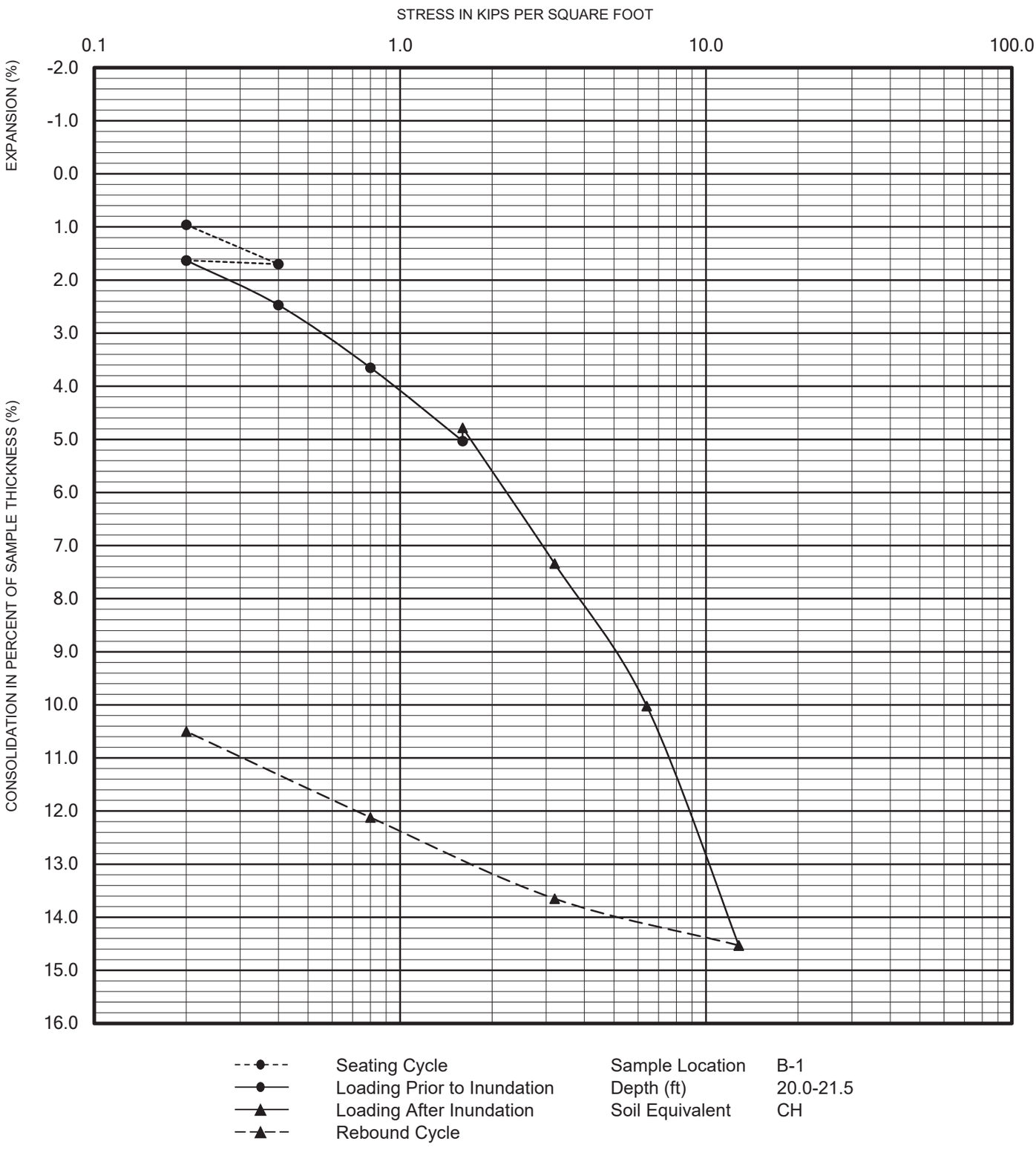
FIGURE B-1

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

NO. 200 SIEVE ANALYSIS TEST RESULTS

DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT
GOLETA, CALIFORNIA

211573001 | 1/21



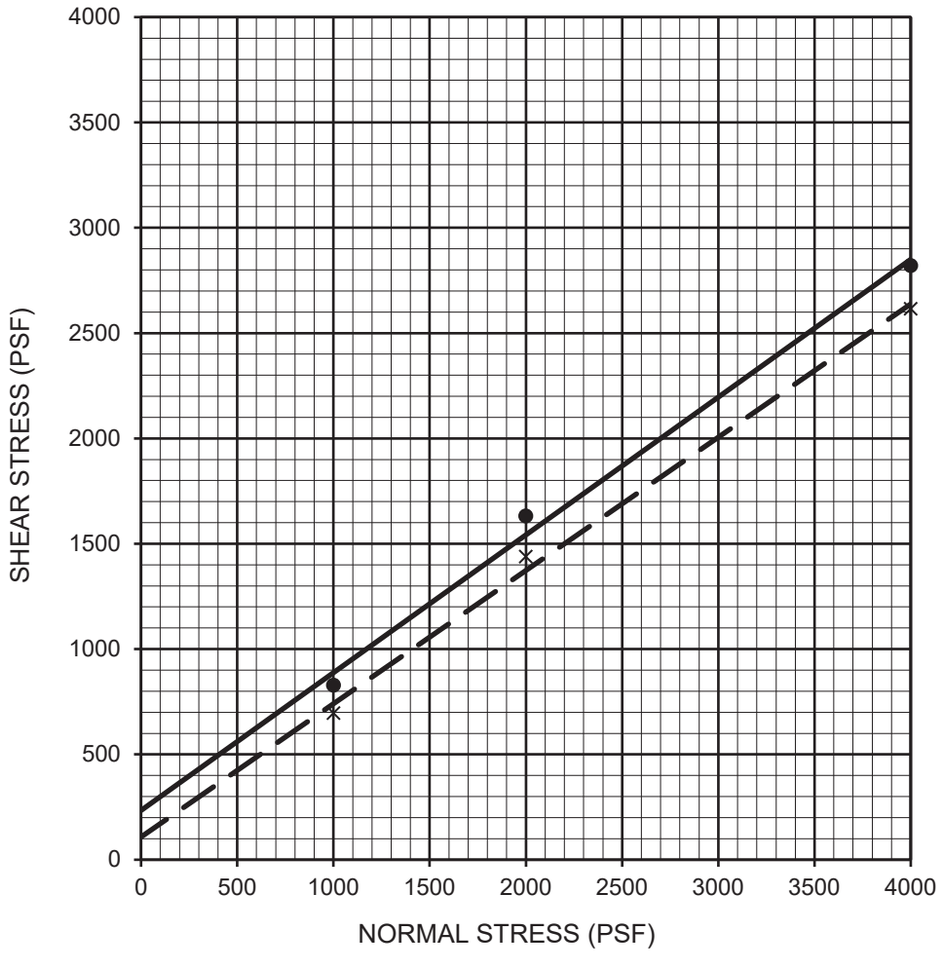
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

FIGURE B-2

CONSOLIDATION TEST RESULTS
DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT
GOLETA, CALIFORNIA

211573001 | 1/21

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
POORLY GRADED SAND WITH SILT	—●—	B-1	10.0-11.5	Peak	234	33	SP-SM
POORLY GRADED SAND WITH SILT	– – X – –	B-1	10.0-11.5	Ultimate	108	32	SP-SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

FIGURE B-3

DIRECT SHEAR TEST RESULTS
DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT
GOLETA, CALIFORNIA

211573001 | 1/21

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

SAMPLE LOCATION	SAMPLE DEPTH (ft)	pH [1]	RESISTIVITY [1] (ohm-cm)	SULFATE CONTENT [2]		CHLORIDE CONTENT [3] (ppm)
				(ppm)	(%)	
B-1	0.0-5.0	7.6	11,034	20	0.002	170

[1] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643
[2] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417
[3] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422

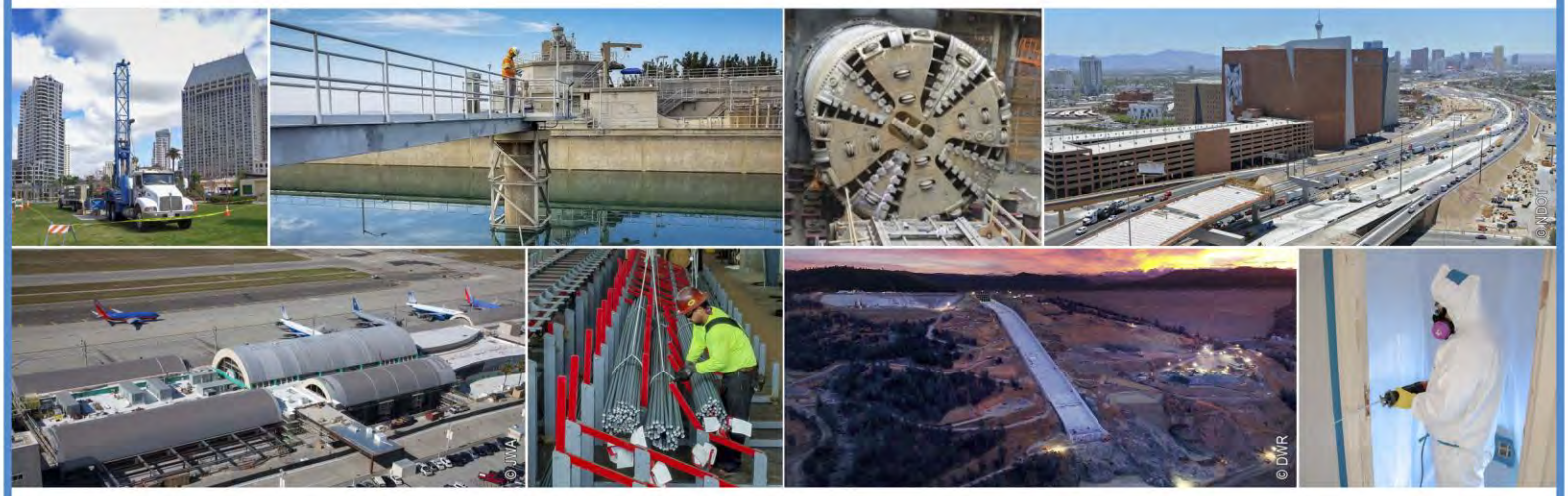
FIGURE B-4

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

CORROSIVITY TEST RESULTS
DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT
GOLETA, CALIFORNIA

211573001 | 1/21

211573001 Fig B-4 CORROSIVITY1 @B-1 0.0-5.0



475 Goddard, Suite 200 | Irvine, California 92618 | p. 949.753.7070

ARIZONA | CALIFORNIA | COLORADO | NEVADA | TEXAS | UTAH

ninyoandmoore.com

Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

Geotechnical Evaluation
New FOG Receiving Station and Thermal Drying Facility
Goleta Sanitary District
Goleta, California

DRAFT

Hazen and Sawyer
90 New Montgomery Street, Suite 333 | San Francisco, California 94105

April 22, 2022 | Project No. 211573002



Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

CELEBRATING 35 YEARS

Geotechnical Evaluation
New FOG Receiving Station and Thermal Drying Facility
Goleta Sanitary District
Goleta, California

DRAFT

Mr. Rion Merlo
Hazen and Sawyer
90 New Montgomery Street, Suite 333| San Francisco, California 94105

April 22, 2022 | Project No. 211573002

Morteza Mirshekari, PhD, PE
Project Engineer

Michael L. Putt, PG, CEG
Principal Geologist

Daniel Chu, PhD, PE, GE
Principal Engineer

MRM/MLP/DBC/mlc

CONTENTS

1 INTRODUCTION 1
2 SCOPE OF SERVICES 1
3 SITE DESCRIPTION AND PROPOSED CONSTRUCTION 2
4 SUBSURFACE EVALUATION AND LABORATORY TESTING 2
5 GEOLOGY AND SUBSURFACE CONDITIONS 4
5.1 Regional Geology 4
5.2 Site Geology 4
5.3 Groundwater 4
6 FAULTING AND SEISMICITY 5
6.1 Surface Fault Rupture 5
6.2 Site-Specific Ground Motion 5
6.3 Liquefaction Potential 7
6.4 Dynamic Compaction of Dry Soils 7
6.5 Flood and Tsunami Hazards 8
6.6 Landslides 8
7 CONCLUSIONS 8
8 RECOMMENDATIONS 9
8.1 Earthwork 10
8.1.1 Pre-Construction Conference 10
8.1.2 Demolition, Clearing, and Grubbing 10
8.1.3 Excavation Characteristics 10
8.1.4 Temporary Excavations and Shoring 11
8.1.5 Subgrade Preparation 12
8.1.6 Fill Material 12
8.1.7 Fill Placement and Compaction 13
8.2 Underground Utilities 13
8.2.1 Pipe Bedding 13
8.2.2 Modulus of Soil Reaction 14
8.3 Site-Specific Seismic Design Considerations 14
8.4 Foundations 14

DRAFT

8.4.1 Square and Continuous Foundations 15
8.4.2 Mat Foundations 15
8.5 Slabs-On-Grade 16
8.6 Corrosivity 16
8.7 Concrete Placement 17
8.8 Drainage 17
9 CONSTRUCTION OBSERVATION 17
10 LIMITATIONS 18
11 REFERENCES 20

TABLE

1 – 2019 California Building Code Seismic Design Criteria 14

FIGURES

1 – Site Location
2 – Boring Locations
3 – Regional Geology
4 – Fault Locations
5 – Acceleration Response Spectra
6 – Liquefaction Hazard Zones
7 – Flood and Tsunami Hazard
8 – Lateral Earth Pressures for Temporary Cantilevered Shoring
9 – Lateral Earth Pressures for Braced Excavation

APPENDICES

A – Boring Logs
B – Laboratory Testing
C – Results of Analytical Testing

DRAFT

1 INTRODUCTION

In accordance with your request and authorization, we have performed a geotechnical evaluation for the New Fats, Oil, and Grease (FOG) Receiving Station and Thermal Drying Facility as part of Phase 2 of the Biosolids and Energy Project at Goleta Sanitary District in Goleta, California (Figure 1). Ninyo & Moore previously submitted a Geotechnical Evaluation Report, dated January 29, 2021, for Phase 1 of the subject project, which addressed the design and construction of Digester 4. The current study intends to evaluate the soil and geologic conditions at the site and provide geotechnical recommendations for the design and construction of the proposed Phase 2 improvements. This report presents the findings from our background review and subsurface exploration, results of our laboratory testing, conclusions regarding the subsurface conditions at the site, and geotechnical recommendations for design and construction of this project.

DRAFT

2 SCOPE OF SERVICES

Our scope of services included the following:

- Project coordination, planning, and scheduling for the subsurface exploration.
- Review of readily available background materials, including published geologic and seismic hazards maps, previous reports, published literature, in-house information, stereoscopic aerial photographs, and reports and plans provided by the client.
- Obtaining a boring permit from the Santa Barbara County Public Health Department.
- A site reconnaissance, performed on March 2, 2022, to observe the general site conditions and locate the boring locations, and coordination with Goleta Sanitary District personnel and Underground Service Alert for utility clearance.
- Subsurface exploration including drilling, sampling, and logging of two small-diameter hollow-stem-auger (HSA) borings to depths of approximately 21.5 and 71 feet. The borings were logged in the field by our representative and relatively undisturbed and bulk samples were collected and returned to our laboratory for evaluation and testing. The borings were backfilled with cement-bentonite grout and excess cuttings were spread on site.
- Laboratory testing on selected soil samples including evaluation of in-situ moisture content and dry density, percent of soil particles finer than the No. 200 sieve, Atterberg limits, Modified Proctor density, direct shear strength, consolidation, and soil corrosivity characteristics (including pH, resistivity, and water soluble sulfates and chlorides).
- Two soil samples were collected to evaluate the possible chemicals present in the surficial sediments at the site. The samples were analyzed for volatile organic compounds (VOCs; EPA Method 8260B), total petroleum hydrocarbons carbon chain (TPHs; EPA Method 8015B), Title 22 Metals (EPA Method 6010B/7471A), polychlorinated biphenyls (PCBs; EPA Method 8082), organochlorine pesticides (EPA Method 8081A), and chlorinated herbicides (EPA Method 8151A).

- Data compilation and engineering analysis of the information from our background review, subsurface exploration, and laboratory testing.
- Preparation of this draft report presenting our findings, conclusions, and recommendations pertaining to the geotechnical aspects of the design and construction of the proposed improvements.

3 SITE DESCRIPTION AND PROPOSED CONSTRUCTION

The subject site is located on the northern portion of Mescalitan Island and to the east of the Goleta Slough within the Goleta Basin in Santa Barbara County. The site is bounded to the north and west by the Santa Barbara Municipal Airport, which is located within the Goleta Slough. San Pedro Creek is located to the east of Goleta Sanitary District (Figure 1). Based on our review of historic topographic maps and aerial imagery (Historic Aerials, 2022), the site was undeveloped prior to the construction of different phases of the sanitary district during 1960s to 1980s. The subject area is relatively flat with elevations of approximately 30 feet above mean sea level (MSL) (United States Geological Survey [USGS], 2018).

DRAFT

The proposed improvements at the site include a new FOG receiving station and a thermal drying facility. The design plans and drawings for the proposed improvements were not available at the time of preparation of this report; however, we understand that two alternative locations, to the north and west of Digester 3, are currently considered for the new FOG receiving station. We understand that the proposed thermal drying facility will be located over an area previously used as a sludge-drying bed immediately to the west of the existing dewatered bio-solids conveyor bridge. This sludge-drying bed is an approximately 2 to 3-foot deep pit and the area is currently paved with a thin layer of asphalt concrete (approximately 2 inches thick).

Numerous above ground and buried pipelines, and other pad mounted equipment associated with the existing digesters and bio-filters are currently present within the proposed construction area. We understand that the proposed facility and equipment will be founded on spread and/or mat foundations. Based on our subsurface exploration, our communications with you, and the recommendations provided in the remainder of this report, we understand that the project will involve relatively shallow grading with excavations on the order of 3 feet prior to construction of the proposed improvements. However, some small equipment for the FOG receiving station might be located as deep as approximately 8 feet below grade.

4 SUBSURFACE EVALUATION AND LABORATORY TESTING

Our geotechnical exploration was performed on March 11, 2022, to evaluate the subsurface conditions for the proposed thermal drying facility. The subsurface conditions within the area

proposed for the new FOG receiving station was addressed in our previous study (Ninyo & Moore, 2021a). The current subsurface evaluation consisted of the drilling, logging, and sampling of two HSA borings (i.e., B-1 and B-2). B-1 and B-2 were drilled using a truck-mounted drill rig utilizing 8-inch-diameter augers to depths of approximately 71 and 21.5 feet, respectively. The borings were logged in the field by a representative of Ninyo & Moore. Representative bulk and relatively undisturbed samples were collected from the borings at selected depths for laboratory testing. The approximate locations of the borings drilled as part of the current evaluation and those included in our 2021 study are presented on Figure 2. The logs of the borings are presented in Appendix A.

Geotechnical laboratory testing was performed on representative soil samples collected from the borings. The laboratory testing included evaluation of in-situ moisture content and dry density, percent of soil particles finer than the No. 200 sieve, Atterberg limits, Modified Proctor density, direct shear strength, consolidation, and soil corrosivity characteristics (including pH, resistivity, and water soluble sulfates and chlorides). The results of the in-situ moisture content and dry density tests are presented on the boring logs in Appendix A. The remaining laboratory testing results are presented in Appendix B.

In addition to the geotechnical laboratory testing, analytical testing was performed on two surficial samples collected at approximate depths of 1 and 2 feet below existing grade following industry standard sampling protocols. The soil samples were then transported in an ice-cooled chest, following chain-of-custody protocols to Enthalpy Analytical, a state of California-certified analytical laboratory for analysis. The soil samples were analyzed for volatile organic compounds (VOCs) by EPA Method 8260B, Total Petroleum Hydrocarbons (TPH) [gasoline, diesel and motor oil range] using EPA Method 8015M, Organochlorine pesticides using EPA Method 8081A, Chlorinated Herbicides using 8151A, poly-chlorinated biphenyls (PCBs) using EPA Method 8082 and Title 22 Metals using EPA Method 6010B/7471A.

VOCs, organochlorine pesticides, chlorinated herbicides, PCBs, and TPH (GRO-gasoline range organics, and ORO- oil range organics) were not reported exceeding the laboratory limits in either of the samples. Low concentration of TPH (DRO- diesel range organics) was reported at 16 mg/kg in the sample collected at 2 feet from B-1. This concentration does not exceed regulatory screening levels. If the soil represented by this sample is planned for excavation and disposal, it should be characterized as ‘non-hazardous petroleum hydrocarbon impacted’ waste. Reported metals concentrations were within the ranges of naturally occurring background metals in California soils (Arsenic has a 12 mg/kg screening level for California soils due to naturally occurring arsenic). The results of analytical testing are provided in Appendix C.

DRAFT

5 GEOLOGY AND SUBSURFACE CONDITIONS

5.1 Regional Geology

The project site is situated within the northwestern portion of the Transverse Ranges geomorphic province of southern California (Norris and Webb, 1990). The Transverse Ranges geomorphic province is characterized by generally east to west-trending mountain ranges and fault systems, and is generally underlain by thick sequences of marine sedimentary rock.

The project site is located on the Santa Barbara coastal alluvial plain south of the south flank of the Santa Ynez Mountains. The site vicinity is underlain by alluvium associated with deposition of sediments from Santa Ynez Mountains. Regional geologic mapping indicates that the site is underlain by older Pleistocene siltstone terrace deposits and Miocene-age siliceous deposits of the Monterey formation (USGS, 2006). A regional geologic map is shown in Figure 3.

DRAFT

5.2 Site Geology

The stratigraphy and subsurface conditions for the proposed thermal drying facility were evaluated during the geotechnical exploration performed as part of the current study. For a discussion on the site geology at the area proposed for the new FOG receiving station please refer to our previous study for Phase 1 of the project (Ninyo & Moore, 2021a).

Subsurface materials encountered during our current exploration consisted of asphalt concrete (AC) pavement sections, aggregate base (AB), Portland cement concrete (PCC), fill, and marine terrace deposits. An approximately 2-inch-thick layer of AC was encountered in both borings performed for this study. In boring B-1, the AC was underlain by an AB layer, approximately 6 inches thick, and a PCC layer, approximately 12 inches thick. The AB consisted of moist, medium dense, silty sand with gravel. The AC was underlain by fill materials to approximately 3 feet below ground surface in boring B-2, which comprised of moist, medium dense, silty sand.

The marine terrace deposits were encountered in both borings to the total depth explored (starting at a depth of approximately 2 feet in B-1 and 3 feet in B-2). The marine terrace deposits were composed of moist, very stiff to hard, lean clay to a depth of approximately 10 feet and soft to moderately hard silty claystone thereafter to the total depth explored. More detailed descriptions of the subsurface materials encountered during our subsurface exploration are presented on the boring logs in Appendix A.

5.3 Groundwater

Groundwater was not encountered at the time of drilling our exploratory borings. Groundwater was measured at a property located approximately 1,400 feet northeast of the site, on the east

side of San Pedro Creek, at depths as shallow as approximately 3 feet deep, which corresponds to an approximate elevation of 6 feet above MSL. Fluctuations in groundwater levels will occur due to variations in precipitation, ground surface topography, subsurface stratification, irrigation, groundwater pumping, and other factors that may not have been evident at the time of our field evaluation.

6 FAULTING AND SEISMICITY

The site is located in a seismically active area, as is the majority of southern California, and the potential for strong ground motion in the project area is considered significant during the design life of the proposed improvements. The approximate locations of major faults in the region and their geographic relationship to the project sites are shown on Figure 4. Based on our review of seismic hazard maps, geologic literature, and geologic maps, the site is not located within a State of California Earthquake Fault Zone (formerly known as Alquist-Priolo Special Studies Zone), and no active faults are known to cross the subject site (Hart and Bryant, 2007). The potentially active Mission Ridge and Red Mountain fault zones are located approximately 0.5 and 3.1 miles south of the site, respectively (USGS, 2008). The principal seismic hazards evaluated at the subject site are surface fault rupture, ground motion, liquefaction, dynamic compaction of dry soils, flood and tsunami hazards, and landslides. A brief description of these hazards and the potential for their occurrences on site are discussed in the following sections.

DRAFT

6.1 Surface Fault Rupture

Based on our review of the referenced literature and our site reconnaissance, no faults that are considered active by the State of California are known to cross the project site. However, as described above, the site is located within the zone of More Ranch section of the Mission Ridge fault that is considered active by the County of Santa Barbara. A previous fault rupture study concluded that breaks or offset geologic units suggestive of tectonic faulting were not observed in the vicinity of the proposed improvements. Based on the findings from the prior surface fault rupture study, the probability of damage from surface ground rupture is considered to be low. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

6.2 Site-Specific Ground Motion

Considering the proximity of the sites to active faults capable of producing a maximum moment magnitude of 6.0 or more, the project area has a high potential for experiencing strong ground motion. The 2019 California Building Code (CBC) requires the risk-targeted maximum considered earthquake (MCE_R) ground motion response accelerations to evaluate seismic loads for design of buildings and other structures. Based on the information from an available online database

(Wills et al. 2015; Thompson, 2018), the average shear wave velocity for the upper 30 meters of soil layers ($V_{s,30}$) used in the seismic analysis was 293.5 meters per second. Accordingly, the site is classified as Site Class D. Per the 2019 CBC, site-specific ground motion hazard analysis needs to be performed following the guidelines presented in Sections 21.2 and 21.3 of American Society of Civil Engineers (ASCE) Publication 7-16 for soil deposits classified as Site Class D with mapped S_1 (spectral response acceleration at a period of 1 second) greater than or equal to 0.2g. Since the S_1 is 0.831g at the site (per ASCE 7-16, using the 2022 Applied Technology Council [ATC] web-based seismic design tool), site-specific ground motion hazard analysis was performed to evaluate the ground motion characteristics at the site.

DRAFT

The site-specific ground motion hazard analysis consisted of the review of available seismologic information for nearby faults and performance of probabilistic seismic hazard analysis (PSHA) and deterministic seismic hazard analysis (DSHA) to develop 5-percent-damped acceleration response spectrum (ARS) curves corresponding to the MCE_R. Prior to the site-specific ground motion hazard analysis, we obtained the mapped seismic ground motion values and developed the general MCE_R response spectrum for 5 percent damping in accordance with Section 11.4 of ASCE 7-16 (ATC, 2022).

The 2014 next generation attenuation (NGA) West-2 relationships were used to evaluate the site-specific ground motions. The NGA relationships used for developing the probabilistic and deterministic response spectra were those by Chiou and Youngs (2014), Campbell and Bozorgnia (2014), Boore, Stewart, Seyhan, and Atkinson (2014), and Abrahamson, Silva, and Kamai (2014). The Open Seismic Hazard Analysis software developed by USGS (Field et al., 2003) was used for performing the PSHA. The Calculation of Weighted Average 2014 NGA Models spreadsheet developed by the Pacific Earthquake Engineering Research Center was used for performing the DSHA (Seyhan, 2014).

PSHA was performed for earthquake hazards having a 2 percent probability of being exceeded in 50 years adjusted for the risk factors per ASCE 7-16. The maximum rotated components of 5-percent-damped ground motions were considered in PSHA. The DSHA considers accelerations from characteristic earthquakes on active faults within the region using the hazard curves and deaggregation plots at the site using the USGS Unified Hazard Tool application (USGS, 2022). A magnitude 7.4 event on the Red Mountain fault was deemed to be the controlling earthquake. The DSHA was performed for the site using this event and corrections were applied to spectral accelerations for the 84th percentile of the maximum rotated component of ground motion with 5 percent damping.

The site-specific MCE_R response spectrum was considered as the lesser of the PSHA and DSHA spectral response acceleration at any period, and the site-specific design response spectrum was determined by taking two-thirds of the MCE_R response spectrum with some conditions in accordance with Section 21.3 of ASCE 7-16. Figure 5 presents the site-specific MCE_R and design response spectra as well as the general mapped design response spectra calculated in accordance with Section 11.4 of ASCE 7-16. The site-specific spectral acceleration parameters, obtained from ground motion hazard analysis, are presented in Section 8.3 for evaluation of seismic loads on buildings and other structures. The site-specific MCE_G (maximum considered earthquake geometric mean) peak ground acceleration, PGA_M, was calculated as 1.04g.

DRAFT

6.3 Liquefaction Potential

Liquefaction is the phenomenon in which loosely deposited granular soils and non-plastic silts located below the water table undergo rapid loss of shear strength when subjected to strong earthquake-induced ground shaking. Ground shaking of sufficient duration results in the loss of grain-to-grain contact due to a rapid rise in pore water pressure, and causes the soil to behave as a fluid for a short period of time. Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet below the ground surface. Liquefaction is also known to occur in relatively fine-grained soils (i.e., sandy silt and clayey silt) with a plasticity index (PI) of less than 12 and an in-place moisture content more than 85 percent of the liquid limit (LL) and sensitive silts and clays with a PI more than 18. Factors known to influence liquefaction potential include composition and thickness of soil layers, grain size, relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking.

The Santa Barbara County Comprehensive Plan Seismic Safety & Safety Element (County of anta Barbara, 2010) indicates that the subject site is located in an area with a moderate rating or liquefaction (Figure 6). However, given that the subsurface materials encountered during our exploration predominantly consist of hard, lean clay deposits and silty claystone, liquefaction and liquefaction-related seismic hazards (e.g., dynamic settlement, ground subsidence, and/or lateral spreading) are not a design consideration for the project.

6.4 Dynamic Compaction of Dry Soils

Relatively dry soils (e.g., soils above the groundwater table) with low density or softer consistency tend to undergo a degree of compaction during a seismic event. Earthquake shaking often induces significant cyclic shear strain in a soil mass, which responds to the vibration by undergoing volumetric changes. Volumetric changes in dry soils take place primarily through changes in the void ratio (usually contraction in loose or normally consolidated soft soils, and

dilation in dense or overconsolidated stiff soils) and secondarily through particle reorientation. Such volumetric changes are generally non-recoverable. Based on our subsurface exploration, the marine terrace deposits at the site generally consist of hard, lean clay and silty claystone deposits. Accordingly, it is our opinion that dynamic compaction of dry soils is not a design consideration for the project.

6.5 Flood and Tsunami Hazards

Based on our review of the City of Goleta Fire, Flood and Tsunami Hazards map (City of Goleta, 2016), the project site is not located in the 100-year Flood Hazard Zone, but is located within the 500-year flood zone (Figure 7). Tsunamis are long wavelength seismic, sea waves (long compared to ocean depth) generated by the sudden movements of the ocean floor during submarine earthquakes, landslides, or volcanic activity. The project area is not mapped within an area considered susceptible to tsunami inundation. Therefore, damage due to tsunamis is not a design consideration for this project.

DRAFT

6.6 Landslides

Based on our site reconnaissance and review of published geologic maps, and stereoscopic aerial photographs as well as review of the City of Goleta Geologic Hazards Map (City of Goleta, 2009), landslides are not considered to be a potential hazard at the site.

7 CONCLUSIONS

Based on our evaluation, it is our opinion that proposed construction is feasible from a geotechnical perspective, provided the recommendations presented in this report are incorporated into the design and construction of the project. In general, the following additional conclusions were made:

- The exploration performed as part of the current study addressed the subsurface conditions for the proposed thermal drying facility. Based on our study, the proposed thermal drying facility site is underlain by marine terrace deposits beneath the pavement. An approximately 2-inch-thick layer of AC was encountered in both borings. In boring B-1, the AC was underlain by an AB layer, approximately 6 inches thick, and a PCC layer, approximately 12 inches thick. The AB consisted of moist, medium dense, silty sand with gravel. The AC was underlain by fill materials to approximately 3 feet below ground surface in boring B-2, which generally comprised of moist, medium dense, silty sand. The marine terrace deposits were encountered in both borings to the total depth explored. The marine terrace deposits were composed of moist, very stiff to hard, lean clay to a depth of approximately 10 feet and soft to moderately hard silty claystone thereafter to the total depth explored.

- The subsurface conditions at the area proposed for the new FOG receiving station was evaluated in our 2021 study as part of Phase 1 of the subject project. Based on the referenced study, the FOG receiving station will be underlain by fill soils consisting of silty sand marine terrace deposits consisting of unconsolidated sand, silty sandstone and silty claystone, and siltstone bedrock materials of the Monterey Formation.

- Excavations for the construction of both FOG receiving station and thermal drying facility should be feasible with heavy duty equipment in good working condition.

- The on-site soils encountered in our borings for the proposed thermal drying facility (beneath the existing sludge-drying beds) may be subject to compression and are not considered suitable to support the proposed thermal drying facility foundations. In order to improve the bearing conditions, supporting the proposed foundations on 3 feet or more of granular materials is appropriate. The granular materials that will be generated during excavation of the FOG and the proposed new digester are anticipated to be suitable to support the new thermal drying facility foundations. However, the clayey soils may be used for general fill material beyond the limits of the new structures and for utility trench backfill, but should not be used as structure backfill for structures such as buried vaults. Placement of fill will involve moisture conditions to reach near-optimum moisture conditions.

- Although not encountered in our recent borings, the contractor should anticipate handling oversize materials during grading and construction. The limits of the buried concrete encountered beneath the sludge drying beds is unknown. Depending on the amount present, some of the concrete and asphalt concrete at the bottom of the sludge drying bed may be incorporated into the compacted fill, provided that the material is broken down to 4 inches in diameter or less and kept to a depth of 2 feet below the bottom of the foundations or finish ground surface.

- Groundwater was not encountered during our current subsurface exploration. Groundwater is not anticipated to be a design consideration for the project. Fluctuations in groundwater levels may occur due to variations in precipitation, ground surface topography, subsurface stratification, irrigation, groundwater pumping, and other factors which may not have been evident at the time of our field evaluation.

- Reported concentrations of chemicals did not exceed regulatory screening levels indicating contamination from external sources.

- The site soils are not subject to dynamic settlement due to earthquake-induced liquefaction or dynamic compaction of dry soils.

- The subject site is not located within a State of California Earthquake Fault Zone. However, the site is located near the More Ranch Fault, which is considered active by the County of Santa Barbara.

- Our limited laboratory corrosivity testing indicates that the on-site materials can be classified as corrosive based on the California Department of Transportation (Caltrans, 2021) corrosion guidelines.

8 RECOMMENDATIONS

The recommendations presented in the following sections provide geotechnical criteria regarding the design and construction of the proposed site improvements. The recommendations are based on the results of our subsurface evaluation, geotechnical analysis, and our project understanding. Detailed construction drawings and foundation loading information were not available at the time this report was prepared. We recommend that the final construction drawings be submitted to Ninyo & Moore for review to evaluate conformance to the geotechnical recommendations

DRAFT

provided in this report. Additional or revised recommendations may be appropriate. The proposed work should be performed in conformance with the recommendations presented in this report, project specifications, and appropriate agency standards.

8.1 Earthwork

Based on our understanding of the project, earthwork at the site is anticipated to consist of site clearing, remedial grading to prepare the ground surface for the new structures, trenching and backfilling associated with underground utility installation, and finished grading for establishment of site drainage. It is our understanding that the approximately 2 to 3-foot deep sludge drying bed will be filled to the approximate surrounding grade. Earthwork operations at the site should be performed in accordance with the recommendations provided in the following sections of this report and applicable governing agencies.

DRAFT

8.1.1 Pre-Construction Conference

We recommend that a pre-construction conference be held. The owner and/or their representative, the governing agencies' representatives, the civil engineer, the geotechnical engineer, and the contractor should attend to discuss the work plan, project schedule, and earthwork requirements.

8.1.2 Demolition, Clearing, and Grubbing

Prior to performing excavations or other earthwork, the area should be cleared of existing structures, water piping under and above the ground, AC and PCC pavements, rubble and debris, abandoned utilities, surface obstructions, and other deleterious materials. Existing utilities within the project limits should be re-routed or protected from damage by construction activities. Materials generated from the clearing operations should be removed from the project site and disposed of at a legal dumpsite.

8.1.3 Excavation Characteristics

Based on our field exploration, we anticipate that excavations at the site may be accomplished with conventional earthmoving equipment in good working condition. Excavations are not anticipated to encounter hard claystone and sandstone terrace deposit materials that would involve additional excavating effort. Contractors should make their own independent evaluation of the excavatability of the on-site materials prior to submitting their bids.

8.1.4 Temporary Excavations and Shoring

We recommend that excavations be designed and constructed in accordance with Occupational Safety and Health Administration (OSHA) regulations. These regulations provide shoring design parameters for excavations and trenches up to 20 feet deep based on the soil types encountered. Trenches over 20 feet deep should be designed by the contractor's engineer based on site-specific geotechnical analyses. For planning purposes, we recommend that alluvium be considered as OSHA Type C soil. For trench or other excavations, OSHA requirements regarding personnel safety should be met by using appropriate shoring or by laying back the slopes no steeper than 1½:1 (horizontal to vertical) in the alluvium. Temporary excavations that encounter seepage may need shoring or may be mitigated by placing sandbags or gravel along the base of the seepage zone. Excavations encountering seepage should be evaluated on a case-by-case basis.

DRAFT

Where slopes cannot be laid back, shoring may be appropriate. If shoring systems are used for site excavations, they should be designed for the anticipated soil conditions using the lateral earth pressure values presented on Figures 8 and 9 for cantilevered and braced shoring systems, respectively. The recommended design pressures are based on the assumption that the shoring system is constructed without raising the ground surface elevation behind the shored sidewalls of the excavation, that there are no surcharge loads, such as soil stockpiles and construction materials, and that no loads act above a 1:1 (horizontal to vertical) plane ascending from the base of the shoring system. For a shoring system subjected to the above-mentioned surcharge loads, the contractor should include the effect of these loads on the lateral earth pressures acting on the shored walls.

We anticipate that settlement of the ground surface will occur behind the shored excavations. The amount of settlement depends heavily on the type of shoring system, the contractor's workmanship, and soil conditions. To reduce the potential for distress to adjacent improvements, we recommend that the shoring system be designed to limit the ground settlement behind the shoring system to ½ inch or less. Possible causes of settlement that should be addressed include settlement during installation of the shoring elements, excavation for structure construction, construction vibrations, and removal of the support system. We recommend that shoring installation be evaluated carefully by the contractor prior to construction and that ground vibration and settlement monitoring be performed during construction.

8.1.5 Subgrade Preparation

After the site has been cleared of surface improvements and obstructions, remedial grading operations can be performed to support the construction of the proposed improvements. We understand that both FOG receiving station and thermal drying facility (after filling of the 2 to 3-foot deep sludge drying bed) will be constructed at grade. In order to provide suitable support and reduce the potential settlement, we recommend that remedial grading is performed to remove the existing fill materials beneath the pavements in the sludge drying bed to expose competent native terrace deposits prior to placing fill to reach the foundation subgrade elevation. In order to provide suitable foundation support, we recommend that the upper approximately 3 feet of fill below the bottom of the foundations consist of granular soil, as further described in the following section. The limits of the excavation should extend laterally so that the bottom of the excavation is approximately 3 feet beyond the edge of the foundations.

DRAFT

We understand that some equipment will be installed as deep as 8 feet below the existing grade. Additional overexcavation is not needed for these deeper features, provided that they are founded on exposed competent terrace deposits.

Prior to placing newly compacted fill or placing the below-grade equipment on the deeper competent materials, the exposed bottom should be scarified, moisture-conditioned, and recompacted to a depth of approximately 8 inches. The excavation bottoms should be evaluated by our representative during the excavation work. Additional overexcavation of loose, soft, and/or wet areas may be appropriate, depending on our observations during construction.

8.1.6 Fill Material

Given that clayey materials were consistently encountered during our subsurface exploration for the thermal drying facility, the on-site soils are not suitable for use below the thermal drying facility foundations or as structure backfill for buried vaults. However, the clayey soils may be re-use as general fill beyond the structures and for trench backfill. Import materials should consist of clean, non-expansive, granular material, which conforms to the latest edition of "Greenbook" Standard Specifications for Public Works Construction for structure backfill in accordance with ASTM D 4829 (CBC, 2019). "Non-expansive" can be defined as soil having an EI of 20 or less in accordance with ASTM International (ASTM) D 4829 (CBC, 2019). Soil should also be tested for corrosive properties prior to importing. We recommend that the imported materials comply with the Caltrans (2018) criteria for non-corrosive soils (i.e., soils having a chloride concentration of 500 parts per million (ppm) or less, a soluble sulfate

content of approximately 0.15 percent [1,500 ppm] or less, a pH value of 5.5 or higher, and a resistivity of 1,100 ohm-centimeters [ohm-cm] or more). Materials for use as fill should be evaluated by the geotechnical consultant prior to importing. The contractor should be responsible for the uniformity of import material brought to the site.

8.1.7 Fill Placement and Compaction

Fill placed for support of the proposed structures or other site improvements such as new vaults and trench backfill should be compacted in horizontal lifts to a relative compaction of 90 percent or more as evaluated by ASTM D 1557. Fill soils should be placed at slightly above the optimum moisture content as evaluated by ASTM D 1557. The optimum lift thickness of fill will depend on the type of compaction equipment used but generally should not exceed 8 inches in loose thickness. Placement and compaction of the fill soils should be in general accordance with appropriate governing agency grading ordinances and good construction practice.

DRAFT

8.2 Underground Utilities

We anticipate that utility pipelines will be installed as a part of the subject project that will be supported on fill and, depending on the depths, on terrace deposits. The depths of the pipelines are not known; however, we anticipate that the pipe invert depths will not exceed 10 feet. Trenches should not be excavated adjacent to footing foundations of existing structures or earthen berms. If needed, trenches can be excavated adjacent to a continuous footing or berms provided that the bottom of the trench is located above a 1:1 plane projected downward from the bottom of the adjacent footing or toe of the berm. Utility lines that cross beneath footings or berms should be encased in concrete below the footing/berm.

8.2.1 Pipe Bedding

We recommend that pipelines be supported on 6 inches or more of granular bedding material such as sand with a sand equivalent value of 30 or more. Bedding material should be placed and compacted around the pipe, and 12 inches or more above the top of the pipe in accordance with the current “Greenbook” Standard Specifications for Public Works. We do not recommend the use of crushed rock for bedding material. It has been our experience that the voids within a crushed rock material are sufficiently large enough to allow fines to migrate into the voids, thereby creating the potential for sinkholes and depressions to develop at the ground surface. Special care should be taken not to allow voids beneath and around the pipe.

Where soft, wet soil conditions are encountered, the trench excavation should be excavated approximately 1 to 2 feet or more below the pipe invert and should be backfilled with gravel

wrapped in filter fabric. Bedding material and compaction requirements should be in accordance with the recommendations of this report, the project specifications, and applicable requirements of the appropriate agencies. Compaction of the bedding material and backfill should proceed along both sides of the pipe concurrently and be compacted to 90 percent or more relative compaction as evaluated by ASTM D 1557.

8.2.2 Modulus of Soil Reaction

The modulus of soil reaction is used to characterize the stiffness of soil backfill placed on the sides of buried flexible pipelines for the purpose of evaluating lateral deflection caused by the weight of the backfill above the pipe. We recommend that a modulus of soil reaction of 1,000 pounds per square inch (psi) be used for design, provided that relatively granular bedding material is placed adjacent to the pipe, as recommended in this report.

DRAFT

8.3 Site-Specific Seismic Design Considerations

Seismic design of the proposed improvements should be performed in accordance with the requirements of the governing jurisdictions and applicable building codes. Table 1 presents the site-specific spectral response acceleration parameters in accordance with the CBC (2019) guidelines.

Table 1 – 2019 California Building Code Seismic Design Criteria

Site-Specific Spectral Response Acceleration Parameters	Value
Site Class	D
Mapped Spectral Response Acceleration at 0.2-second Period, S_s	2.370g
Mapped Spectral Response Acceleration at 1.0-second Period, S_1	0.831g
Site-Modified Spectral Response Acceleration at 0.2-second Period, S_{MS}	2.373g
Site-Modified Spectral Response Acceleration at 1.0-second Period, S_{M1}	2.224g
Design Spectral Response Acceleration at 0.2-second Period, S_{DS}	1.582g
Design Spectral Response Acceleration at 1.0-second Period, S_{D1}	1.483g
Maximum Considered Earthquake Geometric Mean (MCE_G) Peak Ground Acceleration, PGA_M	1.040g

8.4 Foundations

The proposed structures may be supported on shallow foundations including square and continuous footings and mat foundations. Foundations should be designed in accordance with structural considerations and the following recommendations. When construction drawings and foundation loading information are available, they should be forwarded to our office for review. Additional or revised recommendations may be appropriate. In addition, requirements of the appropriate governing jurisdictions and applicable building codes should be considered in the design of the structures.

8.4.1 Square and Continuous Foundations

Square and continuous footings should be at least 24 inches wide and extend 24 inches or more below the adjacent finished grade. Spread footings should be reinforced with a minimum of two No. 4 steel reinforcing bars, one placed near the top and one placed near the bottom of the footings, and further detailed in accordance with the recommendations of the structural engineer. Given that the subsurface conditions encountered at the location of proposed thermal facility is different than that encountered for the FOG receiving station, the bearing capacity recommendation is also different for each structure.

DRAFT

For the proposed thermal facility, footings may be designed using an allowable bearing capacity of 2,500 pounds per square foot (psf). The allowable bearing capacity may be increased by one-third when considering loads of short duration such as wind or seismic forces. Please note that the allowable bearing capacity cannot be increased for footings of different size and/or embedment depth.

The footings for the FOG receiving station may be designed using an allowable bearing capacity of 3,000 pounds per square foot (psf). The allowable bearing capacity may be increase by 400 and 800 psf for each additional foot of width and depth, respectively, to a value of 5,000 psf. The allowable bearing capacity may be increased by one-third when considering loads of short duration such as wind or seismic forces.

Total and differential settlements for footings designed and constructed in accordance with the above recommendations are estimated to be less than approximately 1 inch and ½ inch over a horizontal span of 40 feet, respectively. Footings bearing on compacted fill may be designed using a coefficient of friction of 0.35, where the total frictional resistance equals the coefficient of friction times the dead load. Footings may be designed using a passive resistance of 350 psf per foot of depth for level ground condition up to a value of 3,500 psf. The allowable lateral resistance can be taken as the sum of the frictional resistance and passive resistance provided the passive resistance does not exceed one-half of the total allowable resistance. The passive resistance may be increased by one-third when considering loads of short duration such as wind or seismic forces.

8.4.2 Mat Foundations

We understand that the proposed thermal drying facility might be supported on a mat foundation. Mat foundations should be founded approximately 2 feet below the adjacent finish grade and designed using a net allowable bearing capacity of 2,500 psf and a coefficient of friction for sliding resistance of 0.35. Under the static loading condition, the total and

differential settlement corresponding to this allowable bearing load are estimated to be less than approximately 1 inch and ½ inch over a horizontal span of 30 feet, respectively.

Mat foundations typically experience some deflection due to loads placed on the mat and the reaction of the soils directly underlying the mat. A design modulus of subgrade reaction (K) of 30 kips per cubic foot (kcf) may be used for the subgrade soils in evaluating such deflections.

8.5 Slabs-On-Grade

Floor slabs subjected to dead and live loads should be designed by the project structural engineer based on the anticipated loading conditions. Floor slabs should be underlain by compacted soil prepared with the recommendations presented in this report. We recommend that slabs be 6 inches thick and reinforced with No. 4 steel reinforcing bars placed 24 inches on-center (each way) placed near the mid-height of the slab. The placement of the reinforcement in the slab is vital for satisfactory performance. The floor slab and foundation should be tied together by extending the slab reinforcements into the foundation.

DRAFT

The slab should be underlain by a 4-inch-thick, or more, layer of sand or gravel with a particle size of approximately 3/8-inch or smaller. Soils underlying the slab should be moisture-conditioned and compacted in accordance with the recommendations presented in this report prior to concrete placement. Joints should be constructed at intervals designed by the structural engineer to help reduce random cracking of the slab.

8.6 Corrosivity

Laboratory testing was performed on one representative soil sample to evaluate pH, electrical resistivity, water-soluble chloride content, and water-soluble sulfate content. The soil pH and electrical resistivity tests were performed in general accordance with California Test Method (CT) 643. Chloride content test was performed in general accordance with CT 422. Sulfate testing was performed in general accordance with CT 417. The laboratory test results are presented in Appendix B.

The results of the corrosivity testing indicated a soil pH of 7.2. The electrical resistivity was 683 ohm-cm; the chloride content was 240 ppm; the sulfate content was 0.036 percent (i.e., 360 ppm). Based on the laboratory test results and Caltrans (2021) criteria, the soils at the project site can be classified as corrosive, which is defined as having earth materials with more than 500 ppm chlorides, more than 1,500 ppm sulfates, a pH of 5.5 or less and an electrical resistivity of 1,500 om-cm or less. Due to the close proximity to the ocean, we recommend that the proposed

concrete members be designed in accordance with American Concrete Institute Standard Guidelines ACI 318-19 (ACI, 2019).

8.7 Concrete Placement

Concrete in contact with soil or water that contains high concentrations of water-soluble sulfates can be subject to premature chemical and/or physical deterioration. Based on the CBC criteria, the potential for sulfate attack is negligible for water-soluble sulfate contents in soil ranging from 0.00 to 0.10 percent by weight. The soil sample tested for this evaluation, using Caltrans Test Method 417, indicates a water-soluble sulfate content of 0.036 percent by weight (i.e., 360 ppm). Accordingly, the on-site soils are considered to have a negligible potential for sulfate attack. However, due to the potential variability of the soils on site, consideration should be given to using Type II/V cement for the project.

DRAFT

In order to reduce the potential for shrinkage cracks in the concrete during curing, we recommend that the concrete for the proposed structures be placed with a slump of 4 inches based on ASTM C 143. The slump should be checked periodically at the site prior to concrete placement. We further recommend that concrete cover over reinforcing steel for foundations be provided in accordance with CBC (2019). The structural engineer should be consulted for additional concrete specifications.

8.8 Drainage

Proper surface drainage is imperative for performance of site improvements. Positive drainage should be provided and maintained to transport surface water away from foundations and other site improvements. Positive drainage incorporates a slope of 2 percent or more over a distance of 5 feet or more away from structures, pavements, and top of slopes. Surface water should not be allowed to flow over slope faces or pond adjacent to footings.

9 CONSTRUCTION OBSERVATION

The recommendations provided in this report are based on our understanding of the proposed project and our evaluation of the data collected based on subsurface conditions observed in our exploratory borings. It is imperative that the geotechnical consultant checks the subsurface conditions during construction.

During construction, we recommend that the duties of the geotechnical consultant include, but not be limited to:

- Observing clearing, grubbing, and removals.

- Observing remedial grading excavation bottoms, and placement and compaction of fill, including trench backfill.
- Evaluating on-site soil for suitability as use as engineered fill/structural backfill prior to placement.
- Evaluating imported materials prior to their use as fill, if used.
- Performing field tests to evaluate fill compaction.
- Observing foundation excavations for bearing materials and cleaning prior to placement of reinforcing steel or concrete.
- Performing material testing services including concrete compressive strength and steel tensile strength tests and inspections.

DRAFT

The recommendations provided in this report are based on the assumption that Ninyo & Moore will provide geotechnical observation and testing services during construction. In the event that the services of Ninyo & Moore are not utilized during construction, we request that the selected consultant provide the owner with a letter (with a copy to Ninyo & Moore) indicating that they fully understand Ninyo & Moore's recommendations, and that they are in full agreement with the design parameters and recommendations contained in this report.

10 LIMITATIONS

The field evaluation, laboratory testing, and geotechnical analyses presented in this geotechnical report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding the conclusions, recommendations, and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation will be performed upon request. Please also note that our evaluation was limited to assessment of the geotechnical aspects of the project, and did not include evaluation of structural issues, environmental concerns, or the presence of hazardous materials.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

Our conclusions, recommendations, and opinions are based on an analysis of the observed site conditions. If geotechnical conditions different from those described in this report are encountered, our office should be notified, and additional recommendations, if warranted, will be provided upon request. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

DRAFT

11 REFERENCES

Abrahamson, N.A., Silva, W.J. and Kamai, R., 2014, Summary of the ASK14 Ground Motion Relation for Active Crustal Regions, Earthquake Spectra: Vol. 30, No. 3, pp. 1025-1055, dated August.

American Concrete Institute, 2019, Building Code Requirements for Structural Concrete (ACI 318-19).

American Society of Civil Engineers (ASCE), 2016, Minimum Design Loads and Associated Criteria for Building and Other Structures, ASCE Standard 7-16.

Applied Technology Council (ATC), 2022, Hazards by Location, https://hazards.atcouncil.org/#/.

ASTM International (ASTM), 2018, Annual Book of ASTM Standards, West Conshohocken, Pennsylvania.

Boore, D.M., Stewart, J.P., Seyhan, E., and Atkinson, G.M., 2014, NGA-West2 Equations for Predicting PGA, PGV, and 5% Damped PSA for Shallow Crustal Earthquakes, Earthquake Spectra, Vol. 30, No. 3, pp. 1057-1085, dated August.

Building News, 2018, "Greenbook:" Standard Specifications for Public Works Construction: BNI Publications.

California Building Standards Commission, 2019, California Building Code (CBC): California Code of Regulations, Title 24, Part 2, Volumes 1 and 2, based on the 2018 international Building Code.

California Department of Transportation, 2018, Corrosion Guidelines, Version 3.0, Division of Engineering Services, Materials Engineering and Testing Services, Corrosion Technology Branch, dated March.

Campbell, K.W. and Bozorgnia, Y., 2014, NGA-West2 Ground Motion Model for the Average Horizontal Components of PGA, PGV, and 5% Damped Linear Acceleration Response Spectra, Earthquake Spectra, Vol. 30, No. 3, pp. 1087-1115, dated August.

Chiou, B. S.-J. and Youngs, R.R., 2014, Update of the Chiou and Youngs NGA Model for the Average Horizontal Component of Peak Ground Motion and Response Spectra, Earthquake Spectra, August 2014, Vol. 30, No. 3, dated August.

City of Goleta, 2009, Geologic Hazards Map, General Plan/Coastal Land Use Plan, dated November 11.

City of Goleta, 2016, Fire, Flood, and Tsunami Hazards Map, General Plan/Coastal Land Use Plan, dated November 11.

County of Santa Barbara, 2015, Seismic Safety & Safety Element, dated February.

Earth Systems Pacific, 2009, Fault Investigation Report, Goleta Sanitary District, Wastewater Treatment Plant Upgrade, Goleta Area of Santa Barbara County, California, dated August 3.

Field, E.H., T.H. Jordan, and C.A. Cornell, 2003. OpenSHA: A Developing Community-Modeling Environment for Seismic Hazard Analysis. Seismological Research Letters, 74, no. 4, p. 406-419.

GeoTracker, 2022, www.geotracker.waterboards.ca.gov.

DRAFT

Hart, E.W., and Bryant, W.A., 2007, Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps: California Geological Survey, Special Publication 42, with Supplement 1 added in 2012, Supplement 2 added in 2014, Supplement 3 added in 2015, and Supplement 4 added in 2016.

Historic Aerials, 2022, Website for Viewing Aerial Photographs, www.historicaerials.com.

Jennings, C.W., and Bryant, W.A., 2010, Fault Activity Map: California Geological Survey, California Geologic Data Map Series, Map No. 6, Scale 1:750,000.

Ninyo & Moore, 2021a, Geotechnical Evaluation Report, Digester 4 Biosolids and Energy Design – Phase 1, Goleta Sanitary District, Goleta, California, dated January 29.

Ninyo & Moore, 2021b, Revised Proposal for Additional Geotechnical Consulting Services, New FOG Receiving Station and Thermal Drying Facility, Phase 2/3 Biosolids and Energy Project, Goleta Sanitary District, City of Goleta, California, dated December 14.

Norris, R.M. and Webb, R.W., 1990, Geology of California, Second Edition: John Wiley & Sons.

Seyhan, E., 2014, Weighted Average 2014 NGA West-2 GMPE, Pacific Earthquake Engineering Research Center.

Thompson, E.M., 2018, An Updated Vs30 Map for California with Geologic and Topographic Constraints: U.S. Geological Survey data release, https://doi.org/10.5066/F7JQ108S.

United States Geological Survey, 2006, Preliminary Geologic Map of the Santa Barbara Coastal Plain Area, Santa Barbara County, California, Open Filer Report 02-136, Scale 1:24,000

United States Geological Survey, 2008, National Seismic Hazard Maps, http://geohazards.usgs.gov/cfusion/hazfaults_search/hf_search_main.cfm.

United States Geological Survey, 2018, US, Goleta Quadrangle, California, 7.5 Minute Series: Scale 1: 24,000.

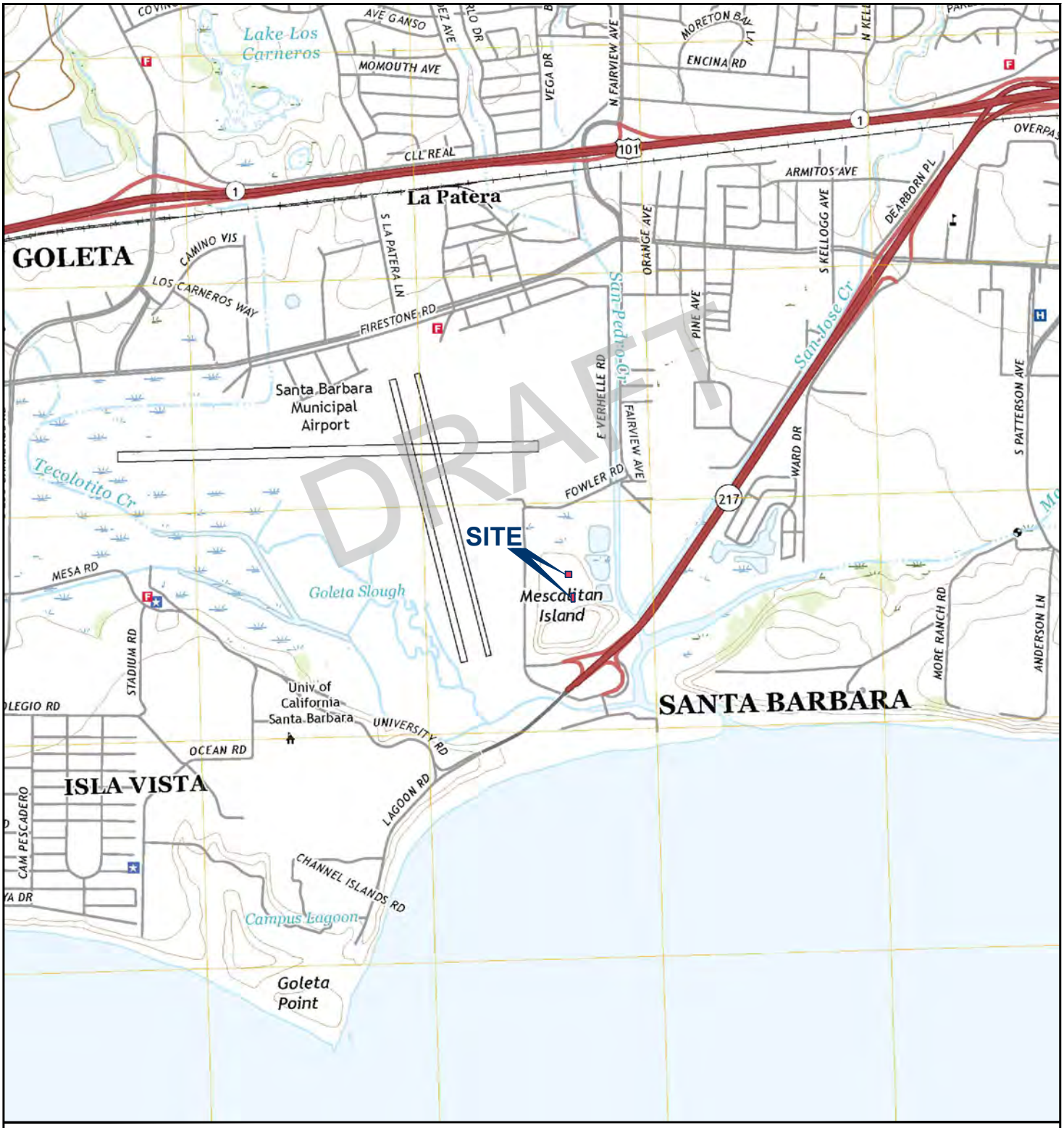
United States Geological Survey, 2022, Unified Hazard Tool; https://earthquake.usgs.gov/hazards/interactive/.

Wills, C. J., Gutierrez, C., Perez, F. G., & Branum, D. (2015). A Next Generation VS30 Map for California Based on Geology and Topography. Bulletin of the Seismological Society of America, 105.

DRAFT

DRAFT

FIGURES



211573001_SL.dwg 04/18/2022 JDP

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: USGS, 2018.

N

FEET

0 2,000 4,000

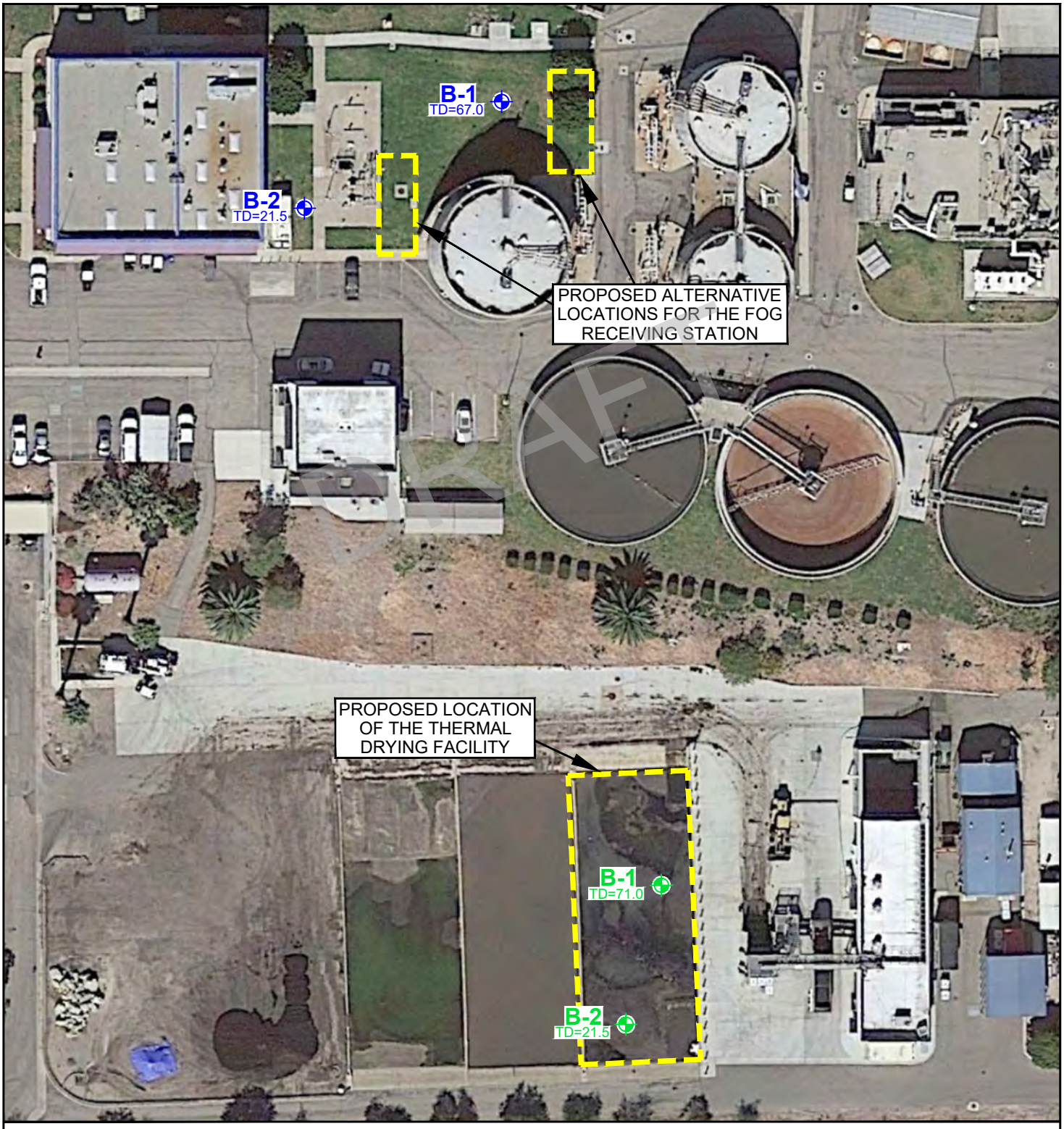
FIGURE 1

SITE LOCATION

NEW FOG RECEIVING STATION AND THERMAL DRYING FACILITY
GOLETA, CALIFORNIA

211573002 I 4/22

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



DRAFT

LEGEND

B-1 TD=21.5 — BORING (2022); TD=TOTAL DEPTH IN FEET

B-1 TD=21.5 — BORING (2020); TD=TOTAL DEPTH IN FEET

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: GOOGLE EARTH, 2022.

N

FEET

0 60 120

211573002_BL.dwg 04/22/2022 JDP

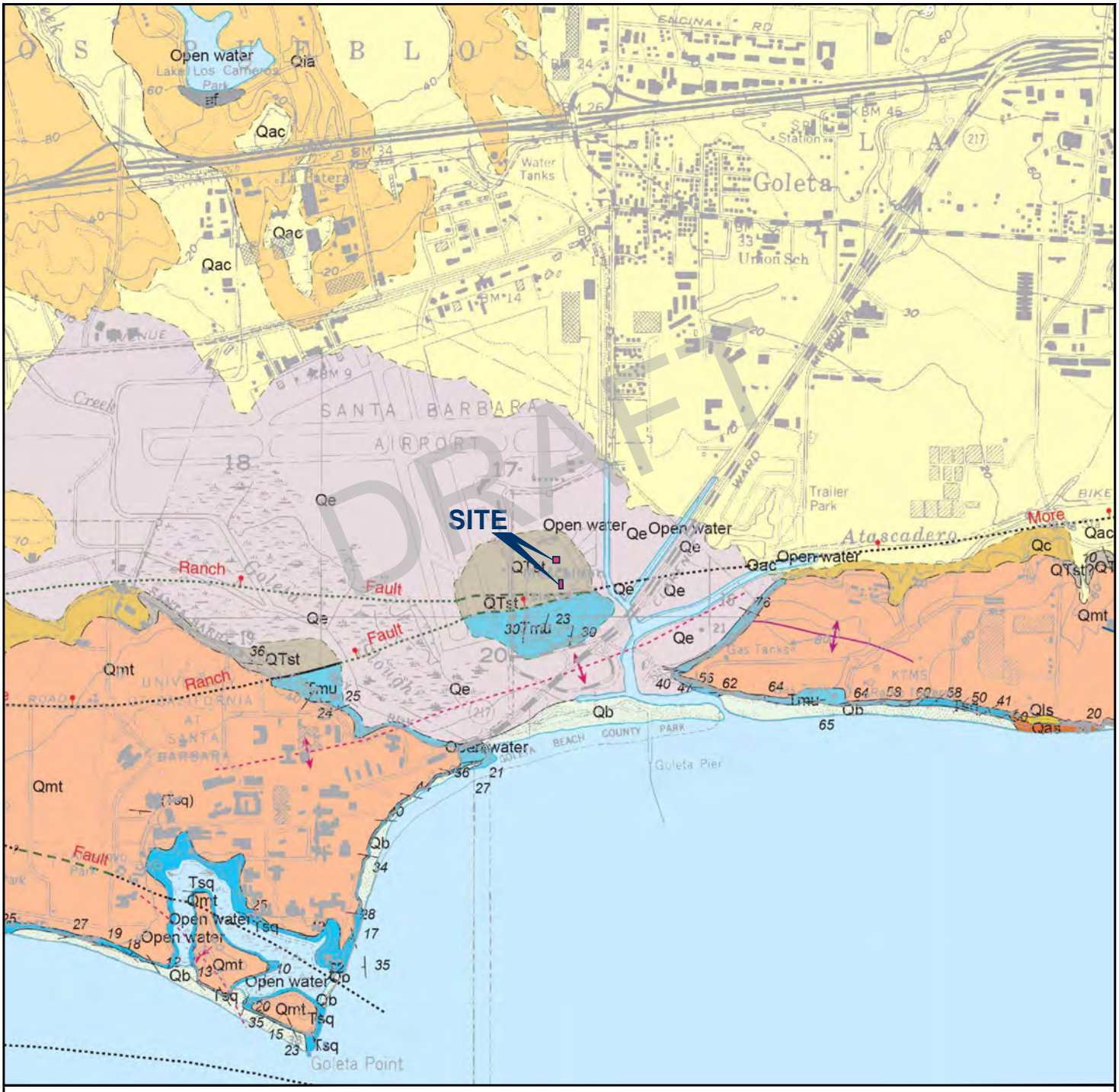
FIGURE 2

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

BORING LOCATIONS

NEW FOG RECEIVING STATION AND THERMAL DRYING FACILITY
GOLETA, CALIFORNIA

211573002 I 4/22



LEGEND

Qb	BEACH DEPOSITS	Tmu	MONTEREY FORMATION, UPPER SILICEOUS UNIT
Qe	ESTUARINE DEPOSITS	— —	FAULT (DASHED WHERE INFERRED, DOTTED WHERE CONCEALED)
Qmt	MARINE TERRACE DEPOSITS	~	GEOLOGIC CONTACT
QTst	SILTSTONE UNIT		

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: SCOTT A. MINOR, ET AL., 2006.

N

FEET

0 2,000 4,000

211573001_RG.dwg 04/18/2022 JDP

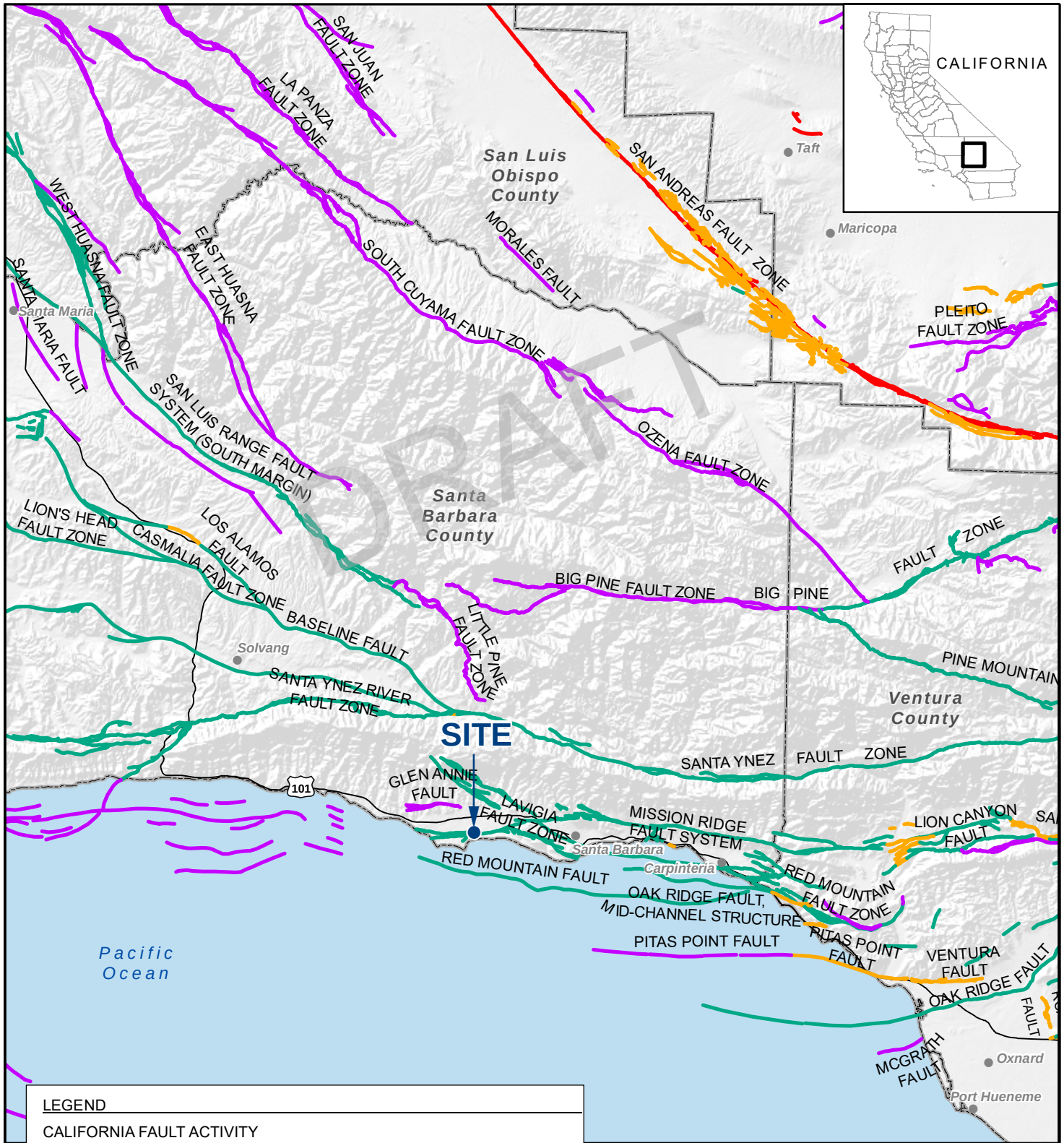
FIGURE 3

REGIONAL GEOLOGY

NEW FOG RECEIVING STATION AND THERMAL DRYING FACILITY
GOLETA, CALIFORNIA

211573002 I 4/22

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



SOURCES: CALIFORNIA DIVISION OF MINES AND GEOLOGY, 1976, ENVIRONMENTAL GEOLOGY OF ORANGE COUNTY, CALIFORNIA, OPEN FILE REPORT 79-8.; JENNINGS, C.W., AND BRYANT, 2010, FAULT ACTIVITY MAP OF CALIFORNIA; ESRI SHADED RELIEF, 2017

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

211573002_FL.mxd 03/28/2022 JDP

FIGURE 4

FAULT LOCATIONS

NEW FOG RECEIVING STATION AND THERMAL DRYING FACILITY
GOLETA, CALIFORNIA

211573002 | 4/22

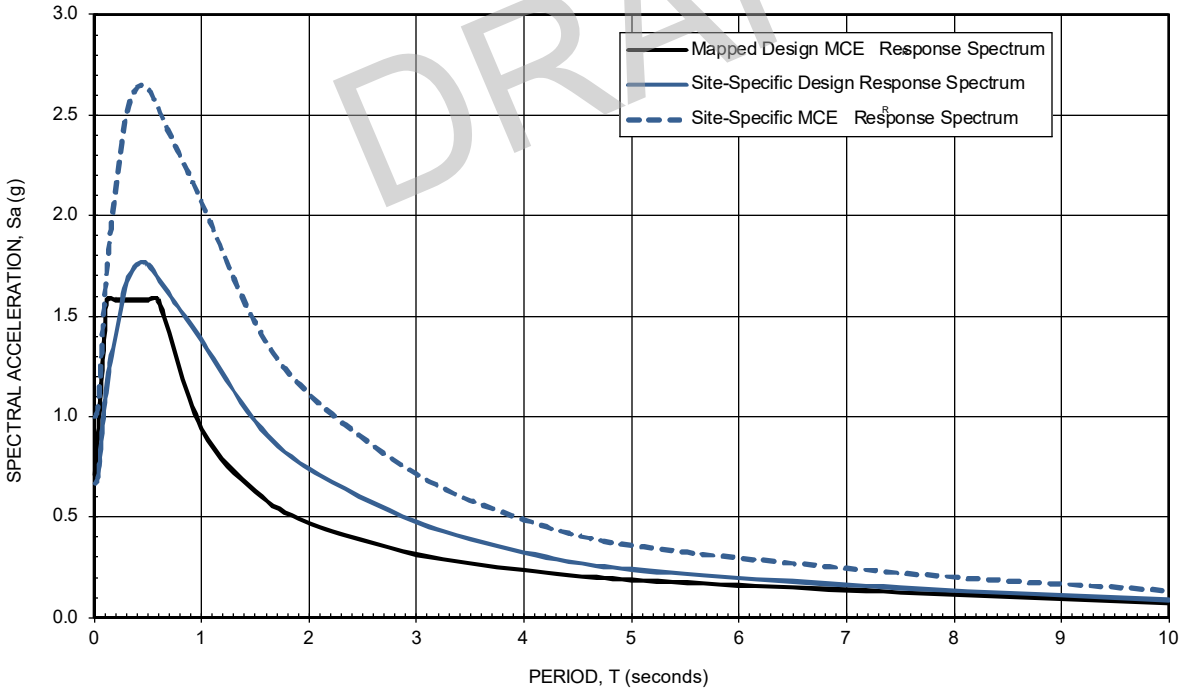
Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

PERIOD (seconds)	SITE-SPECIFIC MCE_R RESPONSE SPECTRUM Sa (g)	SITE-SPECIFIC DESIGN RESPONSE SPECTRUM Sa (g)
0.010	1.001	0.667
0.020	1.007	0.672
0.030	1.026	0.684
0.050	1.142	0.761
0.075	1.380	0.920
0.100	1.602	1.068
0.150	1.901	1.267
0.200	2.112	1.408
0.250	2.313	1.542
0.300	2.505	1.670
0.400	2.637	1.758

PERIOD (seconds)	SITE-SPECIFIC MCE_R RESPONSE SPECTRUM Sa (g)	SITE-SPECIFIC DESIGN RESPONSE SPECTRUM Sa (g)
0.500	2.636	1.758
0.750	2.353	1.569
1.000	2.069	1.379
1.500	1.466	0.977
2.000	1.112	0.741
3.000	0.713	0.475
4.000	0.487	0.325
5.000	0.359	0.239
7.500	0.222	0.148
10.000	0.133	0.089

S_{DS} =	1.582 g	S_{D1} =	1.483 g	S_{MS} =	2.373 g	S_{M1} =	2.224 g	PGA_M =	1.040 g

DRAFT



NOTES:

1 The probabilistic ground motion spectral response accelerations are based on the risk-targeted Maximum Considered Earthquake (MCE_R) having a 2% exceedance in 50 years in the maximum direction using the Chiou & Youngs (2014), Campbell & Bozorgnia (2014), Boore et al. (2014), and Abrahamson et al. (201 attenuation relationships and the risk coefficients.

2 The deterministic ground motion spectral response accelerations are for the 84th percentile of the geometric mean values in the maximum direction using the Chiou Youngs (2014), Campbell & Bozorgnia (2014), Boore et al. (2014), and Abrahamson et al. (2014) attenuation relationships for deep soil sites considering a Mw 7.4 e on the Red Mountain Fault fault zone located 4.1 kilometers from the site. It conforms with the lower bound limit per ASCE 7-16 Section 21.2.2.

3 The Site-Specific MCE_R Response Spectrum is the lesser of spectral ordinates of deterministic and probabilistic accelerations at each period per ASCE 7-16 Section 21.2.3. The Site-Specific Design Response Spectrum conforms with lower bound limit per ASCE 7-16 Section 21.3.

4 The Mapped Design MCE $_R$ Response Spectrum is computed from mapped spectral ordinates modified for Site Class D (stiff soil profile) per ASCE 7-16 Section 11.4 It is presented for the sake of comparison.

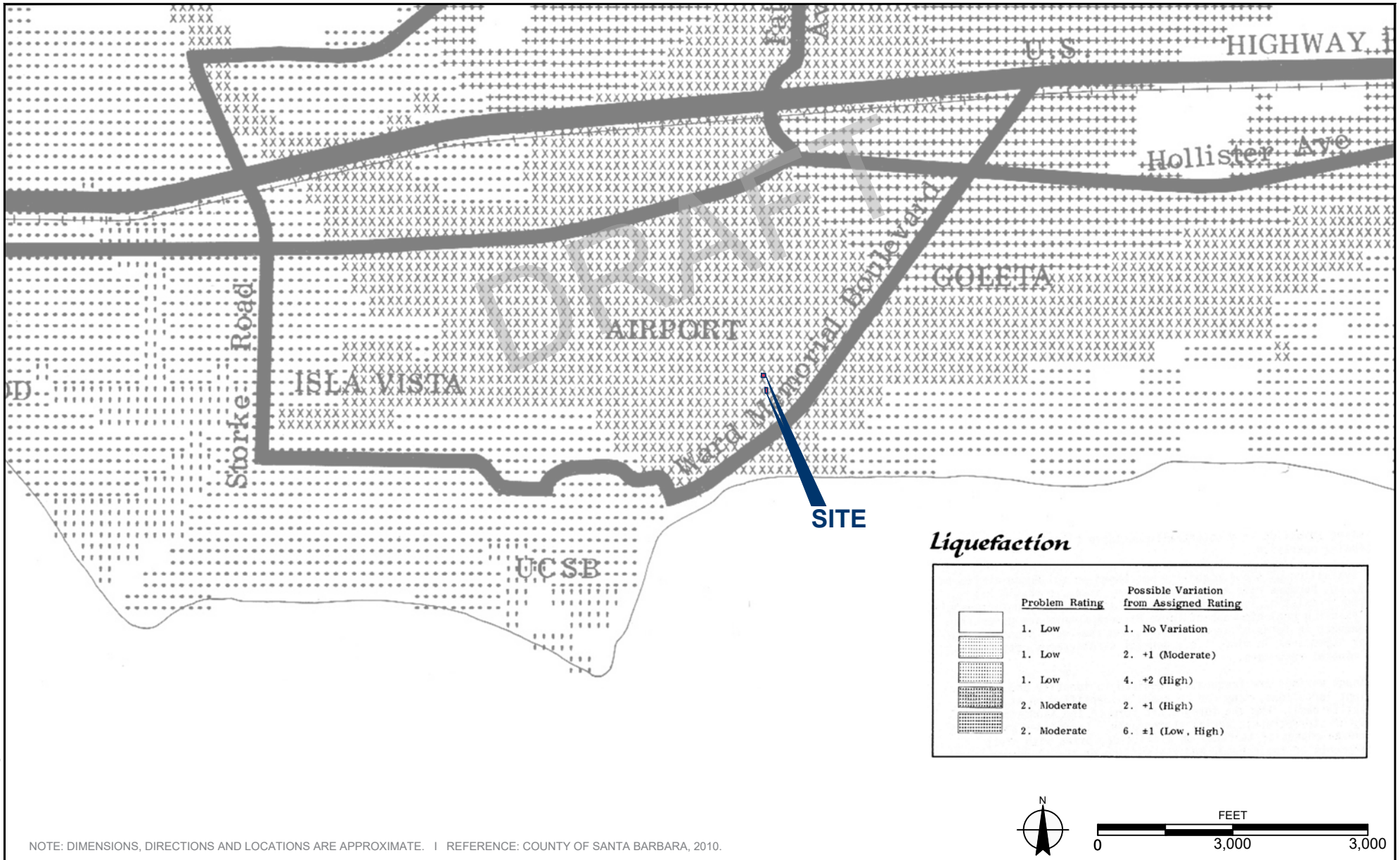
FIGURE 5

ACCELERATION RESPONSE SPECTRA

NEW FOG RECEVING STATION AND THERMAL DRYING FACILITY
GOLETA, CALIFORNIA

211573002 I 4/22

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: COUNTY OF SANTA BARBARA, 2010.

211573001_LHZ.dwg 04/18/2022 JDP

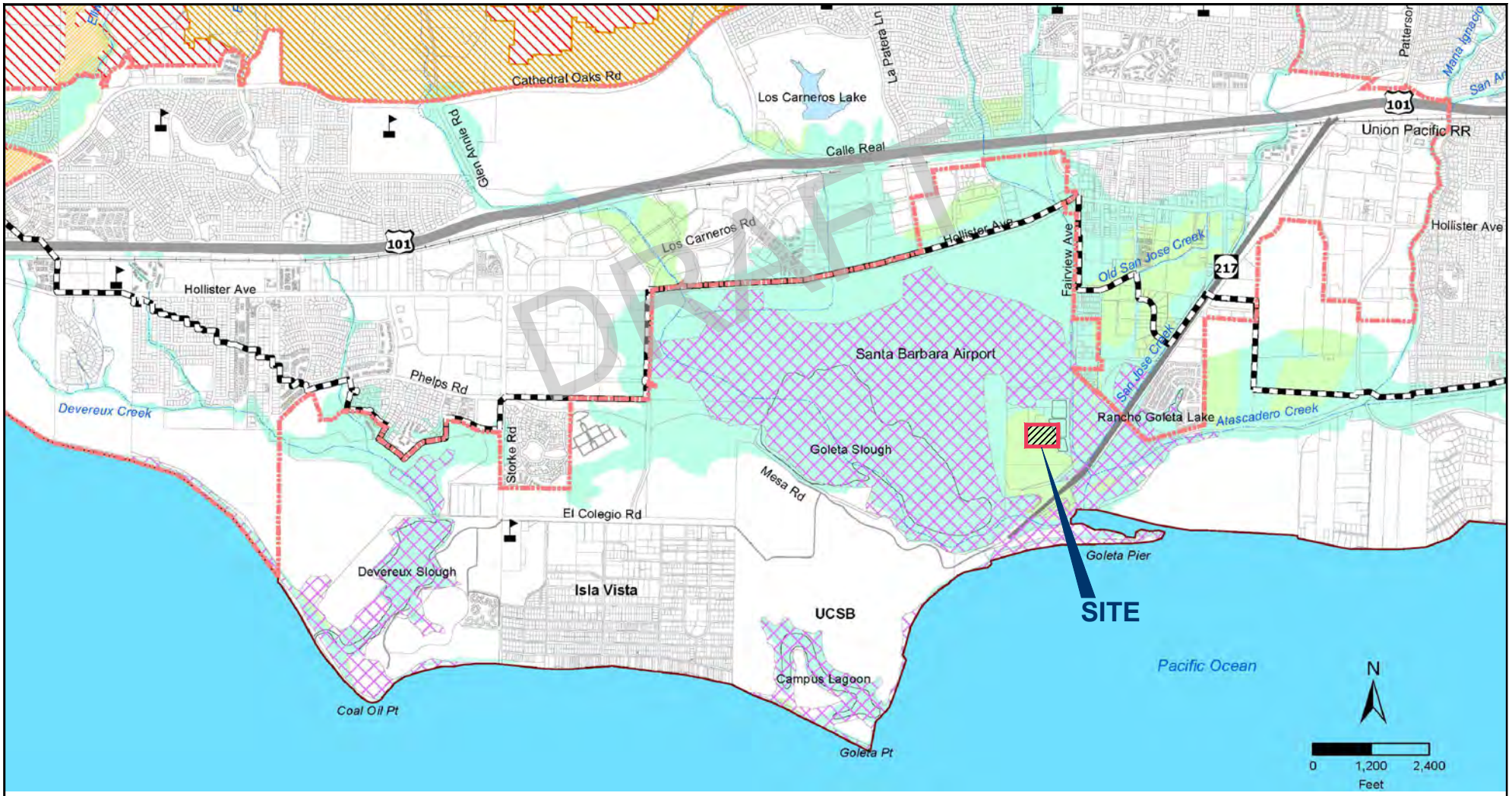
FIGURE 6

LIQUEFACTION HAZARD ZONES

NEW FOG RECEIVING STATION AND THERMAL DRYING FACILITY
GOLETA, CALIFORNIA

211573002 I 4/22

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



DRAFT

LEGEND

Flood Hazard
- 500 Year Flood Zone
- 100 Year Flood Zone

Fire Hazard Severity Zones
- State Responsibility Area
- Moderate
- High
- Very High

Tsunami Hazard
- Tsunami Inundation Area

Other Features
- Goleta City Boundary
- Coastal Zone
- Creeks
- Schools

Source:
The fire hazard severity zones were obtained from the California Department of Forestry and Fire Protection Fire Hazard Severity Zones map dated 11/07/07. The 100 and 500 year flood zone was mapped by the Federal Emergency Management Agency (FEMA), per flood Insurance Rate Map (FIRM) dated September 30, 2005. The tsunami inundation area was modeled by the University of Southern California, funded through the California Emergency Management Agency by the National Tsunami Hazard Mitigation Program, and depicted on the Tsunami Map for Emergency Planning, Dos Pueblos Canyon and Goleta Quadrangles, dated 01/31/09.

N

FEET
0
3,000
6,000

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE:

211573002_FTH.dwg 04/20/2022 JDP

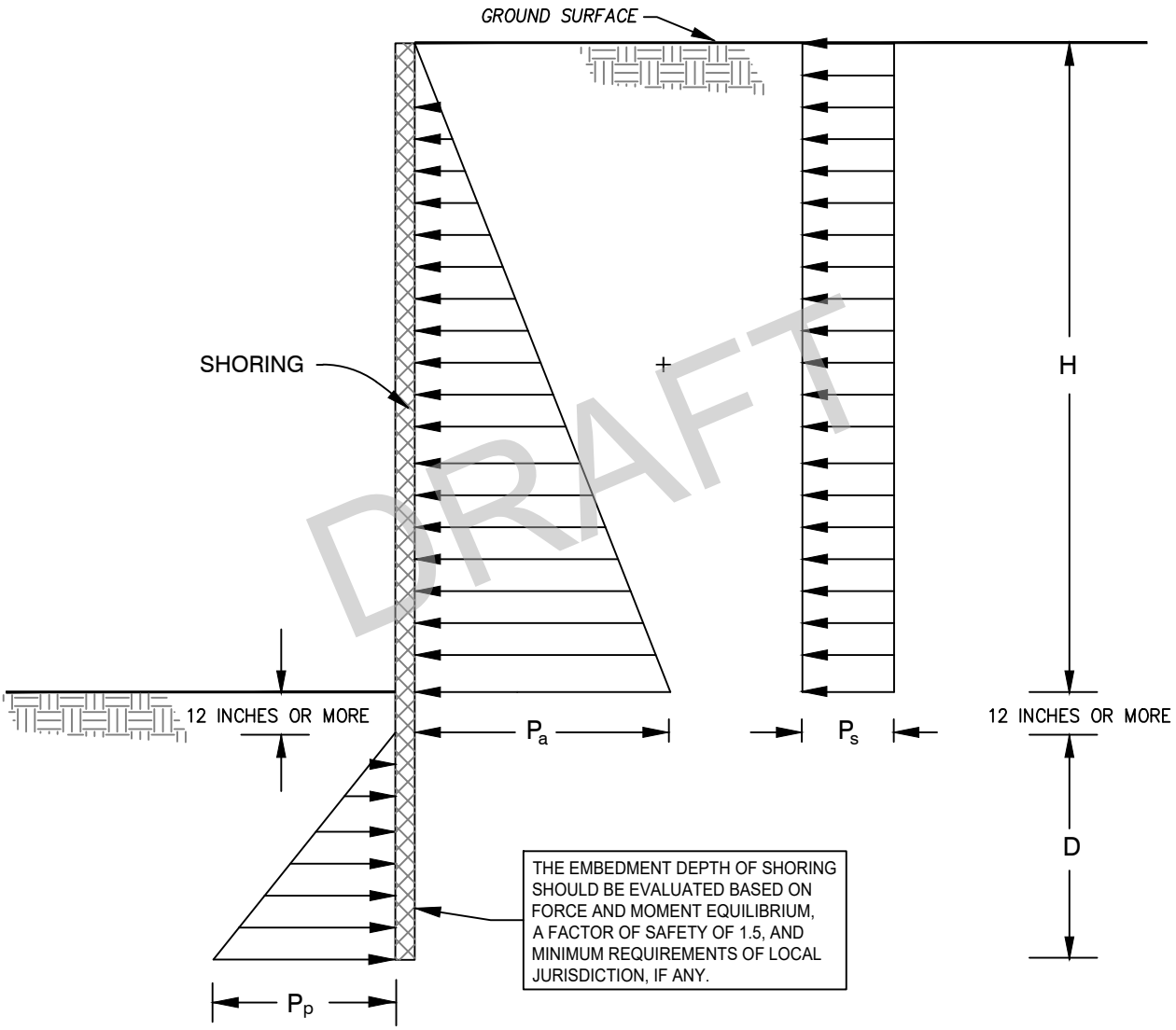
FIGURE 7

FLOOD AND TSUNAMI HAZARD

NEW FOG RECEIVING STATION AND THERMAL DRYING FACILITY
GOLETA, CALIFORNIA

211573002 I 4/22

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



DRAFT

NOTES:

1. ACTIVE LATERAL EARTH PRESSURE, P_a
   P_a = 33H psf
2. CONSTRUCTION TRAFFIC INDUCED SURCHARGE PRESSURE, P_s
   P_s = 72 psf
3. PASSIVE LATERAL EARTH PRESSURE, P_p
   P_p = 350D psf
4. ASSUMES GROUNDWATER IS NOT PRESENT
5. H AND D ARE IN FEET

NOT TO SCALE

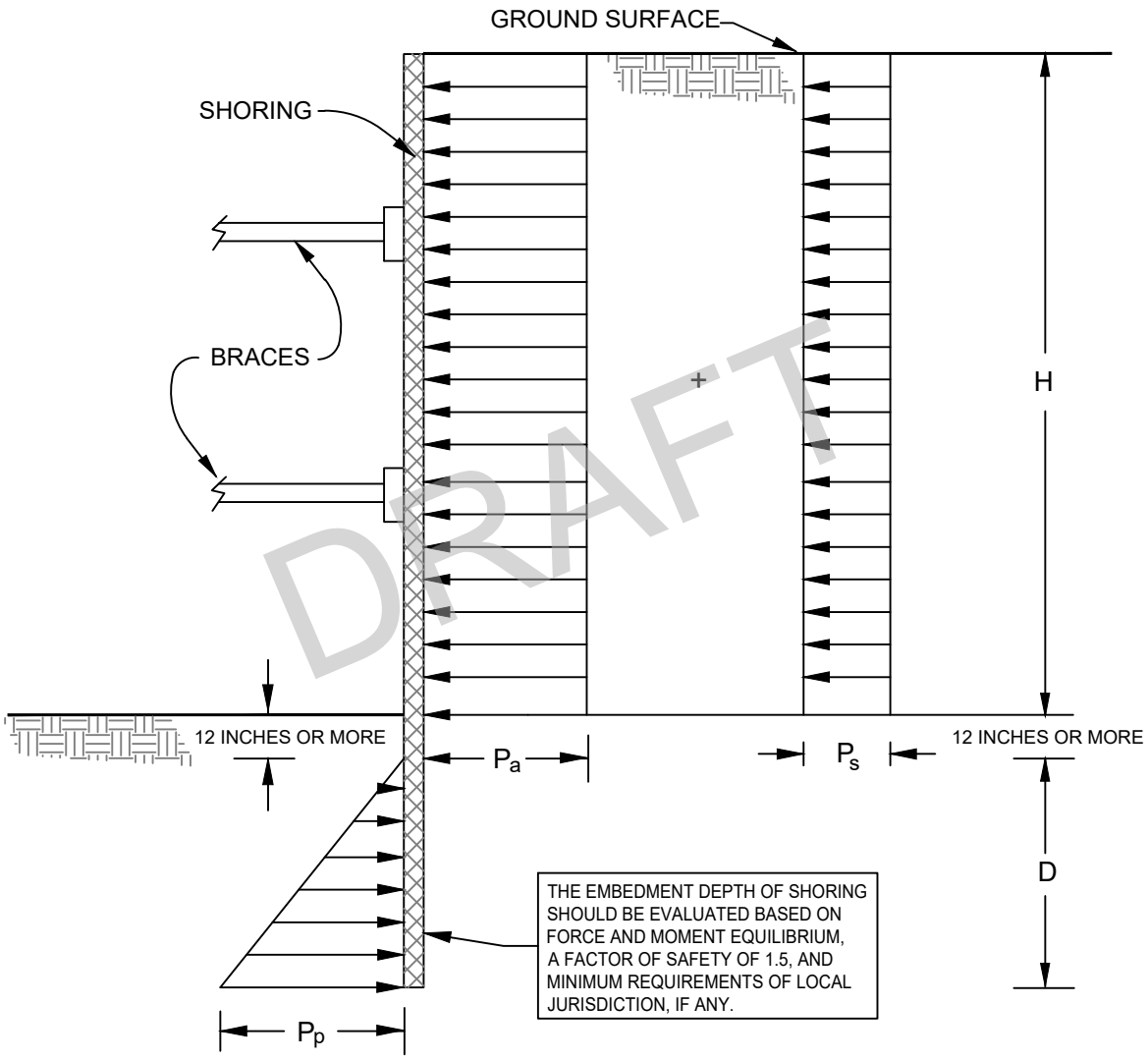
211573002_LEP-CS1.dwg 04/20/2022 JDP

FIGURE 8

LATERAL EARTH PRESSURES FOR TEMPORARY CANTILEVERED SHORING

NEW FOG RECEIVING STATION AND THERMAL DRYING FACILITY
GOLETA, CALIFORNIA

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



DRAFT

NOTES:

1. APPARENT LATERAL EARTH PRESSURE, P_a
   P_a = 22H psf
2. CONSTRUCTION TRAFFIC INDUCED SURCHARGE PRESSURE, P_s
   P_s = 120 psf
3. PASSIVE LATERAL EARTH PRESSURE, P_p
   P_p = 350D psf
4. ASSUMES GROUNDWATER IS NOT PRESENT
5. SURCHARGES FROM EXCAVATED SOIL OR CONSTRUCTION MATERIALS ARE NOT INCLUDED
6. H AND D ARE IN FEET

NOT TO SCALE

DRAFT

APPENDIX A

Boring Logs

APPENDIX A

BORING LOGS

Field Procedure for the Collection of Disturbed Samples
Disturbed soil samples were obtained in the field using the following method.

Bulk Samples
Bulk samples of representative earth materials were obtained from the exploratory drilling. The samples were bagged and transported to the laboratory for testing.

The Standard Penetration Test (SPT) Sampler
Disturbed drive samples of earth materials were obtained by means of a Standard Penetration Test sampler. The sampler is composed of a split barrel with an external diameter of 2 inches and an unlined internal diameter of 1-3/8 inches. The sampler was driven into the ground 12 to 18 inches with a 140-pound hammer falling freely from a height of 30 inches in general accordance with ASTM D 1586. The blow counts were recorded for every 6 inches of penetration; the blow counts reported on the logs are those for the last 12 inches of penetration. Soil samples were observed and removed from the sampler, bagged, sealed and transported to the laboratory for testing.

DRAFT

Field Procedure for the Collection of Relatively Undisturbed Samples
Relatively undisturbed soil samples were obtained in the field using the following method.

The Modified Split-Barrel Drive Sampler
The sampler, with an external diameter of 3 inches, was lined with 1-inch-long, thin brass rings with inside diameters of approximately 2.4 inches. The sample barrel was driven into the ground with the weight of a hammer in general accordance with ASTM D 3550. The driving weight was permitted to fall freely. The approximate length of the fall, the weight of the hammer, and the number of blows per foot of driving are presented on the boring logs as an index to the relative resistance of the materials sampled. The samples were removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

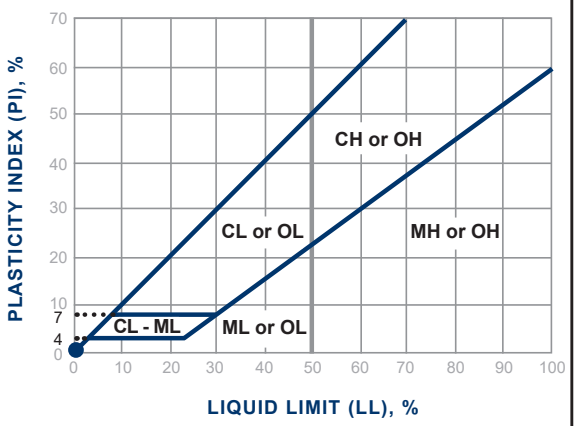
Soil Classification Chart Per ASTM D 2488

Primary Divisions			Secondary Divisions	
			Group Symbol	Group Name
COARSE-GRAINED SOILS more than 50% retained on No. 4 sieve	**GRAVEL** more than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVEL less than 5% fines	GW	well-graded GRAVEL
			GP	poorly graded GRAVEL
		GRAVEL with DUAL CLASSIFICATIONS 5% to 12% fines	GW-GM	well-graded GRAVEL with silt
			GP-GM	poorly graded GRAVEL with silt
			GW-GC	well-graded GRAVEL with clay
			GP-GC	poorly graded GRAVEL with clay
		GRAVEL with FINES more than 12% fines	GM	silty GRAVEL
			GC	clayey GRAVEL
			GC-GM	silty, clayey GRAVEL
	SAND 50% or more of coarse fraction passes No. 4 sieve	CLEAN SAND less than 5% fines	SW	well-graded SAND
			SP	poorly graded SAND
		SAND with DUAL CLASSIFICATIONS 5% to 12% fines	SW-SM	well-graded SAND with silt
			SP-SM	poorly graded SAND with silt
			SW-SC	well-graded SAND with clay
			SP-SC	poorly graded SAND with clay
		SAND with FINES more than 12% fines	SM	silty SAND
			SC	clayey SAND
			SC-SM	silty, clayey SAND
FINE-GRAINED SOILS 50% or more passes No. 200 sieve	**SILT and CLAY** liquid limit less than 50%	INORGANIC	CL	lean CLAY
			ML	SILT
			CL-ML	silty CLAY
		ORGANIC	OL (PI > 4)	organic CLAY
			OL (PI < 4)	organic SILT
	SILT and CLAY liquid limit 50% or more	INORGANIC	CH	fat CLAY
			MH	elastic SILT
		ORGANIC	OH (plots on or above "A"-line)	organic CLAY
			OH (plots below "A"-line)	organic SILT
	Highly Organic Soils		PT	Peat

Grain Size

Description		Sieve Size	Grain Size	Approximate Size
Boulders		> 12"	> 12"	Larger than basketball-sized
Cobbles		3 - 12"	3 - 12"	Fist-sized to basketball-sized
Gravel	Coarse	3/4 - 3"	3/4 - 3"	Thumb-sized to fist-sized
	Fine	#4 - 3/4"	0.19 - 0.75"	Pea-sized to thumb-sized
Sand	Coarse	#10 - #4	0.079 - 0.19"	Rock-salt-sized to pea-sized
	Medium	#40 - #10	0.017 - 0.079"	Sugar-sized to rock-salt-sized
	Fine	#200 - #40	0.0029 - 0.017"	Flour-sized to sugar-sized
Fines		Passing #200	< 0.0029"	Flour-sized and smaller

Plasticity Chart



Apparent Density - Coarse-Grained Soil

Apparent Density	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Loose	≤ 4	≤ 8	≤ 3	≤ 5
Loose	5 - 10	9 - 21	4 - 7	6 - 14
Medium Dense	11 - 30	22 - 63	8 - 20	15 - 42
Dense	31 - 50	64 - 105	21 - 33	43 - 70
Very Dense	> 50	> 105	> 33	> 70

Consistency - Fine-Grained Soil

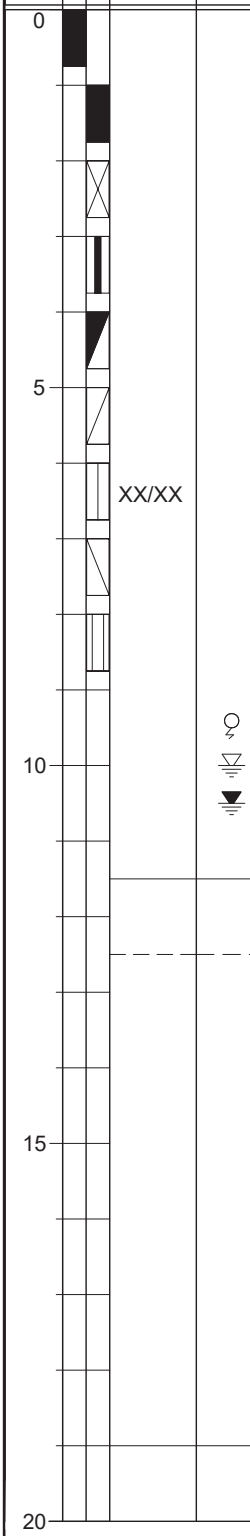
Consis-tency	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Soft	< 2	< 3	< 1	< 2
Soft	2 - 4	3 - 5	1 - 3	2 - 3
Firm	5 - 8	6 - 10	4 - 5	4 - 6
Stiff	9 - 15	11 - 20	6 - 10	7 - 13
Very Stiff	16 - 30	21 - 39	11 - 20	14 - 26
Hard	> 30	> 39	> 20	> 26

DRAFT

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

USCS METHOD OF SOIL CLASSIFICATION

BORING LOG EXPLANATION SHEET



Bulk sample.

Modified split-barrel drive sampler.

No recovery with modified split-barrel drive sampler.

Sample retained by others.

Standard Penetration Test (SPT).

No recovery with a SPT.

Shelby tube sample. Distance pushed in inches/length of sample recovered in inches.

No recovery with Shelby tube sampler.

Continuous Push Sample.

Seepage.

Groundwater encountered during drilling.

Groundwater measured after drilling.

SM

MAJOR MATERIAL TYPE (SOIL):

Solid line denotes unit change.

CL

Dashed line denotes material change.

Attitudes: Strike/Dip
b: Bedding
c: Contact
j: Joint
f: Fracture
F: Fault
cs: Clay Seam
s: Shear
bss: Basal Slide Surface
sf: Shear Fracture
sz: Shear Zone
sbs: Shear Bedding Surface

The total depth line is a solid line that is drawn at the bottom of the boring.

DRAFT

DATE DRILLED 3/11/22 BORING NO. B-1

GROUND ELEVATION 29' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (Baja Exploration)

DRIVE WEIGHT 140 lbs (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY MRM/MLP

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ASPHALT CONCRETE: Approximately 2 inches thick.
						CL	BASE: Gray, moist, medium dense, silty SAND with gravel; approximately 6 inches thick.
							PORTLAND CEMENT CONCRETE: Approximately 12 inches thick.
							MARINE TERRACE DEPOSITS: Dark grayish brown, moist, hard, lean CLAY with sand; trace to few sea shells.
		22					
10		43	24.8	98.4			Olive gray, moist, soft, silty CLAYSTONE; some reddish to yellowish brown iron oxidation.
		27					
20		37					
		28					
30		60	20.6	105.8			
		32					
40							

DRAFT

FIGURE A- 1

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

NEW FOG RECEIVING STATION AND THERMAL DRYING FACILITY
GOLETA, CALIFORNIA

DATE DRILLED 3/11/22 BORING NO. B-1

GROUND ELEVATION 29' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (Baja Exploration)

DRIVE WEIGHT 140 lbs (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY MRM/MLP

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		■	71			▨	CL	MARINE TERRACE DEPOSITS: (Continued) Olive gray, moist, soft, silty CLAYSTONE; some reddish to yellowish brown iron oxidation.
		◥	36					
50		■	93/10"					Soft to moderately hard.
		◥	42					
60		■	50/5"					
		◥	39					
70		■	50/6"					
								Total Depth = 71 feet. Groundwater not encountered during drilling. Backfilled with cement-bentonite grout on 3/11/22. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
80								

DRAFT

DATE DRILLED 3/11/22 BORING NO. B-2

GROUND ELEVATION 29' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (Baja Exploration)

DRIVE WEIGHT See Notes DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY MRM/MLP

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ASPHALT CONCRETE: Approximately 2 inches thick. FILL: White, moist, medium dense, silty SAND.
		21	32.4	88.9		CL	MARINE TERRACE DEPOSITS: Olive brown, moist, very stiff, lean CLAY; yellowish brown mottled; trace to few sea shells.
10		50					Olive gray, moist, soft, silty CLAYSTONE; some reddish to yellowish brown iron oxidation.
		47					
20		67					
							Total Depth = 21.5 feet. Groundwater not encountered during drilling. Backfilled with cement-bentonite grout on 3/11/22. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
30							
40							

DRAFT

FIGURE A- 3

DRAFT

Previous Boring Logs, 2021

DATE DRILLED 12/23/20 BORING NO. B-1

GROUND ELEVATION 29' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (S/G Drilling)

DRIVE WEIGHT 40 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY BAA LOGGED BY BAA REVIEWED BY MLP

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL: Brown, moist, medium dense, silty SAND.
		8					Loose.
		37	8.3	92.6		SP-SM	TERRACE DEPOSITS: Pale yellow, moist, medium dense, poorly graded SAND with silt.
10		17					Orange brown, moist, soft, weakly indurated, silty CLAYSTONE; pale yellow silty sand lenses (1 to 2 inches thick).
20		14	35.6	98.9			@ 20': Gray-brown with iron oxide staining.
		14					
30		90/11"					Orange to pale yellow, moist, moderately hard, weakly cemented, silty SANDSTONE.
		50/5"					
40							

DRAFT

DATE DRILLED 12/23/20 BORING NO. B-1

GROUND ELEVATION 29' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (S/G Drilling)

DRIVE WEIGHT 40 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY BAA LOGGED BY BAA REVIEWED BY MLP

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		69					TERRACE DEPOSITS: (Continued) Orange to pale yellow, moist, moderately hard, weakly cemented, silty SANDSTONE.
		50/5"					
50		57					
		50/4"	▽				@ 55': Pale yellow to white, moist, moderately hard, weakly indurated, SANDSTONE lens (approximately 2 to 4 inches thick).
60		50/5"					
		81/9"					MONTEREY FORMATION: Gray to dark gray, wet, moderately hard, weakly to moderately indurated, clayey SILTSTONE. @ 67': Difficult drilling; siliceous sandstone.
70							Auger Refusal at 67 feet. Backfilled with cement-grout upon completion. Groundwater encountered at approximately 57 feet during drilling. Notes: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
80							

DRAFT

DATE DRILLED 12/23/20 BORING NO. B-2

GROUND ELEVATION 29' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (S/G Drilling)

DRIVE WEIGHT 40 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY BAA LOGGED BY BAA REVIEWED BY MLP

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL: Brown to dark brown, moist, loose, silty SAND.
	Driven	5	9.8	95.4			Very loose.
10	Driven	29	9.6	91.8		SM	TERRACE DEPOSITS: Pale yellow, moist, medium dense, silty SAND.
	Driven	38	11.3	94.3			Pale yellow to gray brown with iron staining, moist, soft, friable, silty SANDSTONE; trace clay; mottling.
20	Driven	45	22.1	102.0			Increase in silt and clay content.
							Total Depth = 21.5 feet. Groundwater not encountered during drilling. Backfilled with cement-grout upon completion. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
30							
40							

DRAFT

DRAFT

APPENDIX B

Laboratory Testing

APPENDIX B

LABORATORY TESTING

Classification
Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488. Soil classifications are indicated on the logs of the exploratory borings in Appendix A.

In-Place Moisture and Density Tests
The moisture content and dry density of relatively undisturbed samples obtained from the exploratory borings were evaluated in general accordance with ASTM D 2937. The test results are presented on the logs of the exploratory borings in Appendix A.

Percent Finer than No. 200 Sieve
An evaluation of the percentage of particles finer than the No. 200 sieve in selected soil samples was performed in general accordance with ASTM D 1140. The results of the tests are presented on Figure B-1.

Atterberg Limits
Tests were performed on a selected representative fine-grained soil sample to evaluate the liquid limit, plastic limit, and plasticity index in general accordance with ASTM D 4318. These test results were utilized to evaluate the soil classification in accordance with the USCS. The test results and soil classification are shown on Figure B-2.

Maximum Dry Density Tests
The maximum dry density and optimum moisture content of a representative soil sample were evaluated in general accordance with the Modified Proctor method (ASTM D 1557). The results of this test are summarized on Figure B-3.

Direct Shear Test
Direct shear tests were performed on relatively undisturbed and remolded samples in general accordance with ASTM D 3080 to evaluate the shear strength characteristics of the selected materials. The samples were inundated during shearing to represent adverse field conditions. The results are shown on Figure B-4 and B-5.

Consolidation Test
A consolidation test was performed on a relatively undisturbed soil sample in general accordance with ASTM D 2435. The sample was inundated during testing to represent adverse field conditions. The percent of consolidation for each load cycle was recorded as a ratio of the amount of vertical compression to the original height of the sample. The results of this test are summarized on Figure B-6.

Soil Corrosivity Tests
Soil pH and resistivity tests were performed on a representative sample in general accordance with California Test (CT) 643. The soluble sulfate and chloride content of the selected sample were evaluated in general accordance with CT 417 and CT 422, respectively. The test results are presented on Figure B-7.

DRAFT

DRAFT

SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS[2]
B-1	2.0-5.0	Lean CLAY with Sand	99	83	CL
B-1	10.0-11.5	Silty CLAYSTONE	100	93	CL
B-1	25.0-26.5	Silty CLAYSTONE	100	96	CL
B-1	40.0-41.5	Silty CLAYSTONE	100	96	CL
B-2	5.0-6.5	Lean CLAY	100	99	CL

[1] PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140
[2] USCS EQUIVALENT FOR BEDROCK SAMPLES

FIGURE B-1

NO. 200 SIEVE ANALYSIS TEST RESULTS

NEW FOG RECEIVING STATION AND THERMAL DRYING FACILITY
GOLETA, CALIFORNIA

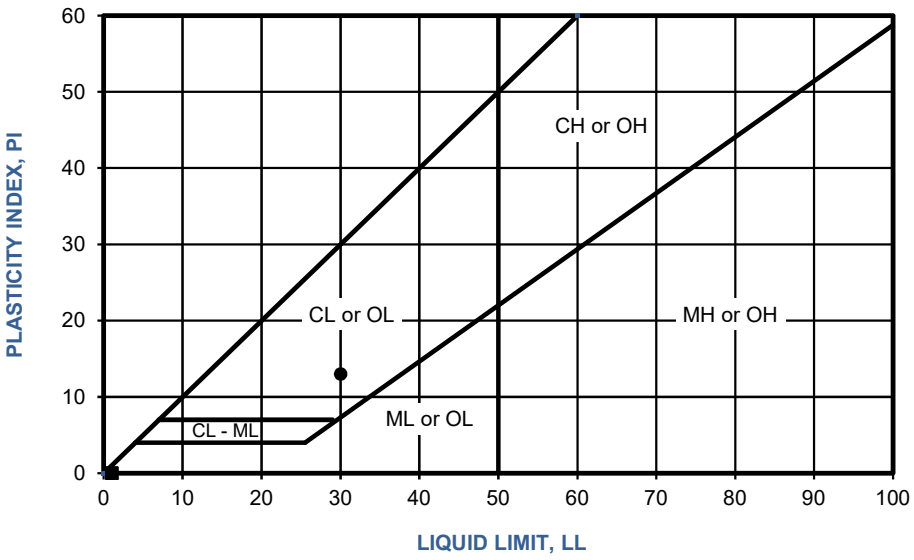
211573002 | 4/22

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

SYMBOL	LOCATION	DEPTH (ft)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	USCS CLASSIFICATION (Fraction Finer Than No. 40 Sieve)	USCS
●	B-1	2.0-5.0	30	17	13	CL	CL

DRAFT

NP - INDICATES NON-PLASTIC



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

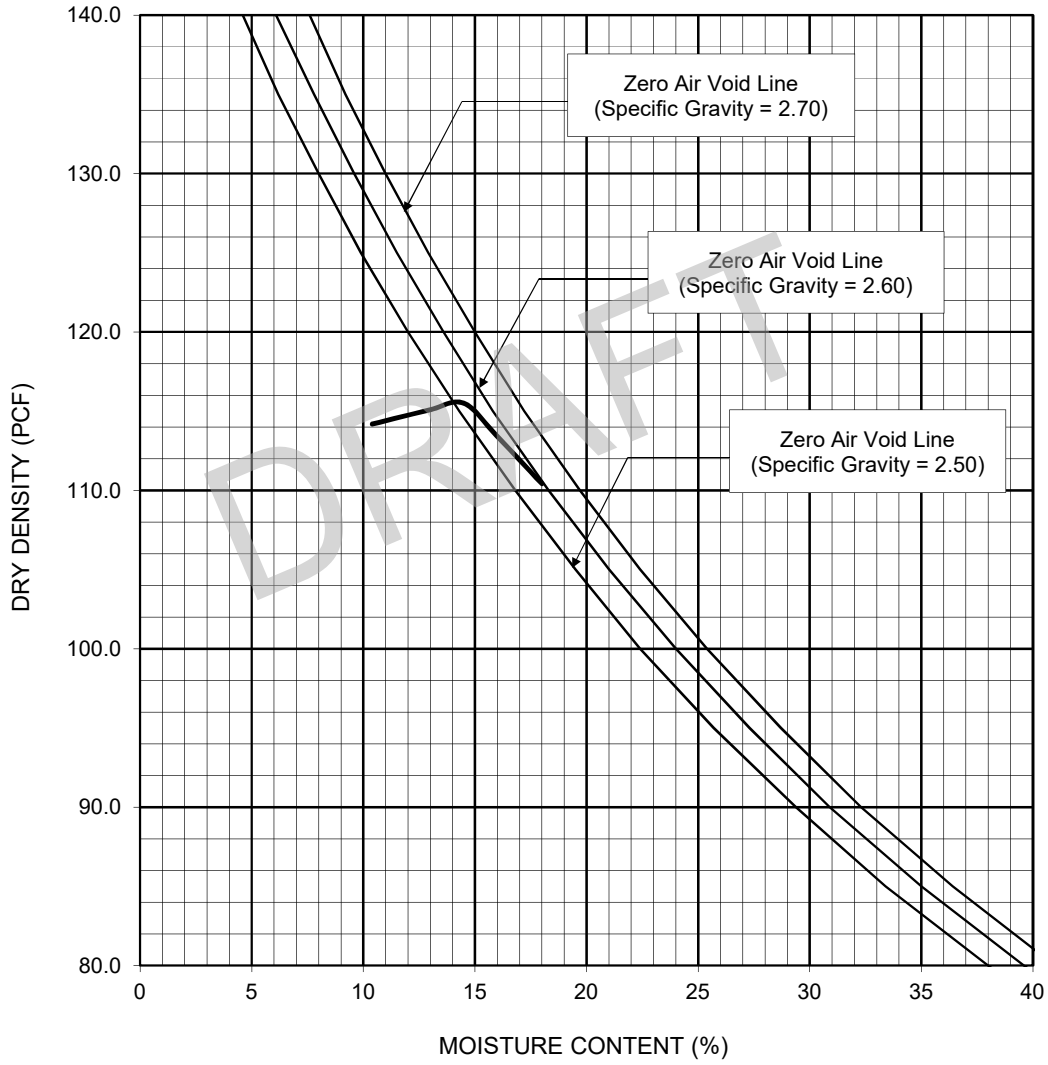
FIGURE B-2

ATTERBERG LIMITS TEST RESULTS

NEW FOG RECEIVING STATION AND THERMAL DRYING FACILITY
GOLETA, CALIFORNIA

211573002 | 4/22

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



Sample Location	Depth (ft)	Soil Description	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)
B-1	2.0-5.0	DARK GRAYISH BROWN LEAN CLAY WITH SAND	115.5	14.5
Dry Density and Moisture Content Values Corrected for Oversize (ASTM D 4718)			N/A	N/A

PERFORMED IN GENERAL ACCORDANCE WITH ☑ ASTM D 1557 ☐ ASTM D 698 METHOD ☐ A ☑ B ☐ C

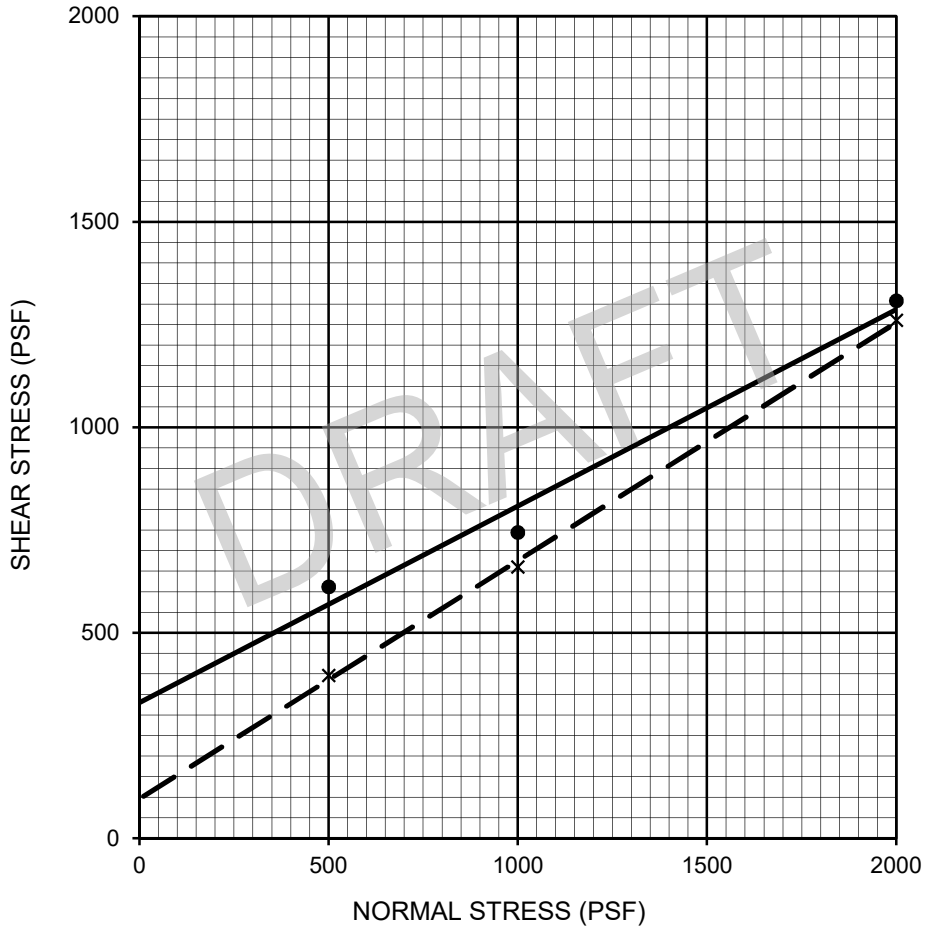
FIGURE B-3

PROCTOR DENSITY TEST RESULTS

NEW FOG RECEIVING STATION AND THERMAL DRYING FACILITY
GOLETA, CALIFORNIA

211573002 | 4/22

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
LEAN CLAY WITH SAND	—●—	B-1	2.0-5.0	Peak	330	26	CL
LEAN CLAY WITH SAND	– – X – –	B-1	2.0-5.0	Ultimate	96	30	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080 ON A SAMPLE REMOLDED TO 90% RELATIVE COMPACTION.

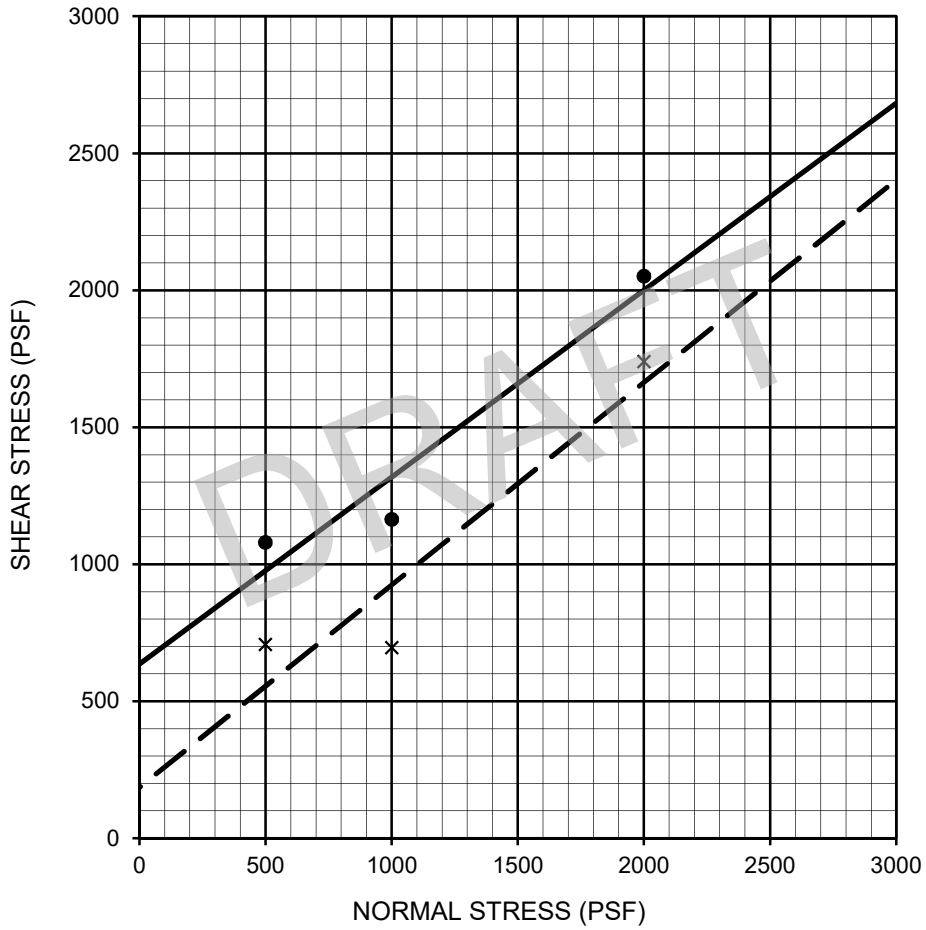
FIGURE B-4

DIRECT SHEAR TEST RESULTS

NEW FOG RECEIVING STATION AND THERMAL DRYING FACILITY
GOLETA, CALIFORNIA

211573002 | 4/22

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
LEAN CLAY	—●—	B-2	5.0-6.5	Peak	636	34	CL
LEAN CLAY	– – X – –	B-2	5.0-6.5	Ultimate	186	36	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

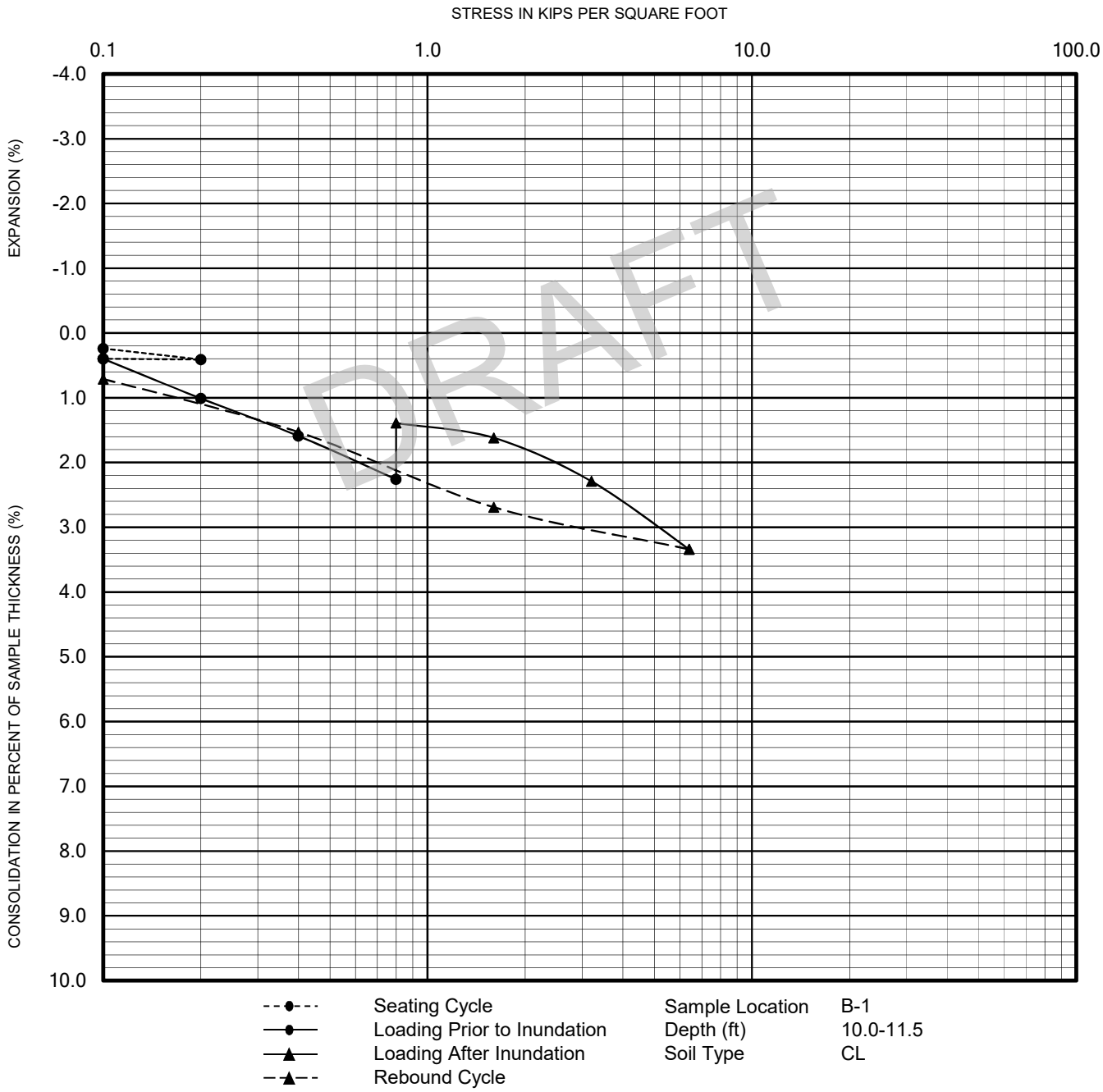
FIGURE B-5

DIRECT SHEAR TEST RESULTS

NEW FOG RECEIVING STATION AND THERMAL DRYING FACILITY
GOLETA, CALIFORNIA

211573002 | 4/22

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

FIGURE B-6

CONSOLIDATION TEST RESULTS

NEW FOG RECEIVING STATION AND THERMAL DRYING FACILITY
GOLETA, CALIFORNIA

211573002 | 4/22

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

DRAFT

SAMPLE LOCATION	SAMPLE DEPTH (ft)	pH [1]	RESISTIVITY [1] (ohm-cm)	SULFATE CONTENT [2]		CHLORIDE CONTENT [3] (ppm)
				(ppm)	(%)	
B-1	2.0-5.0	7.2	683	360	0.036	240

[1] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643
[2] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417
[3] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422

FIGURE B-7

CORROSIVITY TEST RESULTS

NEW FOG RECEIVING STATION AND THERMAL DRYING FACILITY
GOLETA, CALIFORNIA

211573002 | 4/22

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

211573002 Fig B-7_CORROSIVITY @ B-1 2.0-5.0

DRAFT

APPENDIX C

Results of Analytical Testing

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

Lab Job Number: 459721
Report Level: II
Report Date: 03/25/2022

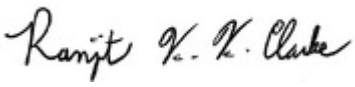
DRAFT

Analytical Report *prepared for:*

Morteza Mirshikari
Ninyo & Moore
475 Goddard
Suite 200
Irvine, CA 92618

Project: GOLETA SANITARY DIST - 1 William Moffett Pl., Goleta, CA 93117

Authorized for release by:



Ranjit K Clarke, Client Services Manager
(714) 771-9906
Ranjit.Clarke@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105

ENTHALPY ANALYTICAL

Sample Summary

Morteza Mirshikari
Ninyo & Moore
475 Goddard
Suite 200
Irvine, CA 92618

Lab Job #:	459721
Project No:	GOLETA SANITARY DIST
Location:	1 William Moffett Pl., Goleta, CA 93117
Date Received:	03/15/22

Sample ID	Lab ID	Collected	Matrix
B-1@2'	459721-001	03/11/22 07:50	Soil
B-2@1.0'	459721-002	03/11/22 11:40	Soil

DRAFT

ENTHALPY ANALYTICAL

Case Narrative

Ninyo & Moore	Lab Job Number: 459721
475 Goddard	Project No: GOLETA SANITARY DIST
Suite 200	Location: 1 William Moffett Pl., Goleta, CA 93117
Irvine, CA 92618	Date Received: 03/15/22
Morteza Mirshikari	

This data package contains sample and QC results for two soil samples, requested for the above referenced project on 03/15/22. The samples were received cold and intact.

DRAFT

TPH-Extractables by GC (EPA 8015M):
No analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):
No analytical problems were encountered.

Pesticides (EPA 8081A):
No analytical problems were encountered.

PCBs (EPA 8082):
No analytical problems were encountered.

Metals (EPA 6010B and EPA 7471A):

- High response was observed for mercury in the ICV analyzed 03/21/22 13:52; affected data was qualified with "b".
- High response was observed for mercury in the CCV analyzed 03/21/22 14:19; affected data was qualified with "b".
- High response was observed for mercury in the CCV analyzed 03/21/22 14:44; affected data was qualified with "b".
- High response was observed for mercury in the CCV analyzed 03/21/22 15:09; affected data was qualified with "b".
- Low recoveries were observed for barium and antimony in the MS/MSD for batch 285755; the parent sample was not a project sample, the LCS was within limits, and the associated RPDs were within limits.
- High recoveries were observed for mercury in the MS/MSD for batch 285868; the parent sample was not a project sample, the LCS was within limits, the associated RPD was within limits, and this analyte was not detected at or above the RL in the associated samples.
- No other analytical problems were encountered.

8151A Chlorinated Herbicides (EPA 8151A):
McCampbell Analytical, Inc. in Pittsburg, CA performed the analysis (NELAP certified). Please see the McCampbell Analytical, Inc. case narrative.

ENTHALPY ANALYTICAL

Chain of Custody Record

Lab No: 459721

Page: 1 of 1

Turn Around Time (rush by advanced notice only)

Standard:	✓	5 Day:		3 Day:	
2 Day:		1 Day:		Custom TAT:	

<<< Select a Laboratory >>>

#N/A

#N/A

Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp: (lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Ninyo & Moore	Name:	Goleta Sanitary District
Report To:	Morteza Mirshekari	Number:	211573002
Email:	mmirshekari@ninyoandmoore.com	P.O. #:	N/A
Address:	475 Goddard, Suite 200	Address:	1 William Moffett Pl
	Irvine, CA 92618		Goleta, CA 93117
Phone:	(949) 753-7070	Global ID:	N/A
Fax:	(949) 753-7071	Sampled By:	Garrett Mottle (GM)

Analysis Request

Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	VOCs (EPA 8260B)	TPHs (EPA 8015B)	Title 22 Metals (EPA 6010B / 7471A)	PCBs (EPA 8082)	Organochlorine Pesticides (EPA Method 8081A)	Chlorinated Herbicides (EPA Method 8151A)
B-1 @ 2'	3/11/2022	7:50 AM	Soil	1/6" sleeve	Ice	/	/	/	/	/	/
B-2 @ 1.0'	3/11/2022	11:40 AM	Soil	1/6" sleeve	Ice	/	/	/	/	/	/

Test Instructions / Comments

Please also send results to Garrett, gmottle@ninyoandmoore.com

	Signature	Print Name	Company / Title	Date / Time
Relinquished By:	[signature]	Emily Roman	Ninyo & Moore	3/15/22 10:03
Received By:	[signature]	[illegible]	E.A	3-15-22 10:05
Relinquished By:	[signature]	[illegible]	E.A	3-15-22 15:05
Received By:	[signature]	Elizabeth Raman	EA	3-15-22 15:05
Relinquished By:				
Received By:				

DRAFT

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Ninyo & Moore Project: Goleta Sanitary District

Date Received: 03/15/22 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 8.4 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 4.2 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✔		
Are sample IDs present?	✔		
Are sampling dates & times present?	✔		
Is a relinquished signature present?	✔		
Are the tests required clearly indicated on the COC?	✔		
Are custody seals present?		✔	
If custody seals are present, were they intact?			✔
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)			✔
Did all samples arrive intact? If no, indicate in Section 4 below.	✔		
Did all bottle labels agree with COC? (ID, dates and times)	✔		
Were the samples collected in the correct containers for the required tests?	✔		
Are the containers labeled with the correct preservatives?			✔
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✔
Was a sufficient amount of sample submitted for the requested tests?	✔		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 03/15/22

DRAFT

ENTHALPY ANALYTICAL

Analysis Results for 459721

Morteza Mirshikari
Ninyo & Moore
475 Goddard
Suite 200
Irvine, CA 92618

Lab Job #: 459721
Project No: GOLETA SANITARY DIST
Location: 1 William Moffett Pl., Goleta, CA 93117
Date Received: 03/15/22

Sample ID: B-1@2' **Lab ID: 459721-001** **Collected: 03/11/22 07:50**
Matrix: Soil

DRAFT

459721-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	2.6	0.88	285755	03/17/22	03/17/22	KLN
Arsenic	**2.5**		mg/Kg	0.88	0.88	285755	03/17/22	03/17/22	KLN
Barium	**140**		mg/Kg	0.88	0.88	285755	03/17/22	03/17/22	KLN
Beryllium	ND		mg/Kg	0.44	0.88	285755	03/17/22	03/17/22	KLN
Cadmium	ND		mg/Kg	0.44	0.88	285755	03/17/22	03/17/22	KLN
Chromium	**38**		mg/Kg	0.88	0.88	285755	03/17/22	03/17/22	KLN
Cobalt	**5.7**		mg/Kg	0.44	0.88	285755	03/17/22	03/17/22	KLN
Copper	**16**		mg/Kg	0.88	0.88	285755	03/17/22	03/17/22	KLN
Lead	**7.4**		mg/Kg	0.88	0.88	285755	03/17/22	03/17/22	KLN
Molybdenum	ND		mg/Kg	0.88	0.88	285755	03/17/22	03/17/22	KLN
Nickel	**31**		mg/Kg	0.88	0.88	285755	03/17/22	03/17/22	KLN
Selenium	ND		mg/Kg	2.6	0.88	285755	03/17/22	03/17/22	KLN
Silver	ND		mg/Kg	0.44	0.88	285755	03/17/22	03/17/22	KLN
Thallium	ND		mg/Kg	2.6	0.88	285755	03/17/22	03/17/22	KLN
Vanadium	**36**		mg/Kg	0.88	0.88	285755	03/17/22	03/17/22	KLN
Zinc	**48**		mg/Kg	4.4	0.88	285755	03/17/22	03/17/22	KLN
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.16	1.1	285868	03/18/22	03/21/22	SBW
Method: EPA 8015M Prep Method: EPA 3580									
GRO C6-C10	ND		mg/Kg	10	1	286017	03/22/22	03/24/22	MES
DRO C10-C28	**16**		mg/Kg	10	1	286017	03/22/22	03/24/22	MES
ORO C28-C44	ND		mg/Kg	20	1	286017	03/22/22	03/24/22	MES
Surrogates				**Limits**					
n-Triacontane	89%		%REC	70-130	1	286017	03/22/22	03/24/22	MES
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	285738	03/17/22	03/19/22	TRN
beta-BHC	ND		ug/Kg	5.0	1	285738	03/17/22	03/19/22	TRN
gamma-BHC	ND		ug/Kg	5.0	1	285738	03/17/22	03/19/22	TRN
delta-BHC	ND		ug/Kg	5.0	1	285738	03/17/22	03/19/22	TRN
Heptachlor	ND		ug/Kg	5.0	1	285738	03/17/22	03/19/22	TRN
Aldrin	ND		ug/Kg	5.0	1	285738	03/17/22	03/19/22	TRN

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 459721

459721-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Heptachlor epoxide	ND		ug/Kg	5.0	1	285738	03/17/22	03/19/22	TRN
Endosulfan I	ND		ug/Kg	5.0	1	285738	03/17/22	03/19/22	TRN
Dieldrin	ND		ug/Kg	5.0	1	285738	03/17/22	03/19/22	TRN
4,4'-DDE	ND		ug/Kg	5.0	1	285738	03/17/22	03/19/22	TRN
Endrin	ND		ug/Kg	5.0	1	285738	03/17/22	03/19/22	TRN
Endosulfan II	ND		ug/Kg	5.0	1	285738	03/17/22	03/19/22	TRN
Endosulfan sulfate	ND		ug/Kg	5.0	1	285738	03/17/22	03/19/22	TRN
4,4'-DDD	ND		ug/Kg	5.0	1	285738	03/17/22	03/19/22	TRN
Endrin aldehyde	ND		ug/Kg	5.0	1	285738	03/17/22	03/19/22	TRN
Endrin ketone	ND		ug/Kg	5.0	1	285738	03/17/22	03/19/22	TRN
4,4'-DDT	ND		ug/Kg	5.0	1	285738	03/17/22	03/19/22	TRN
Methoxychlor	ND		ug/Kg	10	1	285738	03/17/22	03/19/22	TRN
Toxaphene	ND		ug/Kg	100	1	285738	03/17/22	03/19/22	TRN
Chlordane (Technical)	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Surrogates				**Limits**					
TCMX	93%		%REC	23-120	1	285738	03/17/22	03/19/22	TRN
Decachlorobiphenyl	94%		%REC	24-120	1	285738	03/17/22	03/19/22	TRN
Method: EPA 8082 Prep Method: EPA 3546									
Aroclor-1016	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Aroclor-1221	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Aroclor-1232	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Aroclor-1242	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Aroclor-1248	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Aroclor-1254	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Aroclor-1260	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Aroclor-1262	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Aroclor-1268	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Surrogates				**Limits**					
Decachlorobiphenyl (PCB)	84%		%REC	19-121	1	285738	03/17/22	03/19/22	TRN
Method: EPA 8260B Prep Method: EPA 5030B									
3-Chloropropene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
cis-1,4-Dichloro-2-butene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
trans-1,4-Dichloro-2-butene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Isopropyl Ether (DIPE)	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Ethyl tert-Butyl Ether (ETBE)	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Methyl tert-Amyl Ether (TAME)	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
tert-Butyl Alcohol (TBA)	ND		ug/Kg	10	1	285634	03/16/22	03/16/22	LXR
Freon 12	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Chloromethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Vinyl Chloride	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Bromomethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Chloroethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Trichlorofluoromethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Acetone	ND		ug/Kg	100	1	285634	03/16/22	03/16/22	LXR

DRAFT

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 459721

459721-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Freon 113	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,1-Dichloroethene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Methylene Chloride	ND		ug/Kg	15	1	285634	03/16/22	03/16/22	LXR
MTBE	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
trans-1,2-Dichloroethene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,1-Dichloroethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
2-Butanone	ND		ug/Kg	100	1	285634	03/16/22	03/16/22	LXR
cis-1,2-Dichloroethene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
2,2-Dichloropropane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Chloroform	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Bromochloromethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,1,1-Trichloroethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,1-Dichloropropene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Carbon Tetrachloride	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,2-Dichloroethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Benzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Trichloroethene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,2-Dichloropropane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Bromodichloromethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Dibromomethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
4-Methyl-2-Pentanone	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
cis-1,3-Dichloropropene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Toluene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
trans-1,3-Dichloropropene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,1,2-Trichloroethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,3-Dichloropropane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Tetrachloroethene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Dibromochloromethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,2-Dibromoethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Chlorobenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,1,1,2-Tetrachloroethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Ethylbenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
m,p-Xylenes	ND		ug/Kg	10	1	285634	03/16/22	03/16/22	LXR
o-Xylene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Styrene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Bromoform	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Isopropylbenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,1,2,2-Tetrachloroethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,2,3-Trichloropropane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Propylbenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Bromobenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,3,5-Trimethylbenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
2-Chlorotoluene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
4-Chlorotoluene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
tert-Butylbenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,2,4-Trimethylbenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR

DRAFT

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 459721

459721-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
sec-Butylbenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
para-Isopropyl Toluene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,3-Dichlorobenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,4-Dichlorobenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
n-Butylbenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,2-Dichlorobenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,2-Dibromo-3-Chloropropane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,2,4-Trichlorobenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Hexachlorobutadiene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Naphthalene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,2,3-Trichlorobenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Xylene (total)	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Surrogates				**Limits**					
Dibromofluoromethane	96%		%REC	70-145	1	285634	03/16/22	03/16/22	LXR
1,2-Dichloroethane-d4	97%		%REC	70-145	1	285634	03/16/22	03/16/22	LXR
Toluene-d8	107%		%REC	70-145	1	285634	03/16/22	03/16/22	LXR
Bromofluorobenzene	96%		%REC	70-145	1	285634	03/16/22	03/16/22	LXR

DRAFT

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 459721

Sample ID: B-2@1.0'	Lab ID: 459721-002	Collected: 03/11/22 11:40
	Matrix: Soil	

459721-002 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	2.6	0.86	285755	03/17/22	03/17/22	KLN
Arsenic	**1.2**		mg/Kg	0.86	0.86	285755	03/17/22	03/17/22	KLN
Barium	**50**		mg/Kg	0.86	0.86	285755	03/17/22	03/17/22	KLN
Beryllium	ND		mg/Kg	0.43	0.86	285755	03/17/22	03/17/22	KLN
Cadmium	ND		mg/Kg	0.43	0.86	285755	03/17/22	03/17/22	KLN
Chromium	**27**		mg/Kg	0.86	0.86	285755	03/17/22	03/17/22	KLN
Cobalt	**3.2**		mg/Kg	0.43	0.86	285755	03/17/22	03/17/22	KLN
Copper	**6.5**		mg/Kg	0.86	0.86	285755	03/17/22	03/17/22	KLN
Lead	**2.4**		mg/Kg	0.86	0.86	285755	03/17/22	03/17/22	KLN
Molybdenum	ND		mg/Kg	0.86	0.86	285755	03/17/22	03/17/22	KLN
Nickel	**23**		mg/Kg	0.86	0.86	285755	03/17/22	03/17/22	KLN
Selenium	ND		mg/Kg	2.6	0.86	285755	03/17/22	03/17/22	KLN
Silver	ND		mg/Kg	0.43	0.86	285755	03/17/22	03/17/22	KLN
Thallium	ND		mg/Kg	2.6	0.86	285755	03/17/22	03/17/22	KLN
Vanadium	**17**		mg/Kg	0.86	0.86	285755	03/17/22	03/17/22	KLN
Zinc	**16**		mg/Kg	4.3	0.86	285755	03/17/22	03/17/22	KLN
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.15	1.1	285868	03/18/22	03/21/22	SBW
Method: EPA 8015M Prep Method: EPA 3580									
GRO C6-C10	ND		mg/Kg	10	1	286017	03/22/22	03/24/22	MES
DRO C10-C28	ND		mg/Kg	10	1	286017	03/22/22	03/24/22	MES
ORO C28-C44	ND		mg/Kg	20	1	286017	03/22/22	03/24/22	MES
Surrogates				**Limits**					
n-Triacontane	84%		%REC	70-130	1	286017	03/22/22	03/24/22	MES
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	285738	03/17/22	03/21/22	TRN
beta-BHC	ND		ug/Kg	5.0	1	285738	03/17/22	03/21/22	TRN
gamma-BHC	ND		ug/Kg	5.0	1	285738	03/17/22	03/21/22	TRN
delta-BHC	ND		ug/Kg	5.0	1	285738	03/17/22	03/21/22	TRN
Heptachlor	ND		ug/Kg	5.0	1	285738	03/17/22	03/21/22	TRN
Aldrin	ND		ug/Kg	5.0	1	285738	03/17/22	03/21/22	TRN
Heptachlor epoxide	ND		ug/Kg	5.0	1	285738	03/17/22	03/21/22	TRN
Endosulfan I	ND		ug/Kg	5.0	1	285738	03/17/22	03/21/22	TRN
Dieldrin	ND		ug/Kg	5.0	1	285738	03/17/22	03/21/22	TRN
4,4'-DDE	ND		ug/Kg	5.0	1	285738	03/17/22	03/21/22	TRN
Endrin	ND		ug/Kg	5.0	1	285738	03/17/22	03/21/22	TRN
Endosulfan II	ND		ug/Kg	5.0	1	285738	03/17/22	03/21/22	TRN

DRAFT

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 459721

459721-002 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Endosulfan sulfate	ND		ug/Kg	5.0	1	285738	03/17/22	03/21/22	TRN
4,4'-DDD	ND		ug/Kg	5.0	1	285738	03/17/22	03/21/22	TRN
Endrin aldehyde	ND		ug/Kg	5.0	1	285738	03/17/22	03/21/22	TRN
Endrin ketone	ND		ug/Kg	5.0	1	285738	03/17/22	03/21/22	TRN
4,4'-DDT	ND		ug/Kg	5.0	1	285738	03/17/22	03/21/22	TRN
Methoxychlor	ND		ug/Kg	10	1	285738	03/17/22	03/21/22	TRN
Toxaphene	ND		ug/Kg	100	1	285738	03/17/22	03/21/22	TRN
Chlordane (Technical)	ND		ug/Kg	50	1	285738	03/17/22	03/21/22	TRN
Surrogates				**Limits**					
TCMX	75%		%REC	23-120	1	285738	03/17/22	03/21/22	TRN
Decachlorobiphenyl	61%		%REC	24-120	1	285738	03/17/22	03/21/22	TRN
Method: EPA 8082 Prep Method: EPA 3546									
Aroclor-1016	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Aroclor-1221	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Aroclor-1232	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Aroclor-1242	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Aroclor-1248	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Aroclor-1254	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Aroclor-1260	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Aroclor-1262	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Aroclor-1268	ND		ug/Kg	50	1	285738	03/17/22	03/19/22	TRN
Surrogates				**Limits**					
Decachlorobiphenyl (PCB)	58%		%REC	19-121	1	285738	03/17/22	03/19/22	TRN
Method: EPA 8260B Prep Method: EPA 5030B									
3-Chloropropene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
cis-1,4-Dichloro-2-butene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
trans-1,4-Dichloro-2-butene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Isopropyl Ether (DIPE)	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Ethyl tert-Butyl Ether (ETBE)	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Methyl tert-Amyl Ether (TAME)	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
tert-Butyl Alcohol (TBA)	ND		ug/Kg	10	1	285634	03/16/22	03/16/22	LXR
Freon 12	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Chloromethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Vinyl Chloride	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Bromomethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Chloroethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Trichlorofluoromethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Acetone	ND		ug/Kg	100	1	285634	03/16/22	03/16/22	LXR
Freon 113	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,1-Dichloroethene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Methylene Chloride	ND		ug/Kg	15	1	285634	03/16/22	03/16/22	LXR
MTBE	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
trans-1,2-Dichloroethene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,1-Dichloroethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR

DRAFT

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 459721

459721-002 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
2-Butanone	ND		ug/Kg	100	1	285634	03/16/22	03/16/22	LXR
cis-1,2-Dichloroethene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
2,2-Dichloropropane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Chloroform	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Bromochloromethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,1,1-Trichloroethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,1-Dichloropropene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Carbon Tetrachloride	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,2-Dichloroethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Benzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Trichloroethene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,2-Dichloropropane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Bromodichloromethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Dibromomethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
4-Methyl-2-Pentanone	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
cis-1,3-Dichloropropene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Toluene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
trans-1,3-Dichloropropene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,1,2-Trichloroethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,3-Dichloropropane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Tetrachloroethene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Dibromochloromethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,2-Dibromoethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Chlorobenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,1,1,2-Tetrachloroethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Ethylbenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
m,p-Xylenes	ND		ug/Kg	10	1	285634	03/16/22	03/16/22	LXR
o-Xylene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Styrene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Bromoform	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Isopropylbenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,1,2,2-Tetrachloroethane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,2,3-Trichloropropane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Propylbenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Bromobenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,3,5-Trimethylbenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
2-Chlorotoluene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
4-Chlorotoluene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
tert-Butylbenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,2,4-Trimethylbenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
sec-Butylbenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
para-Isopropyl Toluene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,3-Dichlorobenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,4-Dichlorobenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
n-Butylbenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,2-Dichlorobenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR

DRAFT

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 459721

459721-002 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
1,2-Dibromo-3-Chloropropane	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,2,4-Trichlorobenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Hexachlorobutadiene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Naphthalene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
1,2,3-Trichlorobenzene	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Xylene (total)	ND		ug/Kg	5.0	1	285634	03/16/22	03/16/22	LXR
Surrogates				**Limits**					
Dibromofluoromethane	96%		%REC	70-145	1	285634	03/16/22	03/16/22	LXR
1,2-Dichloroethane-d4	96%		%REC	70-145	1	285634	03/16/22	03/16/22	LXR
Toluene-d8	107%		%REC	70-145	1	285634	03/16/22	03/16/22	LXR
Bromofluorobenzene	96%		%REC	70-145	1	285634	03/16/22	03/16/22	LXR

DRAFT

ND Not Detected

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Batch QC

Type: Blank	**Lab ID: QC978117**	**Batch: 285755**
Matrix: Soil	**Method: EPA 6010B**	**Prep Method: EPA 3050B**

QC978117 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Antimony	ND		mg/Kg	3.0	03/17/22	03/17/22
Arsenic	ND		mg/Kg	1.0	03/17/22	03/17/22
Barium	ND		mg/Kg	1.0	03/17/22	03/17/22
Beryllium	ND		mg/Kg	0.50	03/17/22	03/17/22
Cadmium	ND		mg/Kg	0.50	03/17/22	03/17/22
Chromium	ND		mg/Kg	1.0	03/17/22	03/17/22
Cobalt	ND		mg/Kg	0.50	03/17/22	03/17/22
Copper	ND		mg/Kg	1.0	03/17/22	03/17/22
Lead	ND		mg/Kg	1.0	03/17/22	03/17/22
Molybdenum	ND		mg/Kg	1.0	03/17/22	03/17/22
Nickel	ND		mg/Kg	1.0	03/17/22	03/17/22
Selenium	ND		mg/Kg	3.0	03/17/22	03/17/22
Silver	ND		mg/Kg	0.50	03/17/22	03/17/22
Thallium	ND		mg/Kg	3.0	03/17/22	03/17/22
Vanadium	ND		mg/Kg	1.0	03/17/22	03/17/22
Zinc	ND		mg/Kg	5.0	03/17/22	03/17/22

DRAFT

Type: Lab Control Sample	**Lab ID: QC978118**	**Batch: 285755**
Matrix: Soil	**Method: EPA 6010B**	**Prep Method: EPA 3050B**

QC978118 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Antimony	83.03	100.0	mg/Kg	83%		80-120
Arsenic	85.17	100.0	mg/Kg	85%		80-120
Barium	90.50	100.0	mg/Kg	91%		80-120
Beryllium	91.72	100.0	mg/Kg	92%		80-120
Cadmium	87.77	100.0	mg/Kg	88%		80-120
Chromium	87.11	100.0	mg/Kg	87%		80-120
Cobalt	92.27	100.0	mg/Kg	92%		80-120
Copper	84.19	100.0	mg/Kg	84%		80-120
Lead	91.52	100.0	mg/Kg	92%		80-120
Molybdenum	89.93	100.0	mg/Kg	90%		80-120
Nickel	91.22	100.0	mg/Kg	91%		80-120
Selenium	80.72	100.0	mg/Kg	81%		80-120
Silver	41.64	50.00	mg/Kg	83%		80-120
Thallium	92.02	100.0	mg/Kg	92%		80-120
Vanadium	86.73	100.0	mg/Kg	87%		80-120
Zinc	90.63	100.0	mg/Kg	91%		80-120

ENTHALPY ANALYTICAL

Batch QC

Type:	Matrix Spike	Lab ID:	QC978119	Batch:	285755
Matrix (Source ID):	Soil (459830-008)	Method:	EPA 6010B	Prep Method:	EPA 3050B

QC978119 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Antimony	18.72	ND	97.09	mg/Kg	19%	*	75-125	0.97
Arsenic	97.24	5.669	97.09	mg/Kg	94%		75-125	0.97
Barium	315.1	242.7	97.09	mg/Kg	75%		75-125	0.97
Beryllium	95.78	ND	97.09	mg/Kg	99%		75-125	0.97
Cadmium	93.67	ND	97.09	mg/Kg	96%		75-125	0.97
Chromium	118.3	29.45	97.09	mg/Kg	91%		75-125	0.97
Cobalt	107.0	15.69	97.09	mg/Kg	94%		75-125	0.97
Copper	125.4	33.82	97.09	mg/Kg	94%		75-125	0.97
Lead	95.58	5.962	97.09	mg/Kg	92%		75-125	0.97
Molybdenum	93.13	0.8461	97.09	mg/Kg	95%		75-125	0.97
Nickel	112.1	23.40	97.09	mg/Kg	91%		75-125	0.97
Selenium	78.92	ND	97.09	mg/Kg	81%		75-125	0.97
Silver	44.68	ND	48.54	mg/Kg	92%		75-125	0.97
Thallium	91.02	0.5721	97.09	mg/Kg	93%		75-125	0.97
Vanadium	157.1	62.78	97.09	mg/Kg	97%		75-125	0.97
Zinc	181.9	90.22	97.09	mg/Kg	94%		75-125	0.97

DRAFT

Type:	Matrix Spike Duplicate	Lab ID:	QC978120	Batch:	285755
Matrix (Source ID):	Soil (459830-008)	Method:	EPA 6010B	Prep Method:	EPA 3050B

QC978120 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Antimony	16.06	ND	87.72	mg/Kg	18%	*	75-125	5	41	0.88
Arsenic	84.42	5.669	87.72	mg/Kg	90%		75-125	5	35	0.88
Barium	296.2	242.7	87.72	mg/Kg	61%	*	75-125	3	20	0.88
Beryllium	82.92	ND	87.72	mg/Kg	95%		75-125	4	20	0.88
Cadmium	81.13	ND	87.72	mg/Kg	92%		75-125	4	20	0.88
Chromium	105.6	29.45	87.72	mg/Kg	87%		75-125	4	20	0.88
Cobalt	93.79	15.69	87.72	mg/Kg	89%		75-125	5	20	0.88
Copper	112.8	33.82	87.72	mg/Kg	90%		75-125	3	20	0.88
Lead	83.50	5.962	87.72	mg/Kg	88%		75-125	4	20	0.88
Molybdenum	80.30	0.8461	87.72	mg/Kg	91%		75-125	5	20	0.88
Nickel	99.10	23.40	87.72	mg/Kg	86%		75-125	4	20	0.88
Selenium	68.22	ND	87.72	mg/Kg	78%		75-125	4	20	0.88
Silver	38.77	ND	43.86	mg/Kg	88%		75-125	4	20	0.88
Thallium	79.49	0.5721	87.72	mg/Kg	90%		75-125	3	20	0.88
Vanadium	142.4	62.78	87.72	mg/Kg	91%		75-125	4	20	0.88
Zinc	167.4	90.22	87.72	mg/Kg	88%		75-125	3	20	0.88

ENTHALPY ANALYTICAL

Batch QC

Type: Blank	**Lab ID:** QC978404	**Batch:** 285868
Matrix: Soil	**Method:** EPA 7471A	**Prep Method:** METHOD

QC978404 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Mercury	ND		mg/Kg	0.14	03/18/22	03/21/22

Type: Lab Control Sample	**Lab ID:** QC978405	**Batch:** 285868
Matrix: Soil	**Method:** EPA 7471A	**Prep Method:** METHOD

QC978405 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Mercury	0.9893	0.8333	mg/Kg	119%	b	80-120

Type: Matrix Spike	**Lab ID:** QC978406	**Batch:** 285868
Matrix (Source ID): Soil (459830-008)	**Method:** EPA 7471A	**Prep Method:** METHOD

QC978406 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Mercury	1.273	0.09016	0.8333	mg/Kg	142%	b,*	75-125	1

Type: Matrix Spike Duplicate	**Lab ID:** QC978407	**Batch:** 285868
Matrix (Source ID): Soil (459830-008)	**Method:** EPA 7471A	**Prep Method:** METHOD

QC978407 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Mercury	1.388	0.09016	1.000	mg/Kg	130%	b,*	75-125	8	20	1.2

Type: Blank	**Lab ID:** QC978893	**Batch:** 286017
Matrix: Soil	**Method:** EPA 8015M	**Prep Method:** EPA 3580

QC978893 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
GRO C6-C10	ND		mg/Kg	10	03/22/22	03/23/22
DRO C10-C28	ND		mg/Kg	10	03/22/22	03/23/22
ORO C28-C44	ND		mg/Kg	20	03/22/22	03/23/22
Surrogates				**Limits**		
n-Triacontane	84%		%REC	70-130	03/22/22	03/23/22

Type: Lab Control Sample	**Lab ID:** QC978894	**Batch:** 286017
Matrix: Soil	**Method:** EPA 8015M	**Prep Method:** EPA 3580

QC978894 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Diesel C10-C28	236.7	250.0	mg/Kg	95%		76-122
Surrogates						
n-Triacontane	10.06	10.00	mg/Kg	101%		70-130

DRAFT

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike**	**Lab ID:**	**QC978895**	**Batch:**	**286017**
Matrix (Source ID):	**Soil (460023-001)**	**Method:**	**EPA 8015M**	**Prep Method:**	**EPA 3580**

QC978895 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Diesel C10-C28	225.6	1.798	250.0	mg/Kg	90%		62-126	1
Surrogates								
n-Triacontane	10.10		10.00	mg/Kg	101%		70-130	1

Type:	**Matrix Spike Duplicate**	**Lab ID:**	**QC978896**	**Batch:**	**286017**
Matrix (Source ID):	**Soil (460023-001)**	**Method:**	**EPA 8015M**	**Prep Method:**	**EPA 3580**

DRAFT

QC978896 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Diesel C10-C28	231.4	1.798	250.0	mg/Kg	92%		62-126	3	35	1
Surrogates										
n-Triacontane	10.02		10.00	mg/Kg	100%		70-130			1

ENTHALPY ANALYTICAL

Batch QC

Type: Blank	Lab ID: QC978044	Batch: 285738
Matrix: Soil		

QC978044 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Method: EPA 8081A Prep Method: EPA 3546						
alpha-BHC	ND		ug/Kg	5.0	03/17/22	03/19/22
beta-BHC	ND		ug/Kg	5.0	03/17/22	03/19/22
gamma-BHC	ND		ug/Kg	5.0	03/17/22	03/19/22
delta-BHC	ND		ug/Kg	5.0	03/17/22	03/19/22
Heptachlor	ND		ug/Kg	5.0	03/17/22	03/19/22
Aldrin	ND		ug/Kg	5.0	03/17/22	03/19/22
Heptachlor epoxide	ND		ug/Kg	5.0	03/17/22	03/19/22
Endosulfan I	ND		ug/Kg	5.0	03/17/22	03/19/22
Dieldrin	ND		ug/Kg	5.0	03/17/22	03/19/22
4,4'-DDE	ND		ug/Kg	5.0	03/17/22	03/19/22
Endrin	ND		ug/Kg	5.0	03/17/22	03/19/22
Endosulfan II	ND		ug/Kg	5.0	03/17/22	03/19/22
Endosulfan sulfate	ND		ug/Kg	5.0	03/17/22	03/19/22
4,4'-DDD	ND		ug/Kg	5.0	03/17/22	03/19/22
Endrin aldehyde	ND		ug/Kg	5.0	03/17/22	03/19/22
Endrin ketone	ND		ug/Kg	5.0	03/17/22	03/19/22
4,4'-DDT	ND		ug/Kg	5.0	03/17/22	03/19/22
Methoxychlor	ND		ug/Kg	10	03/17/22	03/19/22
Toxaphene	ND		ug/Kg	100	03/17/22	03/19/22
Chlordane (Technical)	ND		ug/Kg	50	03/17/22	03/19/22
Surrogates				**Limits**		
TCMX	96%		%REC	23-120	03/17/22	03/19/22
Decachlorobiphenyl	102%		%REC	24-120	03/17/22	03/19/22
Method: EPA 8082 Prep Method: EPA 3546						
Aroclor-1016	ND		ug/Kg	50	03/17/22	03/19/22
Aroclor-1221	ND		ug/Kg	50	03/17/22	03/19/22
Aroclor-1232	ND		ug/Kg	50	03/17/22	03/19/22
Aroclor-1242	ND		ug/Kg	50	03/17/22	03/19/22
Aroclor-1248	ND		ug/Kg	50	03/17/22	03/19/22
Aroclor-1254	ND		ug/Kg	50	03/17/22	03/19/22
Aroclor-1260	ND		ug/Kg	50	03/17/22	03/19/22
Aroclor-1262	ND		ug/Kg	50	03/17/22	03/19/22
Aroclor-1268	ND		ug/Kg	50	03/17/22	03/19/22
Surrogates				**Limits**		
Decachlorobiphenyl (PCB)	91%		%REC	19-121	03/17/22	03/19/22

DRAFT

ENTHALPY ANALYTICAL

Batch QC

Type: Lab Control Sample	**Lab ID:** QC978045	**Batch:** 285738
Matrix: Soil	**Method:** EPA 8081A	**Prep Method:** EPA 3546

QC978045 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
alpha-BHC	52.57	50.00	ug/Kg	105%		22-129
beta-BHC	52.02	50.00	ug/Kg	104%		28-125
gamma-BHC	51.70	50.00	ug/Kg	103%		22-128
delta-BHC	51.51	50.00	ug/Kg	103%		24-131
Heptachlor	52.26	50.00	ug/Kg	105%		18-124
Aldrin	45.84	50.00	ug/Kg	92%		23-120
Heptachlor epoxide	50.03	50.00	ug/Kg	100%		26-120
Endosulfan I	57.25	50.00	ug/Kg	115%		25-126
Dieldrin	53.41	50.00	ug/Kg	107%		23-124
4,4'-DDE	54.95	50.00	ug/Kg	110%		28-121
Endrin	58.11	50.00	ug/Kg	116%		25-127
Endosulfan II	56.29	50.00	ug/Kg	113%		29-121
Endosulfan sulfate	55.36	50.00	ug/Kg	111%		30-121
4,4'-DDD	53.27	50.00	ug/Kg	107%		26-120
Endrin aldehyde	41.59	50.00	ug/Kg	83%		10-120
Endrin ketone	57.89	50.00	ug/Kg	116%		28-125
4,4'-DDT	58.72	50.00	ug/Kg	117%		22-125
Methoxychlor	56.92	50.00	ug/Kg	114%		28-130
Surrogates						
TCMX	47.16	50.00	ug/Kg	94%		23-120
Decachlorobiphenyl	51.37	50.00	ug/Kg	103%		24-120

DRAFT

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike**	**Lab ID:**	**QC978046**	**Batch:**	**285738**
Matrix (Source ID):	**Soil (459778-021)**	**Method:**	**EPA 8081A**	**Prep Method:**	**EPA 3546**

QC978046 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
alpha-BHC	41.71	ND	50.00	ug/Kg	83%		46-120	1
beta-BHC	44.45	ND	50.00	ug/Kg	89%		41-120	1
gamma-BHC	41.34	ND	50.00	ug/Kg	83%		41-120	1
delta-BHC	41.64	ND	50.00	ug/Kg	83%		38-123	1
Heptachlor	41.84	ND	50.00	ug/Kg	84%		39-120	1
Aldrin	38.01	ND	50.00	ug/Kg	76%		34-120	1
Heptachlor epoxide	40.06	ND	50.00	ug/Kg	80%		43-120	1
Endosulfan I	45.89	ND	50.00	ug/Kg	92%		45-120	1
Dieldrin	43.11	ND	50.00	ug/Kg	86%		45-120	1
4,4'-DDE	43.61	ND	50.00	ug/Kg	87%		34-120	1
Endrin	45.12	ND	50.00	ug/Kg	90%		40-120	1
Endosulfan II	44.72	ND	50.00	ug/Kg	89%		41-120	1
Endosulfan sulfate	43.56	ND	50.00	ug/Kg	87%		42-120	1
4,4'-DDD	40.84	ND	50.00	ug/Kg	82%		41-120	1
Endrin aldehyde	33.37	ND	50.00	ug/Kg	67%		30-120	1
Endrin ketone	41.88	ND	50.00	ug/Kg	84%		45-120	1
4,4'-DDT	47.80	ND	50.00	ug/Kg	96%		35-127	1
Methoxychlor	45.77	ND	50.00	ug/Kg	92%		42-136	1
Surrogates								
TCMX	37.82		50.00	ug/Kg	76%		23-120	1
Decachlorobiphenyl	40.72		50.00	ug/Kg	81%		24-120	1

DRAFT

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike Duplicate**	**Lab ID:**	**QC978047**	**Batch:**	**285738**
Matrix (Source ID):	**Soil (459778-021)**	**Method:**	**EPA 8081A**	**Prep Method:**	**EPA 3546**

QC978047 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
alpha-BHC	48.27	ND	50.00	ug/Kg	97%		46-120	15	30	1
beta-BHC	49.28	ND	50.00	ug/Kg	99%		41-120	10	30	1
gamma-BHC	47.48	ND	50.00	ug/Kg	95%		41-120	14	30	1
delta-BHC	46.45	ND	50.00	ug/Kg	93%		38-123	11	30	1
Heptachlor	47.32	ND	50.00	ug/Kg	95%		39-120	12	30	1
Aldrin	43.09	ND	50.00	ug/Kg	86%		34-120	13	30	1
Heptachlor epoxide	44.61	ND	50.00	ug/Kg	89%		43-120	11	30	1
Endosulfan I	50.73	ND	50.00	ug/Kg	101%		45-120	10	30	1
Dieldrin	47.53	ND	50.00	ug/Kg	95%		45-120	10	30	1
4,4'-DDE	50.23	ND	50.00	ug/Kg	100%		34-120	14	30	1
Endrin	50.58	ND	50.00	ug/Kg	101%		40-120	11	30	1
Endosulfan II	49.48	ND	50.00	ug/Kg	99%		41-120	10	30	1
Endosulfan sulfate	47.13	ND	50.00	ug/Kg	94%		42-120	8	30	1
4,4'-DDD	45.23	ND	50.00	ug/Kg	90%		41-120	10	30	1
Endrin aldehyde	35.36	ND	50.00	ug/Kg	71%		30-120	6	30	1
Endrin ketone	45.60	ND	50.00	ug/Kg	91%		45-120	9	30	1
4,4'-DDT	53.56	ND	50.00	ug/Kg	107%		35-127	11	30	1
Methoxychlor	48.23	ND	50.00	ug/Kg	96%		42-136	5	30	1
Surrogates										
TCMX	42.73		50.00	ug/Kg	85%		23-120			1
Decachlorobiphenyl	43.08		50.00	ug/Kg	86%		24-120			1

Type:	**Lab Control Sample**	**Lab ID:**	**QC978048**	**Batch:**	**285738**
Matrix:	**Soil**	**Method:**	**EPA 8082**	**Prep Method:**	**EPA 3546**

QC978048 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Aroclor-1016	468.4	500.0	ug/Kg	94%		14-150
Aroclor-1260	485.5	500.0	ug/Kg	97%		10-150
Surrogates						
Decachlorobiphenyl (PCB)	38.73	50.00	ug/Kg	77%		19-121

DRAFT

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike**	**Lab ID:**	**QC978049**	**Batch:**	**285738**
Matrix (Source ID):	**Soil (459778-021)**	**Method:**	**EPA 8082**	**Prep Method:**	**EPA 3546**

QC978049 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Aroclor-1016	410.3	ND	500.0	ug/Kg	82%		42-127	1
Aroclor-1260	433.0	ND	500.0	ug/Kg	87%		38-130	1
Surrogates								
Decachlorobiphenyl (PCB)	34.09		50.00	ug/Kg	68%		19-121	1

Type:	**Matrix Spike Duplicate**	**Lab ID:**	**QC978050**	**Batch:**	**285738**
Matrix (Source ID):	**Soil (459778-021)**	**Method:**	**EPA 8082**	**Prep Method:**	**EPA 3546**

DRAFT

QC978050 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Aroclor-1016	448.3	ND	500.0	ug/Kg	90%		42-127	9	30	1
Aroclor-1260	455.7	ND	500.0	ug/Kg	91%		38-130	5	30	1
Surrogates										
Decachlorobiphenyl (PCB)	36.46		50.00	ug/Kg	73%		19-121			1

ENTHALPY ANALYTICAL

Batch QC

Type:	**Blank**	**Lab ID:**	**QC977759**	**Batch:**	**285634**
Matrix:	**Soil**	**Method:**	**EPA 8260B**	**Prep Method:**	**EPA 5030B**

QC977759 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
3-Chloropropene	ND		ug/Kg	5.0	03/16/22	03/16/22
cis-1,4-Dichloro-2-butene	ND		ug/Kg	5.0	03/16/22	03/16/22
trans-1,4-Dichloro-2-butene	ND		ug/Kg	5.0	03/16/22	03/16/22
Isopropyl Ether (DIPE)	ND		ug/Kg	5.0	03/16/22	03/16/22
Ethyl tert-Butyl Ether (ETBE)	ND		ug/Kg	5.0	03/16/22	03/16/22
Methyl tert-Amyl Ether (TAME)	ND		ug/Kg	5.0	03/16/22	03/16/22
tert-Butyl Alcohol (TBA)	ND		ug/Kg	10	03/16/22	03/16/22
Freon 12	ND		ug/Kg	5.0	03/16/22	03/16/22
Chloromethane	ND		ug/Kg	5.0	03/16/22	03/16/22
Vinyl Chloride	ND		ug/Kg	5.0	03/16/22	03/16/22
Bromomethane	ND		ug/Kg	5.0	03/16/22	03/16/22
Chloroethane	ND		ug/Kg	5.0	03/16/22	03/16/22
Trichlorofluoromethane	ND		ug/Kg	5.0	03/16/22	03/16/22
Acetone	ND		ug/Kg	100	03/16/22	03/16/22
Freon 113	ND		ug/Kg	5.0	03/16/22	03/16/22
1,1-Dichloroethene	ND		ug/Kg	5.0	03/16/22	03/16/22
Methylene Chloride	ND		ug/Kg	15	03/16/22	03/16/22
MTBE	ND		ug/Kg	5.0	03/16/22	03/16/22
trans-1,2-Dichloroethene	ND		ug/Kg	5.0	03/16/22	03/16/22
1,1-Dichloroethane	ND		ug/Kg	5.0	03/16/22	03/16/22
2-Butanone	ND		ug/Kg	100	03/16/22	03/16/22
cis-1,2-Dichloroethene	ND		ug/Kg	5.0	03/16/22	03/16/22
2,2-Dichloropropane	ND		ug/Kg	5.0	03/16/22	03/16/22
Chloroform	ND		ug/Kg	5.0	03/16/22	03/16/22
Bromochloromethane	ND		ug/Kg	5.0	03/16/22	03/16/22
1,1,1-Trichloroethane	ND		ug/Kg	5.0	03/16/22	03/16/22
1,1-Dichloropropene	ND		ug/Kg	5.0	03/16/22	03/16/22
Carbon Tetrachloride	ND		ug/Kg	5.0	03/16/22	03/16/22
1,2-Dichloroethane	ND		ug/Kg	5.0	03/16/22	03/16/22
Benzene	ND		ug/Kg	5.0	03/16/22	03/16/22
Trichloroethene	ND		ug/Kg	5.0	03/16/22	03/16/22
1,2-Dichloropropane	ND		ug/Kg	5.0	03/16/22	03/16/22
Bromodichloromethane	ND		ug/Kg	5.0	03/16/22	03/16/22
Dibromomethane	ND		ug/Kg	5.0	03/16/22	03/16/22
4-Methyl-2-Pentanone	ND		ug/Kg	5.0	03/16/22	03/16/22
cis-1,3-Dichloropropene	ND		ug/Kg	5.0	03/16/22	03/16/22
Toluene	ND		ug/Kg	5.0	03/16/22	03/16/22
trans-1,3-Dichloropropene	ND		ug/Kg	5.0	03/16/22	03/16/22
1,1,2-Trichloroethane	ND		ug/Kg	5.0	03/16/22	03/16/22
1,3-Dichloropropane	ND		ug/Kg	5.0	03/16/22	03/16/22
Tetrachloroethene	ND		ug/Kg	5.0	03/16/22	03/16/22
Dibromochloromethane	ND		ug/Kg	5.0	03/16/22	03/16/22

DRAFT

ENTHALPY ANALYTICAL

Batch QC

QC977759 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
1,2-Dibromoethane	ND		ug/Kg	5.0	03/16/22	03/16/22
Chlorobenzene	ND		ug/Kg	5.0	03/16/22	03/16/22
1,1,1,2-Tetrachloroethane	ND		ug/Kg	5.0	03/16/22	03/16/22
Ethylbenzene	ND		ug/Kg	5.0	03/16/22	03/16/22
m,p-Xylenes	ND		ug/Kg	10	03/16/22	03/16/22
o-Xylene	ND		ug/Kg	5.0	03/16/22	03/16/22
Styrene	ND		ug/Kg	5.0	03/16/22	03/16/22
Bromoform	ND		ug/Kg	5.0	03/16/22	03/16/22
Isopropylbenzene	ND		ug/Kg	5.0	03/16/22	03/16/22
1,1,2,2-Tetrachloroethane	ND		ug/Kg	5.0	03/16/22	03/16/22
1,2,3-Trichloropropane	ND		ug/Kg	5.0	03/16/22	03/16/22
Propylbenzene	ND		ug/Kg	5.0	03/16/22	03/16/22
Bromobenzene	ND		ug/Kg	5.0	03/16/22	03/16/22
1,3,5-Trimethylbenzene	ND		ug/Kg	5.0	03/16/22	03/16/22
2-Chlorotoluene	ND		ug/Kg	5.0	03/16/22	03/16/22
4-Chlorotoluene	ND		ug/Kg	5.0	03/16/22	03/16/22
tert-Butylbenzene	ND		ug/Kg	5.0	03/16/22	03/16/22
1,2,4-Trimethylbenzene	ND		ug/Kg	5.0	03/16/22	03/16/22
sec-Butylbenzene	ND		ug/Kg	5.0	03/16/22	03/16/22
para-Isopropyl Toluene	ND		ug/Kg	5.0	03/16/22	03/16/22
1,3-Dichlorobenzene	ND		ug/Kg	5.0	03/16/22	03/16/22
1,4-Dichlorobenzene	ND		ug/Kg	5.0	03/16/22	03/16/22
n-Butylbenzene	ND		ug/Kg	5.0	03/16/22	03/16/22
1,2-Dichlorobenzene	ND		ug/Kg	5.0	03/16/22	03/16/22
1,2-Dibromo-3-Chloropropane	ND		ug/Kg	5.0	03/16/22	03/16/22
1,2,4-Trichlorobenzene	ND		ug/Kg	5.0	03/16/22	03/16/22
Hexachlorobutadiene	ND		ug/Kg	5.0	03/16/22	03/16/22
Naphthalene	ND		ug/Kg	5.0	03/16/22	03/16/22
1,2,3-Trichlorobenzene	ND		ug/Kg	5.0	03/16/22	03/16/22
Xylene (total)	ND		ug/Kg	5.0	03/16/22	03/16/22
Surrogates				**Limits**		
Dibromofluoromethane	94%		%REC	70-130	03/16/22	03/16/22
1,2-Dichloroethane-d4	97%		%REC	70-145	03/16/22	03/16/22
Toluene-d8	106%		%REC	70-145	03/16/22	03/16/22
Bromofluorobenzene	98%		%REC	70-145	03/16/22	03/16/22

DRAFT

ENTHALPY ANALYTICAL

Batch QC

Type: Lab Control Sample	Lab ID: QC977760	Batch: 285634
Matrix: Soil	Method: EPA 8260B	Prep Method: EPA 5030B

QC977760 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
1,1-Dichloroethene	39.09	50.00	ug/Kg	78%		70-131
MTBE	43.02	50.00	ug/Kg	86%		69-130
Benzene	47.47	50.00	ug/Kg	95%		70-130
Trichloroethene	50.88	50.00	ug/Kg	102%		70-130
Toluene	49.01	50.00	ug/Kg	98%		70-130
Chlorobenzene	48.83	50.00	ug/Kg	98%		70-130
Surrogates						
Dibromofluoromethane	49.31	50.00	ug/Kg	99%		70-130
1,2-Dichloroethane-d4	46.86	50.00	ug/Kg	94%		70-145
Toluene-d8	53.15	50.00	ug/Kg	106%		70-145
Bromofluorobenzene	50.23	50.00	ug/Kg	100%		70-145

DRAFT

Type: Lab Control Sample Duplicate	Lab ID: QC977761	Batch: 285634
Matrix: Soil	Method: EPA 8260B	Prep Method: EPA 5030B

QC977761 Analyte	Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim
1,1-Dichloroethene	40.32	50.00	ug/Kg	81%		70-131	3	33
MTBE	45.42	50.00	ug/Kg	91%		69-130	5	30
Benzene	51.51	50.00	ug/Kg	103%		70-130	8	30
Trichloroethene	56.04	50.00	ug/Kg	112%		70-130	10	30
Toluene	53.85	50.00	ug/Kg	108%		70-130	9	30
Chlorobenzene	54.52	50.00	ug/Kg	109%		70-130	11	30
Surrogates								
Dibromofluoromethane	49.40	50.00	ug/Kg	99%		70-130		
1,2-Dichloroethane-d4	47.44	50.00	ug/Kg	95%		70-145		
Toluene-d8	53.56	50.00	ug/Kg	107%		70-145		
Bromofluorobenzene	50.36	50.00	ug/Kg	101%		70-145		

ENTHALPY ANALYTICAL

Batch QC

Type: Lab Control Sample	**Lab ID: QC977880**	**Batch: 285634**
Matrix: Soil	**Method: EPA 8260B**	**Prep Method: EPA 5030B**

QC977880 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
1,1-Dichloroethene	42.94	50.00	ug/Kg	86%		70-131
MTBE	35.87	50.00	ug/Kg	72%		69-130
Benzene	42.95	50.00	ug/Kg	86%		70-130
Trichloroethene	49.02	50.00	ug/Kg	98%		70-130
Toluene	46.42	50.00	ug/Kg	93%		70-130
Chlorobenzene	45.96	50.00	ug/Kg	92%		70-130
Surrogates						
Dibromofluoromethane	48.35	50.00	ug/Kg	97%		70-130
1,2-Dichloroethane-d4	47.21	50.00	ug/Kg	94%		70-145
Toluene-d8	54.75	50.00	ug/Kg	109%		70-145
Bromofluorobenzene	50.32	50.00	ug/Kg	101%		70-145

DRAFT

* Value is outside QC limits
ND Not Detected
b See narrative

Laboratory Job Number 459721

Subcontracted Products

McCampbell Analytical, Inc.

DRAFT

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

DRAFT

WorkOrder: 2203996

Report Created for: Enthalpy Analytical

1108 West Barkley Avenue
Orange, CA 92868

Project Contact: Ranjit Clarke
Project P.O.: 024757
Project: EO-459721

Project Received: 03/16/2022

Analytical Report reviewed & approved for release on 03/23/2022 by:

Yen Cao
Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in a case narrative.

1534 Willow Pass Rd. Pittsburg, CA 94565 ♦ TEL: (877) 252-9262 ♦ FAX: (925) 252-9269 ♦ www.mccampbell.com
CA ELAP 1644 ♦ NELAP 4033 ORELAP

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Glossary of Terms & Qualifier Definitions

Client: Enthalpy Analytical **WorkOrder:** 2203996
Project: EO-459721

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
CPT	Consumer Product Testing not NELAP Accredited
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
LQL	Lowest Quantitation Level
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NA	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
TZA	TimeZone Net Adjustment for sample collected outside of MAI's UTC.
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

DRAFT

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Glossary of Terms & Qualifier Definitions

Client: Enthalpy Analytical **WorkOrder:** 2203996
Project: EO-459721

Analytical Qualifiers

a3	Sample diluted due to high organic content interfering with quantitative/or qualitative analysis.

DRAFT

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Analytical Report

Client:	Enthalpy Analytical	**WorkOrder:**	2203996
Date Received:	03/16/2022 12:05	**Extraction Method:**	SW8151A
Date Prepared:	03/17/2022	**Analytical Method:**	SW8151A
Project:	EO-459721	**Unit:**	mg/kg

Chlorinated Herbicides by GC-ECD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1@2'	2203996-001A	Soil	03/11/2022 07:50	GC15A 03172225.D	241453

Analytes	Result	RL	DF	Date Analyzed
Acifluorfen	ND	0.050	5	03/17/2022 23:51
Bentazon	ND	0.050	5	03/17/2022 23:51
Chloramben	ND	0.050	5	03/17/2022 23:51
2,4-D (Dichlorophenoxyacetic acid)	ND	0.050	5	03/17/2022 23:51
2,4-DB	ND	0.050	5	03/17/2022 23:51
Dalapon	ND	0.050	5	03/17/2022 23:51
DCPA (mono & diacid)	ND	0.050	5	03/17/2022 23:51
Dicamba	ND	0.050	5	03/17/2022 23:51
3,5-Dichlorobenzoic Acid	ND	0.050	5	03/17/2022 23:51
Dichloroprop	ND	0.050	5	03/17/2022 23:51
Dinoseb (DNBP)	ND	0.050	5	03/17/2022 23:51
MCPA	ND	5.0	5	03/17/2022 23:51
MCPP	ND	5.0	5	03/17/2022 23:51
4-Nitrophenol	ND	0.050	5	03/17/2022 23:51
Pentachlorophenol (PCP)	ND	0.050	5	03/17/2022 23:51
Picloram	ND	0.050	5	03/17/2022 23:51
2,4,5-T (Trichlorophenoxy acetic acid)	ND	0.050	5	03/17/2022 23:51
2,4,5-TP (Silvex)	ND	0.050	5	03/17/2022 23:51

Surrogates	REC (%)	Limits	
DCAA	83	60-140	03/17/2022 23:51

Analyst(s): DP Analytical Comments: a3

DRAFT

(Cont.)

CA ELAP 1644 • NELAP 4033ORELAP

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Analytical Report

Client:	Enthalpy Analytical	**WorkOrder:**	2203996
Date Received:	03/16/2022 12:05	**Extraction Method:**	SW8151A
Date Prepared:	03/17/2022	**Analytical Method:**	SW8151A
Project:	EO-459721	**Unit:**	mg/kg

Chlorinated Herbicides by GC-ECD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-2@1.0'	2203996-002A	Soil	03/11/2022 11:40	GC15A 03172226.D	241453

Analytes	Result	RL	DF	Date Analyzed
Acifluorfen	ND	0.050	5	03/18/2022 00:15
Bentazon	ND	0.050	5	03/18/2022 00:15
Chloramben	ND	0.050	5	03/18/2022 00:15
2,4-D (Dichlorophenoxyacetic acid)	ND	0.050	5	03/18/2022 00:15
2,4-DB	ND	0.050	5	03/18/2022 00:15
Dalapon	ND	0.050	5	03/18/2022 00:15
DCPA (mono & diacid)	ND	0.050	5	03/18/2022 00:15
Dicamba	ND	0.050	5	03/18/2022 00:15
3,5-Dichlorobenzoic Acid	ND	0.050	5	03/18/2022 00:15
Dichloroprop	ND	0.050	5	03/18/2022 00:15
Dinoseb (DNBP)	ND	0.050	5	03/18/2022 00:15
MCPA	ND	5.0	5	03/18/2022 00:15
MCPP	ND	5.0	5	03/18/2022 00:15
4-Nitrophenol	ND	0.050	5	03/18/2022 00:15
Pentachlorophenol (PCP)	ND	0.050	5	03/18/2022 00:15
Picloram	ND	0.050	5	03/18/2022 00:15
2,4,5-T (Trichlorophenoxy acetic acid)	ND	0.050	5	03/18/2022 00:15
2,4,5-TP (Silvex)	ND	0.050	5	03/18/2022 00:15

Surrogates	REC (%)	Limits	
DCAA	91	60-140	03/18/2022 00:15

Analyst(s): DP Analytical Comments: a3

DRAFT

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Quality Control Report

Client:	Enthalpy Analytical	**WorkOrder:**	2203996
Date Prepared:	03/17/2022	**BatchID:**	241453
Date Analyzed:	03/17/2022	**Extraction Method:**	SW8151A
Instrument:	GC15A	**Analytical Method:**	SW8151A
Matrix:	Soil	**Unit:**	mg/kg
Project:	EO-459721	**Sample ID:**	MB/LCS/LCSD-241453

DRAFT

QC Summary Report for SW8151A

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Acifluorfen	ND	0.0042	0.010	-	-	-
Bentazon	ND	0.0026	0.010	-	-	-
Chloramben	ND	0.0053	0.010	-	-	-
2,4-D (Dichlorophenoxyacetic acid)	ND	0.0038	0.010	-	-	-
2,4-DB	ND	0.0046	0.010	-	-	-
Dalapon	ND	0.0063	0.010	-	-	-
DCPA (mono & diacid)	ND	0.0042	0.010	-	-	-
Dicamba	ND	0.0025	0.010	-	-	-
3,5-Dichlorobenzoic Acid	ND	0.0034	0.010	-	-	-
Dichloroprop	ND	0.0028	0.010	-	-	-
Dinoseb (DNBP)	ND	0.0026	0.010	-	-	-
MCPA	ND	0.42	1.0	-	-	-
MCPP	ND	0.33	1.0	-	-	-
4-Nitrophenol	ND	0.0073	0.010	-	-	-
Pentachlorophenol (PCP)	ND	0.0019	0.010	-	-	-
Picloram	ND	0.0037	0.010	-	-	-
2,4,5-T (Trichlorophenoxy acetic acid)	ND	0.0026	0.010	-	-	-
2,4,5-TP (Silvex)	ND	0.0020	0.010	-	-	-
Surrogate Recovery						
DCAA	0.11			0.1	113	63-129

(Cont.)

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Quality Control Report

Client:	Enthalpy Analytical	**WorkOrder:**	2203996
Date Prepared:	03/17/2022	**BatchID:**	241453
Date Analyzed:	03/17/2022	**Extraction Method:**	SW8151A
Instrument:	GC15A	**Analytical Method:**	SW8151A
Matrix:	Soil	**Unit:**	mg/kg
Project:	EO-459721	**Sample ID:**	MB/LCS/LCSD-241453

DRAFT

QC Summary Report for SW8151A

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Acifluorfen	0.10	0.10	0.10	101	100	60-140	0.816	30
Bentazon	0.10	0.10	0.10	101	103	60-140	2.03	30
Chloramben	0.10	0.11	0.10	104	107	60-140	2.01	30
2,4-D (Dichlorophenoxyacetic acid)	0.10	0.11	0.10	103	106	67-147	3.11	30
2,4-DB	0.11	0.11	0.10	105	108	61-152	2.17	30
Dalapon	0.10	0.10	0.10	101	102	54-153	0.641	30
DCPA (mono & diacid)	0.085	0.086	0.10	85	86	60-140	1.15	30
Dicamba	0.098	0.10	0.10	98	100	60-146	2.77	30
3,5-Dichlorobenzoic Acid	0.098	0.10	0.10	98	101	60-140	2.60	30
Dichloroprop	0.10	0.10	0.10	100	104	60-140	3.57	30
Dinoseb (DNBP)	0.091	0.092	0.10	91	92	60-140	1.47	30
MCPA	9.7	10	10	97	100	60-140	2.83	30
MCPP	9.7	10	10	97	100	60-140	2.58	30
4-Nitrophenol	0.12	0.12	0.10	122	124	60-140	1.99	30
Pentachlorophenol (PCP)	0.092	0.094	0.10	92	94	60-140	2.25	30
Picloram	0.094	0.094	0.10	94	94	60-140	0.686	30
2,4,5-T (Trichlorophenoxy acetic acid)	0.10	0.10	0.10	102	104	60-140	2.39	30
2,4,5-TP (Silvex)	0.098	0.10	0.10	98	101	63-145	2.45	30
Surrogate Recovery								
DCAA	0.12	0.12	0.10	119	122	63-129	2.90	30

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 2203996 **ClientCode: ENO**

☐ WaterTrax ☐ CLIP ☐ EDF ☑ EQuIS ☑ Dry-Weight ☑ Email ☐ HardCopy ☐ ThirdParty ☑ J-flag
☑ Detection Summary ☑ Excel [A1_w/QC_noMDL (Hist)]

DRAFT

Report to:
Ranjit Clarke
Enthalpy Analytical
1108 West Barkley Avenue
Orange, CA 92868
(714) 771-6900 FAX:

Email: Ranjit.Clarke@enthalpy.com; incomingrepo
cc/3rd Party:
PO: 024757
Project: EO-459721

Bill to:
Accounts Payable/Enthalpy SoCal
Montrose Environmental Group
PO Box 842165
Boston, MA 02284-2165
003EL_ap@montrose-env.com

Requested TAT: 5 days;

Date Received: **03/16/2022**
Date Logged: **03/16/2022**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
2203996-001	B-1@2'	Soil	3/11/2022 07:50	☐	A	A										
2203996-002	B-2@1.0'	Soil	3/11/2022 11:40	☐	A	A										

Test Legend:

1	8151_S	2	PRDisposal Fee	3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Tina Perez

Comments:

NOTE: Soil samples are discarded 60 days after receipt unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

WORK ORDER SUMMARY

DRAFT

Client Name: ENTHALPY ANALYTICAL
Client Contact: Ranjit Clarke
Contact's Email: Ranjit.Clarke@enthalpy.com; incomingreports@enthalpy.com

Project: EO-459721
Comments:

Work Order: 2203996
QC Level: LEVEL 2
Date Logged: 3/16/2022

☐ WaterTrax ☐ WriteOn ☐ EDF ☑ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☑ J-flag

LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	U**	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	Sub Out
001A	B-1@2'	Soil	SW8151A (Chlorinated Herbicides)	1	4OZ GJ, Unpres	☐	☐	☐	3/11/2022 7:50	5 days	3/23/2022		☐	☐
002A	B-2@1.0'	Soil	SW8151A (Chlorinated Herbicides)	1	4OZ GJ, Unpres	☐	☐	☐	3/11/2022 11:40	5 days	3/23/2022		☐	☐

NOTES: * STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

U = An unpreserved container was received for a method that suggests a preservation in order to extend hold time for analysis.**

2203996

Enthalpy Analytical - Orange
Orange, CA 92868
(714) 771-6900 / Fax: (510) 486-0532

Subcontract Laboratory:
McCampbell Analytical, Inc.
1534 Willow Pass Rd.
Pittsburg, CA 94565
ATTN: Angela Rydelius
PO #: Required, to be sent via email

Enthalpy Order: EO-459721
PM: Ranjit K Clarke
Email: Ranjit.Clarke@enthalpy.com
CC: incomingreports@enthalpy.com
Phone: (714) 771-9906

Results Due: Standard TAT
Report Level: II
Report To: RL
EDDs: Standard Excel EDD

DRAFT

Notes:

Sample ID	Collected	Lab ID	# Cont.	Matrix	Analysis Requested	Comment
B-1@2'	11-MAR-2022 07:50	459721-001	1	Soil	EPA 8151A Chlorinated Herbicides	
B-2@1.0'	11-MAR-2022 11:40	459721-002	1	Soil	EPA 8151A Chlorinated Herbicides	

Notes:	Relinquished By:	Received By:
	Date: 3/15/22 1830	Date: 3/16/22 @ 1205
	Date:	Date:
	Date:	Date:

2.2°C wet

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Sample Receipt Checklist

Client Name: **Enthalpy Analytical**
Project: **EO-459721**

Date and Time Received: **3/16/2022 12:05**
Date Logged: **3/16/2022**
Received by: Tina Perez
Logged by: Tina Perez

WorkOrder №: **2203996** Matrix: Soil
Carrier: Golden State Overnight

DRAFT

Chain of Custody (COC) Information

Chain of custody present?	Yes	☑	No	☐		
Chain of custody signed when relinquished and received?	Yes	☑	No	☐		
Chain of custody agrees with sample labels?	Yes	☑	No	☐		
Sample IDs noted by Client on COC?	Yes	☑	No	☐		
Date and Time of collection noted by Client on COC?	Yes	☑	No	☐		
Sampler's name noted on COC?	Yes	☐	No	☑		
COC agrees with Quote?	Yes	☐	No	☐	NA	☑

Sample Receipt Information

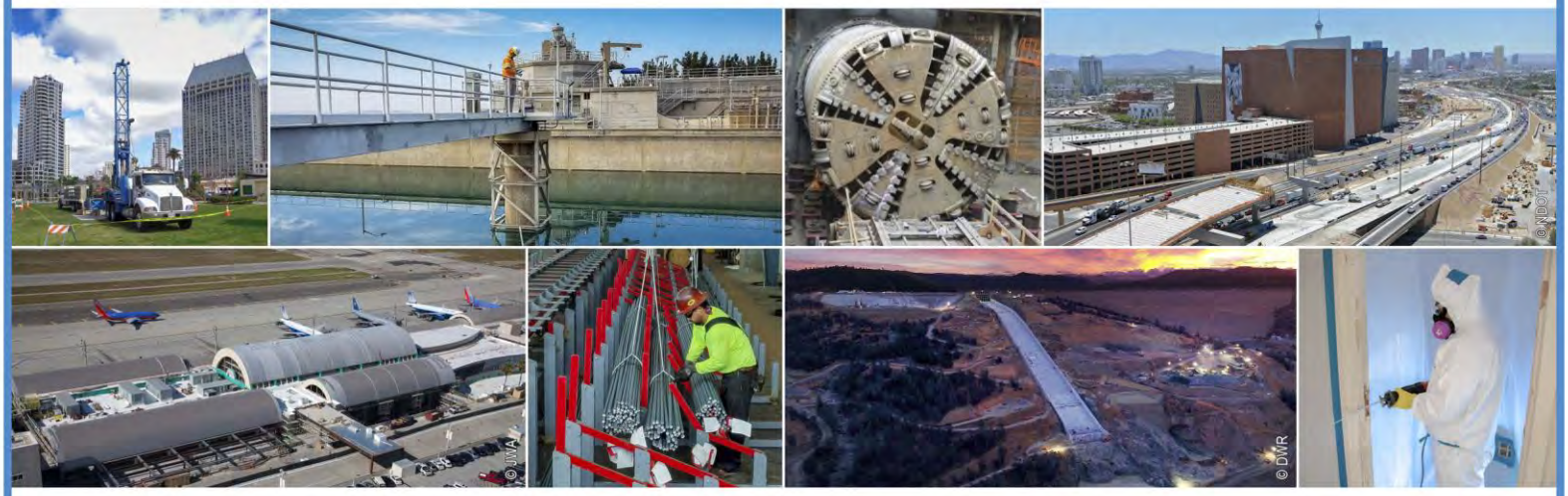
Custody seals intact on shipping container/cooler?	Yes	☑	No	☐	NA	☐
Custody seals intact on sample bottles?	Yes	☑	No	☐	NA	☐
Shipping container/cooler in good condition?	Yes	☑	No	☐		
Samples in proper containers/bottles?	Yes	☑	No	☐		
Sample containers intact?	Yes	☑	No	☐		
Sufficient sample volume for indicated test?	Yes	☑	No	☐		

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes	☑	No	☐	NA	☐
Samples Received on Ice?	Yes	☑	No	☐		
(Ice Type: WET ICE)						
Sample/Temp Blank temperature	Temp: 2.2°C				NA	☐
ZHS conditional analyses: VOA meets zero headspace requirement (VOCs, TPHg/BTEX, RSK)?	Yes	☐	No	☐	NA	☑
Sample labels checked for correct preservation?	Yes	☑	No	☐		
pH acceptable upon receipt (Metal: <2; Nitrate 353.2/4500NO3: <2; 522: <4; 218.7: >8)?	Yes	☐	No	☐	NA	☑
UCMR Samples:						
pH tested and acceptable upon receipt (200.7: ≤2; 533: 6 - 8; 537.1: 6 - 8)?	Yes	☐	No	☐	NA	☑
Free Chlorine tested and acceptable upon receipt (<0.1mg/L) [not applicable to 200.7]?	Yes	☐	No	☐	NA	☑

Comments:

DRAFT



475 Goddard, Suite 200 | Irvine, California 92618 | p. 949.753.7070

ARIZONA | CALIFORNIA | COLORADO | NEVADA | TEXAS | UTAH

ninyoandmoore.com

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

APPENDIX E – Paleontological Records

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

Research & Collections

e-mail: paleorecords@nhm.org

November 16, 2025

Langan
Attn: Jennifer De Alba

re: Paleontological resources records search for the GSD Microgrid Project (781031301)

Dear Jennifer:

I have conducted a search of our paleontology collection records for the proposed development at the GSD Microgrid project area as outlined on the portion of the Goleta USGS topographic quadrangle map that you sent to me via e-mail on November 6, 2025. We do not have fossil localities that have been recorded or georeferenced directly within the proposed project area, but we do have fossil localities nearby from similar sedimentary deposits that may occur in the proposed project area, either at the surface or at depth.

The following table shows the closest known localities in the collection of the Natural History Museum of Los Angeles County (NHMLA).

Locality Number	Location	Formation	Taxa	Depth
LACM VP 5018	Seacliff about 1.5 miles long; between Goleta Point & Coal Oil Point	Unknown formation (Pleistocene; conglomerate & sandstone; locally coquinoid)	Fish (Osteichthyes)	Surface
LACM IP 416	Seacliff in Goleta	Pleistocene terrace	Uncatalogued invertebrates	Surface
LACM IP 36	Seacliff near Coal Oil Point	Pleistocene terrace	Uncatalogued invertebrates	Surface

VP, Vertebrate Paleontology; IP, Invertebrate Paleontology; bgs, below ground surface

This records search is limited to the records of the NHMLA. It is not intended as a paleontological assessment of the project for the purposes of California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA). Potentially fossil-bearing units are present in the project area, either at the surface or in the subsurface. As such, NHMLA recommends that a paleontological assessment be conducted by a paleontologist meeting Federal (43 Code of Federal Regulations Part 49.110) or Society of Vertebrate Paleontology standards for compliance with applicable regulations, such as CEQA or NEPA.

Sincerely,



Alyssa Bell, Ph.D.
Natural History Museum of Los Angeles County

APPENDIX F – (Confidential) Native American Cultural Resources

APPENDIX G – Mitigation Monitoring and Reporting Program (MMRP)

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const	During Const	Post-Const		Initials	Date	
BIOLOGICAL RESOURCES									
MM-BIO-1	**Pre-construction Nesting Bird Surveys.** If project activities are proposed during the general avian breeding season of January 15th to September 15th, the Project biologist shall conduct a pre-construction survey for active nests within 500 feet of the construction area and submit a letter report to the County of Santa Barbara prior to the pre-construction meeting. If active nests are detected, clearing and construction within a minimum of 300 feet shall be postponed until the nest(s) is vacated, juveniles have fledged, and there is no evidence of a second attempt at nesting. If an active raptor or rare, threatened, endangered, or SSC bird nest is found, clearing and construction within a minimum of 500 feet shall be postponed until the nest(s) is vacated, juveniles have fledged, and there is no evidence of a second attempt at nesting. The report submitted to the County shall include mitigation measures including, but not limited to, (1) worker environmental awareness training, (2) daily biological monitoring during construction activities, and (3) the locations of flags and/or stakes to provide the appropriate avoidance buffers. If no nesting birds are detected during the pre-construction survey, no mitigation is required. The Project biologist shall continue to perform site surveys during all construction activities to detect any nesting birds that may nest on the Project site after the pre-construction survey. Pre-construction clearance surveys shall be completed as required to comply with the federal Endangered Species Act, Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, California Fish and Game Code, and/or County regulations. If the biological monitor determines that Project activities are disturbing or disrupting nesting activities, the monitor will make recommendations to County staff to reduce the noise or disturbance in the vicinity. This may include recommendations such as (1) turning off vehicle engines and other	The results of the pre construction nesting bird survey will be submitted to the County prior to the pre construction meeting to document compliance with applicable State and federal laws pertaining to the protection of native birds.	X	X		Goleta Sanitary District			

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const	During Const	Post-Const		Initials	Date	
	equipment whenever possible to reduce noise, (2) working in other areas until the young have fledged, and (3) stopping work until young are independent of their nests (Development Standard ECO-EGV-2C in County of Santa Barbara 2021). <u>Requirements and Timing</u> Pre-construction nesting bird surveys shall be completed prior to any vegetation clearing or ground disturbance associated with construction or grading during the bird nesting season (January 15th to September 15th). The survey should be conducted within 1 week prior to construction or site preparation activities that would occur during the nesting/breeding season of native bird species potentially nesting on the site. <u>Monitoring</u> GSD shall ensure the pre-construction nesting bird surveys, and any avoidance requirements, are completed prior to commencement of any earthmoving activities. The results of the pre-construction nesting bird survey will be submitted to the County prior to the pre-construction meeting to document compliance with applicable State and federal laws pertaining to the protection of native birds. Potential indirect impacts could occur as a result of construction site runoff. These impacts may include accidental pollutant/chemical spills or discharge of materials from the use of concrete, oil/gas, water runoff, or on-site fueling stations. To minimize potential impacts to adjacent sensitive habitat and potential jurisdictional features, the following measure is required.								
MM BIO-2	**Erosion and Sediment Control Plan (ESCP).** Due to the Project impact of less than 1 acre, the Applicant shall prepare an ESCP to minimize the potential for discharge of pollutants during	BMPs inspection regularly and prior to storm events. Maintain BMPs in	X	X		Contractor			

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const	During Const	Post-Const		Initials	Date	
	construction activities. The ESCP shall be designed to minimize erosion during construction, and it shall be implemented for the duration of the grading period and until re-graded areas have been stabilized by structures, long-term erosion control measures, or permanent landscaping. The ESCP shall include both structural and non-structural BMPs, including straw wattles around storm drains, silt fencing, and/or other physical controls to divert flows from exposed soil, spill prevention methods, and clean housekeeping methods for storing and refueling machinery. The ESCP shall use BMPs designed to stabilize the site, protect natural watercourses/creeks, prevent erosion, and convey storm water runoff to existing drainage systems, keeping contaminants and sediments on-site. As part of the ESCP, the contractor shall include specifications, installation requirements, and locations of appropriate BMPs to control sediment, coarse particles, concrete, and other materials exposed during construction. During construction activities, washing of concrete or equipment shall occur only in areas where polluted water and materials can be contained for subsequent removal from the site. Washing will not be allowed in locations where the tainted water could enter storm drains. There is a storm water conveyance swale located in the grassy field, south of the staging area. A 50-foot buffer is required from this feature. The southern boundary of the staging area will need appropriate BMPs, such as a silt fence, to protect storm water. <u>Requirements and Timing</u> The ESCP shall be submitted and approved prior to any ground disturbance. A County-approved ESCP is required in order to be issued a Grading Permit. ESCPs shall be developed by a professional	good condition at all times and monitor the site's stormwater measures, prior to the start of construction, as well as throughout the duration of construction, to ensure they continue to function properly.							

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const	During Const	Post-Const		Initials	Date	
	knowledgeable in erosion and sediment control. It is recommended that a Certified Professional in Sediment and Erosion Control develop the ESCP. The responsible party shall designate an individual to be responsible for on-site installation, maintenance, and removal of ESCP measures. The ESCP requirements shall be implemented between November 1st and April 15th of each year, except pollution control measures, which shall be implemented year-round. <u>Monitoring</u> The contractor shall inspect BMPs regularly and prior to storm events. The contractor shall maintain BMPs in good condition at all times, and monitor the site's storm water measures, prior to the start of construction, as well as throughout the duration of construction, to ensure they continue to function properly								
CULTURAL RESOURCES									
MM CUL-1	**Data Recovery.** Based on the determination that, despite efforts to avoid significant intact cultural deposits, the Proposed Project has the potential to impact cultural deposits of moderate and high density, the Project therefore has the potential to adversely affect a unique archeological resource and a historical resource pursuant to §15064.5. As such, pursuant to the California Environmental Quality Act (CEQA), data recovery is required to be implemented according to following tasks: A qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, shall be retained to develop a data recovery program and research design prior to the data recovery efforts, and they shall make provision for adequately recovering the scientifically consequential information from, and about, the resource; this shall be prepared and adopted prior to any excavation being undertaken (CEQA Guidelines Section 15126.4(b)(3)(A)). As such, the	Submittal/review of Data Recovery Research Design and Work Plan and Final Data Recovery Report to District.	X			Goleta Sanitary District			

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const	During Const	Post-Const		Initials	Date	
	data recovery plan shall include specific levels of effort and methods to obtain a statistically representative sample of significant archaeological deposits, as well as field and laboratory requirements, to ensure proper treatment of all materials, including documentation of results and curation of the archaeological collection. This plan shall be submitted to the District for review prior to implementation. Specifically, the data recovery plan shall, at the least, include the standards, guidelines, and performance criteria to ensure that the data recovery mitigation will be effective in "adequately recovering the scientifically consequential information from and about the historical resource" as stated in CEQA Guidelines Section 15126.4(b)(3)(C). The following are basic criteria, based on the California Office of Historic Preservation (OHP) Guidelines for Archaeological Research Designs (OHP 1991) from which a more detailed and comprehensive data recovery plan shall be formulated: Professional Qualifications. The data recovery plan shall be designed by a qualified archaeologist meeting the Secretary of Interior's Professional Qualifications for archaeology, including at least 6 years documented supervisory experience in the study of prehistoric archaeological resources of the region. Research Design. The research design shall be developed to satisfy the requirement for public benefit that can be derived from the data recovery efforts. The design shall focus research on one or more important hypotheses that have been carefully constructed to address current data gaps, new models, theories, investigative and conservation techniques, as well as priority research areas identified by state or federal agencies (OHP 1991; National Park Service 2020). The design shall have the following requirements for its goals, pursuant to OHP guidelines: focus on important goals; be realistic and attainable;								

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const	During Const	Post-Const		Initials	Date	
	establish efficient methods to accomplish the goals; understandable; provide a thorough and well-organized argument; and concise and flexible. Fieldwork, Laboratory, and Curation Methods. The data recovery field methods shall be designed to recover the entire portion of the cultural resource (sandstone-lined well) that will be impacted as a result of the ground disturbance, plus a statistically significant assemblage of any surrounding resource deposit, sufficient to answer the research questions determined in the data recovery research design, that the site is potentially capable of addressing. Report Elements. The data recovery efforts shall be thoroughly documented in a comprehensive report, including the following core elements: theoretical orientation; cultural context; definition of the formulated hypotheses presented in the original research design; all field, laboratory, and curation methods; results of research; and implications of the results, in light of current understanding, and its potential to contribute to future research and understanding. The qualified archaeologist shall provide an data recovery report to the District and the Southern San Joaquin Valley Information Center (SJVIC). Requirements and Timing Data recovery shall be completed prior to ground disturbance ground disturbance associated with grading or construction for the Project. Monitoring GSD shall ensure submittal of the Data Recovery Research Design and Work Plan prior to implementation of the data recovery excavation; that the data recovery excavation will be completed prior to any ground disturbance associated with Project implementation; and that the Final Data								

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const	During Const	Post-Const		Initials	Date	
	Recovery Report will be submitted to the District prior to completion of the Project.								
MM CUL-2	**Cultural Resource Inadvertent Discovery Plan**. Impacts to cultural resources should be minimized through implementation of pre- and post-construction tasks. Tasks pertaining to cultural resources include the development of a cultural resource inadvertent discovery plan (Plan). The purpose of the Plan is to outline a program of treatment and mitigation in the case of an inadvertent discovery of cultural resources during ground-disturbing phases and to provide for the proper identification, evaluation, treatment, and protection of any cultural resources in accordance with CEQA throughout the duration of the Project. This Plan should be created by a qualified archaeologist and define the process to be followed for the identification and management of cultural resources in the Project's ground disturbance areas during construction. Existence of and importance of adherence to this Plan should be stated on all Project construction plans intended for use by those conducting the ground disturbing activities. Prior to the development of the Plan, a qualified archaeologist should review all plans and any updated project descriptions to determine if/when proposed depths of disturbance will impact intact native soils and subsequently prescribe an appropriate monitoring plan. <u>Requirements and Timing</u> Cultural Resource Inadvertent Discovery Plan shall be completed prior to ground disturbance ground disturbance associated with grading or construction for the Project. <u>Monitoring</u> GSD shall ensure submittal of the Cultural Resource Inadvertent Discovery Plan (Plan) prior to ground disturbance associated with grading or	Submittal/review of Construction Monitoring Treatment Plan to District.	X			Goleta Sanitary District			

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const	During Const	Post-Const		Initials	Date	
	construction for the Project and that all contractors associated with ground disturbance associated with grading or construction for the Project will be provided a copy and understand the importance of following the Plan.								
MM CUL-3	**Workers Environmental Awareness Program (WEAP) Training**. All construction personnel should be briefed regarding the general archaeological sensitivity of the Project site and the potential for the occurrence of inadvertent discoveries of cultural resources prior to the start of ground disturbing activities. A basic presentation shall be prepared and presented by a qualified archaeologist to inform all personnel working on the Project about the archaeological sensitivity of the area. The purpose of the WEAP training is to provide specific details on the kinds of cultural resource materials that may be identified during construction of the Project and explain the importance of and legal basis for the protection of significant cultural resources. Each worker should also be instructed on the proper procedures to follow in the event that cultural and/or tribal cultural resources and/or human remains are encountered during ground-disturbing activities. These procedures include the potential for work curtailment or redirection, and the immediate contact of the on-call qualified archaeologist and if appropriate, Tribal representative. Necessity of training attendance should be stated on all Project site plans intended for use by those conducting the ground disturbing activities. <u>Requirements and Timing</u> Workers Environmental Awareness Program Training shall be completed prior to ground disturbance associated with grading or construction for the Project. All construction personnel associated with ground disturbing activities shall be trained consistent with the Workers Environmental Awareness Program.	Submittal/review of WEAP Training to District/Contractor ensures all applicable personnel are trained.	X	X		Goleta Sanitary District/ Contractor			

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const	During Const	Post-Const		Initials	Date	
	Monitoring GSD shall ensure all contractors associated with ground disturbance associated with grading or construction for the Project will shall be trained consistent with the Workers Environmental Awareness Program.								
MM-CUL-4	**Archaeological Monitoring.** A qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, shall oversee monitoring of all initial (first movement of soils within each ground disturbance location at complete horizontal and vertical extents) ground disturbances within the proposed Project improvement areas. A qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for a Principal Investigator, shall oversee and adjust monitoring efforts as needed (increase, decrease, or discontinue spot monitoring frequency), based on the observed potential for construction activities to encounter cultural deposits. The archaeological monitor shall be responsible for maintaining monitoring logs. Following the completion of construction, the qualified archaeologist shall provide an archaeological monitoring report to the District and the Southern San Joaquin Valley Information Center (SJVIC) with the results of the cultural monitoring program. Requirements and Timing Archaeological monitoring shall be conducted during ground disturbance activities associated with grading or construction for the Project and in accordance with the Cultural Resource Inadvertent Discovery Plan. Monitoring	Submittal/review of monitoring logs and final report to District/Contractor to ensure archaeology monitors are on-site during all ground-disturbing activities.		X	X	Goleta Sanitary District/ Contractor			

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const	During Const	Post-Const		Initials	Date	
	GSD shall ensure all contractors associated with ground disturbance associated with grading or construction for the Project communicate the construction schedule to the archaeological principal investigator, or their representative, to support implementation of archaeological monitoring in accordance with the Cultural Resource Inadvertent Discovery Plan.								
MM-CUL-5	**Inadvertent Discovery of Archaeological Resources.** In the event that cultural resources (sites, features, or artifacts) are exposed during ground disturbing activities for the Project, all construction work occurring within 50 feet of the find should immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find under the California Environmental Quality Act (14 CCR 15064.5(f); California PRC Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. If the discovery is Native American in nature, consultation with and/or monitoring by a Tribal representative may be necessary. <u>Requirements and Timing</u> In the event there is an inadvertent Discovery of Archaeological Resources, the Cultural Resource Inadvertent Discovery Plan shall be followed by all contractors associated with ground disturbance associated with grading or construction for the Project. <u>Monitoring</u>	In event of inadvertent discovery of cultural resources, work shall stop; qualified archaeologist evaluates, Native American representative consulted, and (if the discovery is human remains) Coroner will be immediately contacted.		X		Goleta Sanitary District			

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const	During Const	Post-Const		Initials	Date	
	GSD shall ensure all contractors associated with ground disturbance associated with grading or construction adhere to the Cultural Resource Inadvertent Discovery Plan regarding the proper response to an inadvertent Discovery of Archaeological Resources.								
MM-CUL-6	**Inadvertent Discovery of Human Remains**. If an inadvertent discovery of human remains or possible human remains occurs, the following procedures as set forth in the CEQA Guidelines Section 15064.5(e), the California Public Resources Code Section 5097.98, and the California Health and Safety Code Section 7050.5 shall be undertaken: 1) work at the location of discovery and surrounding vicinity (no less than 100 feet) shall halt immediately; 2) the Santa Barbara County Coroner shall be contacted immediately as well as a qualified archaeologist and the appropriate County staff; 3) the County coroner and qualified archaeologist shall determine the need for a field examination to determine the provenience and nature of the remains as well as the potential for additional remains to be present within the project site; 4) if the Coroner determines that the remains are Native American, the Coroner shall contact the California Native American Heritage Commission (NAHC) who will provide the name and contact information for the Most Likely Descendent (MLD) and consultation regarding treatment of the human remains shall occur between the MLD and the property owner; 5) in the event, the human remains are not Native American, the County coroner shall consult with the property owner regarding treatment; 6) a qualified archaeologist shall be retained to monitor all further subsurface disturbance in the area of the discovered human remains and if the remains are Native American, a tribal representative shall also be retained to monitor; 7) work in the vicinity of the discovery shall only proceed after the appropriate County staff grants authorization.	In event of inadvertent discovery of human remains, work shall stop; Coroner will be immediately contacted.		X		Goleta Sanitary District/ Contractor			

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const	During Const	Post-Const		Initials	Date	
	Requirements and Timing In the event there is an inadvertent Discovery of Archaeological Resources, the Cultural Resource Inadvertent Discovery Plan shall be followed by all contractors associated with ground disturbance associated with grading or construction for the Project. Monitoring GSD shall ensure all contractors associated with ground disturbance associated with grading or construction adhere to the Cultural Resource Inadvertent Discovery Plan regarding the proper response to an inadvertent Discovery of Archaeological Resources.								
GEOLOGY									
MM GEO-1	**Paleontological Resources Impact Mitigation Program and Paleontological Monitoring.** Prior to commencement of any grading activity on-site, the applicant shall retain a qualified paleontologist, per the SVP (2010) guidelines. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the proposed Project. The PRIMP shall be consistent with the SVP (2010) guidelines and outline requirements for worker environmental awareness training and in what areas paleontological monitoring will occur based on construction plans and/or geotechnical reports. The Plan will also include procedures and protocols for the implementation of paleontological monitoring, assessment and treatment of discovered resources, and the methods (including sediment sampling for microinvertebrate and microvertebrate fossils) for recovery/salvage, reporting, and collections management. The qualified paleontologist, or their representative, shall conduct a WEAP training, and a qualified paleontological monitor shall be on-site during initial rough grading and other significant ground-	Submittal/review of PRIMP, monitoring logs, and final report to District and/or Contractor to ensure paleontology monitors are present for WEAP training and on-site during initial grading depth of 5 feet below the ground surface in areas underlain by Holocene estuarine deposits.	X	X	X	Goleta Sanitary District/ Contractor			

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const	During Const	Post-Const		Initials	Date	
	disturbing activities (including augering) that occur within previously undisturbed, early Pleistocene to late Pliocene unnamed marine sedimentary units. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the ground disturbance will be temporarily halted and/or diverted to allow, as appropriate, for the assessment and recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once assessment, documentation and/or collection of the find is completed, ground disturbance will be allowed to continue in the area of the discovery. Authorization to continue ground disturbance within the area of discovery will be provided by the qualified paleontologist, or their representative, only. <u>Requirements and Timing</u> Paleontological Resources Impact Mitigation Program (PRIMP) shall be completed prior to ground disturbance ground disturbance associated with grading or construction for the Project. Paleontological monitoring shall be conducted during ground disturbance activities associated with grading or construction for the Project and in accordance with the PRIMP. <u>Monitoring</u> GSD shall ensure submittal of the PRIMP prior to ground disturbance associated with grading or construction for the Project and that all contractors associated with ground disturbance associated with grading or construction for the Project will be provided a copy and understand the importance of following the PRIMP. GSD shall ensure all contractors associated with ground disturbance associated with grading or construction for the Project communicate the construction schedule to the paleontological principal investigator, or their representative, to								

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const	During Const	Post-Const		Initials	Date	
	support implementation of paleontological monitoring in accordance with the PRIMP.								
TRIBAL CULTURAL RESOURCES									
MM-TCR-1	**Workers Environmental Awareness Program.** All interested tribes that requested and participated in formal AB 52 consultation shall be notified by the GSD of the time and location of the WEAP training no later than 72 hours prior to its scheduled occurrence. GSD shall provide all interested consulting tribes access and opportunity to participate in the WEAP training.	District to notify all interested tribes that requested and participated in formal AB 52 consultation of the time and location of the WEAP training, no later than 72 hours prior to its scheduled occurrence; contractor to ensure Native American representative is present for WEAP training.	X	X		Goleta Sanitary District/ Contractor			
MM-TCR-2	**Retention of a Native American Monitor.** Prior to any ground-disturbance activities, GSD shall contact any interested tribes with notification of the commencement of ground-disturbing activities, including archaeological excavations. The applicant shall make arrangements with the interested tribe(s) to enter into a Native American Monitoring Agreement with the intent of securing a total of one Native American monitor to be present during initial ground disturbance occurring from 1 foot above native soils and below. Initial ground disturbance is defined as initial construction-related earthmoving of sediments from their place of deposition; this includes archaeological investigations. As it pertains to cultural resource (archaeological or Native American) monitoring, this definition excludes movement of sediments after they have been initially disturbed or displaced by current Project-related construction. The need for cultural resource monitoring (archaeological and Native American) will be determined by a qualified archaeological principal investigator meeting the Secretary of the Interior's Professional Qualification Standards for a Principal Investigator, in	District to notify all interested tribes of the start of ground-disturbing activities, including archaeology excavations, and to enter Native American Monitoring Agreement; Contractor to Ensure archaeology monitors are on-site during all ground-disturbing activities.	X	X		Goleta Sanitary District/ Contractor			

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const	During Const	Post-Const		Initials	Date	
	consultation with interested tribes who shall oversee and adjust monitoring efforts as needed (increase, decrease, or discontinue monitoring frequency), based on the observed potential for construction activities to encounter cultural deposits or material. More than one monitor may be required if multiple areas within the Project site are simultaneously exposed to initial ground disturbance, as previously defined in these mitigation measures, causing monitoring to be hindered by the distance of the simultaneous activities. The need for an additional monitor shall be determined by the qualified archaeological principal investigator meeting the Secretary of the Interior's Professional Qualification Standards in consultation with interested tribes. The Native American Monitoring Agreement(s) shall include, but not be limited to, outlining provisions and requirements for establishing on-site Native American monitoring for professional tribal monitors during initial ground disturbance, as defined above. If multiple interested tribes request to be present during initial ground-disturbing activities, each interested tribe will be provided access to the Project site when initial ground-disturbing activities are occurring and with a 48-hour notice. However, one interested tribe at a time will be monetarily compensated for monitoring. If more than one interested tribe would like to be retained for monetary compensation, a schedule will be created to equally share the Native American monitoring duties.								
MM-TCR-3	**Inadvertent Discovery of Tribal Cultural Resources.** In the event that tribal cultural resources (TCRs) (sites, features, or artifacts) are exposed during ground-disturbing activities for the Project, all construction work occurring within 50 feet of the find should immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find, in consultation with interested Tribe(s) as appropriate,	In event of inadvertent discovery of TCRs, work shall stop; Native American representative will be consulted; and (if the discovery is human remains) Coroner will be Immediately contacted.		X		Goleta Sanitary District/ Contractor			

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const	During Const	Post-Const		Initials	Date	
	and determine whether or not additional study is warranted. Depending upon the significance of the find under CEQA (14 CCR 15064.5(f); California PRC Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. If the discovery is Native American in nature, consultation with and/or monitoring by a Tribal representative may be necessary. If a discovery consists of possible human remains, the Santa Barbara County Coroner shall be contacted immediately as well as the qualified archaeological Principal Investigator and GSD. If the Coroner determines that the remains are Native American, the Coroner shall contact the NAHC, who will provide the name and contact information for the MLD. Treatment of the discovery shall be decided in consultation with the MLD provided by the NAHC. Additionally, a Tribal representative shall be retained to monitor all further subsurface disturbance in the area of the find. In the event of the discovery of human remains, work in the area of discovery may only proceed after GSD grants authorization.								
UTILITIES/SERVICE SYSTEMS									
MM-UTIL-1	**Solid Waste Diversion from Landfill.** GSD will ensure that the construction contractor does not dispose of greater than 350 tons of solid waste in any California landfill. The contractor may exceed 350 tons only if they receive written permission from a landfill (for example, if the landfill want soil for barrier layers, or if they complete a solid waste mitigation plan that is approved by the Santa Barbara County Public Works Department (or another regional agency, if authorized to do so). Since this is a requirement placed on the construction contractor, GSD will enforce this through a contract mechanism or other legally binding requirement.	District will enforce through a contract mechanism or other legally binding requirement		X		Goleta Sanitary District/ Contractor			

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const	During Const	Post-Const		Initials	Date	
	Requirements and Timing Construction contractor shall not dispose of greater than 350 tons of solid waste in any California landfill throughout construction duration. Written permission from a landfill is required for exceedances greater than 350 tons. Monitoring No monitoring requirements.								