Menifee and Watson Road II Booster Pump Station and Matthews Transmission Pipeline Project

Initial Study/Mitigated Negative Declaration

Lead Agency:
Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92570

May 2026

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Initial Study/Mitigated Negative Declaration

Prepared for:
Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92570

Prepared By:
LSA Associates, Inc.
6001 Shellmound Street, Suite 425
Emeryville, CA 94608

May 2026

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LIST OF ABBREVIATIONS AND ACRONYMS

20.1-24 R	20.1-24 Dwelling Units/Acre Residential
AAQS	ambient air quality standards
AB	Assembly Bill
ACM	asbestos-containing materials
ADA	Americans with Disabilities Act
ADT	average daily traffic
AFY	acre-feet per year
APN	Assessor's Parcel Number
AQMP	Air Quality Management Plan
ATP	Active Transportation Plan
Basin	South Coast Air Basin
Basin Plan	Water Quality Control Plan
bgs	below ground surface
BMPs	best management practices
BP	Business Park
BPS	booster pump station
BRA	Biological Resources Assessment
BTU	British thermal units
BUOW	burrowing owl
CA MUTCD	California Manual on Uniform Traffic Control Devices
CAA	Clean Air Act (federal)
CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire Protection
CAL/OSHA	California Division of Occupational Safety and Health
CalEEMod	California Emissions Estimator Model version 2022.1
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
California Register	California Register of Historical Resources
CalRecycle	California Department of Resources Recycling and Recovery

Caltrans	California Department of Transportation
CARB	California Air Resources Board
CATTCH	California Temporary Traffic Control Handbook
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CCTV	closed-circuit television
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CGP	Construction General Permit
CGS	California Geological Survey
CH_4	methane
CIP	Capital Improvement Project
City	City of Menifee
CMU	concrete masonry unit
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
County	County of Riverside
CWA	Clean Water Act
dB	decibel(s)
dBA	A-weighted decibel(s)
DCV	Design Capture Volume
DOC	California Department of Conservation
DOSH	California Division of Occupational Safety and Health
DTSC	California Department of Toxic Substances Control
du/ac	dwelling units/acre
DWR	California Department of Water Resources

EFZ	Earthquake Fault Zone
EIR	Environmental Impact Report
EMWD	Eastern Municipal Water District
EO	Executive Order
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
FEMA	Federal Emergency Management Agency
FESA	federal Endangered Species Act
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration
FTA Manual	*Federal Transit Administration Transit Noise and Vibration Impact Assessment Manual*
Geotechnical Exploration	*Matthews Booster Pumping Station and Pipeline Project Geotechnical Report*
Geotechnical Update	*Geotechnical Update*
GHG	greenhouse gas
GMZ	Groundwater Management Zone
Groundwater Discharge Permit	*Waste Discharge Requirements (WDR) Permit for Discharges to Surface Waters That Pose an Insignificant (De Minimus) Threat to Water Quality*
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GWh	gigawatt-hours
GWP	Global Warming Potential
Handbook	*Design Handbook for Low Impact Development Best Management Practices*
HCP	Habitat Conservation Plan
HDR	High Density Residential
HVAC	heating, ventilation, and air conditioning
I-	Interstate
in/sec	inches per second
IS/MND	Initial Study/Mitigated Negative Declaration
kVa	kilovolt-ampere

kW	kilowatt(s)
LACM	Natural History Museum of Los Angeles County
LBP	lead based paint
lbs/day	pounds per day
L_{dn}	day-night average level
L_{eq}	equivalent continuous sound level
LID	Low Impact Development
LOS	level of service
LRA	Local Responsibility Area
LST	localized significance threshold
LUST	leaking underground storage tank
Ma	million years ago
MBTA	Migratory Bird Treaty Act
mg/cm^2	milligram(s) per square centimeter
MLA	master license agreement
MLD	Most Likely Descendant
MRZ	Mineral Resource Zone
MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan
MT	metric tons
MUTCD	Manual of Uniform Traffic Control Devices
MWD	Metropolitan Water District of Southern California
N_2O	nitrous oxide
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
National Register	National Register of Historic Places
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
O_3	ozone
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration

Paleontological Analysis	*Paleontological Analysis of the Matthews Booster Pump Station Project, Menifee, Riverside County, California*
PCBs	polychlorinated biphenyls
PCE	passenger car equivalent
PM_{10}	particulate matter less than 10 microns in size
$PM_{2.5}$	particulate matter less than 2.5 microns in size
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
PPV	peak particle velocity
PRC	California Public Resources Code
PRIMP	Paleontological Resources Impact Mitigation Program
Proposed Project	Menifee and Watson Road II Booster Pump Station and Pipeline Project
PSE	Participating Special Entity
PZ	pressure zone
RCFD	Riverside County Fire Department
RCTC	Riverside County Transportation Commission
Regional Supplement	*Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*
RMS	root-mean-square
RPS	Renewable Portfolio Standards
RTA	Riverside Transit Agency
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
RWRF	regional water reclamation facility
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCRRA	Southern California Regional Rail Authority
SGMA	Sustainable Groundwater Management Act
SKR	Stephens' kangaroo rat
SMARA	Surface Mining and Reclamation Act
SO_2	sulfur dioxide

SoCalGas	Southern California Gas Company
SO_X	sulfur oxides
SR-	State Route
SRA	Source Receptor Area
SVP	Society of Vertebrate Paleontology
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminants
TCL	Tribal Cultural Landscape
TCP	Traffic Control Plan or Tribal Cultural Place
TMDL	Total Maximum Daily Load
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	vehicle miles traveled
VOCs	volatile organic compounds
VWRD	Valley Wide Recreation District
WDR	Waste Discharge Requirements
Working Group	GHG CEQA Significance Threshold Working Group
WQMP	Water Quality Management Plan

1.0 PROJECT INFORMATION

1. Project Title:

Menifee and Watson Road II Booster Pump Station (BPS) and Mathews Transmission Pipeline Project (Proposed Project)

2. Lead Agency Name and Address:

Eastern Municipal Water District (EMWD)
2270 Trumble Road
P.O. Box 8300
Perris, California 92572-8300

3. Contact Person and Phone Number:

Joseph Broadhead, Principal Water Resource Specialist
(951) 928-3777, ext. 4545

4. Project Location:

The Project site is located within the city of Menifee, Riverside County. The proposed new booster pump station (BPS) site is located on approximately 1.96 acres west of Antelope Road, on the north side of Watson Road (Assessor's Parcel Numbers [APNs] 329-050-049 and 329-050-048). The existing Romoland BPS, which would be decommissioned, is located on a 0.17-acre parcel at the intersection of Ethanac Road and Antelope Road (APN 329-141-005). The proposed pipelines would be constructed within approximately 1.85 miles of public roadway within Antelope Road and Watson Road (approximately 0.90 acre).

5. Project Sponsor's Name and Address:

Eastern Municipal Water District
2270 Trumble Road
P.O. Box 8300
Perris, California 92572-8300

6. General Plan Designation:

The City of Menifee's (City) General Plan Land Use Element designates the new BPS site as 20.1-24 dwelling units/acre (du/ac) Residential (20.1-24 R) and the existing Romoland BPS site is designated as Business Park (BP).[1] The pipeline alignment is largely located within existing public right-of-way, which does not have a land use designation.

[1] City of Menifee. 2023a. General Plan - Land Use Map. March 23. Website: https://cityofmenifee.us/DocumentCenter/View/11043/General-Plan--Land-Use-Map---March-2023 (accessed November 13, 2025).

7. Zoning:

The City's Zoning Ordinance designates the new BPS site as High Density Residential (HDR) and the existing Romoland BPS site as Business Park/Light Industrial (BP).[2] The pipeline alignment is largely located within existing public right-of-way, which is not zoned.

8. Description of Project :

The Proposed Project consists of construction of two new BPSs, the "Watson Road II BPS" and "Menifee BPS," within a new building on an existing vacant site (combined BPS site); decommissioning/removal of the existing Romoland BPS; and construction of approximately 1.85 miles of transmission pipeline in Menifee. A more detailed description of the Proposed Project is provided in Section 2.0, Project Description.

9. Surrounding Land Uses and Setting:

Light industrial land uses are located west and south of the existing Romoland BPS site and southeast of the Antelope/Watson Road intersection. Rural and single-family residential uses are scattered about the project vicinity west of Antelope Road, and north and south of Watson Road. Commercial retail businesses are located to the east and west of Antelope Road along State Route (SR-)74. Romoland Elementary School is located on Antelope Road, just north of SR-74. A more detailed description of the surrounding land uses and setting is provided in Section 2.0, Project Description.

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

Please see Section 2.5, Discretionary Approvals

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

Per Assembly Bill (AB) 52, EMWD initiated consultation with Native American Tribes that are traditionally and culturally affiliated with the geographic area of the Proposed Project to identify resources of cultural or spiritual value to affected tribes. On October 28, 2025, EMWD sent consultation notification letters to Native American Tribal representatives on the district's Master List pursuant to the requirements of AB 52 pertaining to government-to-government consultation. The Pechanga Band of Indians (Pechanga) and Soboba Band of Luiseño Indians requested consultation under AB 52. Details regarding the Tribal consultation process are provided in Section 4.18, Tribal Cultural Resources.

[2] City of Menifee. 2023b. Zoning Map. March 23. Website: https://www.cityofmenifee.us/ DocumentCenter/ View/11042/Zoning-Map---March-2023?bidId= (accessed November 13, 2025).

2.0 PROJECT DESCRIPTION

The following describes the Proposed Project that is the subject of this Initial Study/Mitigated Negative Declaration (IS/MND) prepared pursuant to the California Environmental Quality Act (CEQA). EMWD is both the project proponent and the CEQA lead agency for the Proposed Project.

2.1 PROJECT OVERVIEW

The Proposed Project consists of construction of two new BPSs, "Watson Road II BPS" and "Menifee BPS," within a new building on the combined BPS site; decommissioning/removal of the existing Romoland BPS; and construction of approximately 1.85 miles of transmission pipeline. The new BPSs would be constructed within a new approximately 12,600-square-foot building on a vacant parcel located west of the Antelope Road/Watson Road intersection. Once constructed, the new BPS facility would be fitted with a new 36-inch-diameter pipeline to connect it back to the existing Perris Valley North/South Pressure Zone located near the intersection of Antelope Road and Ethanac Road. The new 36-inch pipeline would serve both BPSs. A new 30-inch-diameter transmission main would be constructed within Watson Road to connect the new Watson Road II BPS to the existing Watson BPS located approximately one-third of a mile east of the Watson Road and Menifee Road intersection. In addition, a new, approximately 300-foot-long, 36-inch steel pipeline would be constructed to connect the new BPSs to the Romoland Feeder via the Romoland Feeder pipeline adjacent to the Antelope Road/Watson Road intersection. The new BPSs would utilize this connection when the old station is demolished/abandoned.

When operational, the new BPSs would serve two separate pressure zones, improving water supply reliability and distribution as buildout occurs. The Menifee BPS would provide necessary pumping capacity for EMWD's 1627 Perris Valley Pressure Zone (PZ), while the Watson Road II BPS would provide necessary pumping capacity for the 1720L Longview PZ. The PZs in the project area are shown on **Figure 2-1**. The shared building provides optimal efficiency and resource utilization. Common infrastructure includes suction piping, electrical service facilities, and emergency standby power capabilities.

In accordance with EMWD's 2015 Water Facilities Master Plan Update and updated evaluation included in the January 2022 *Potable Water Distribution System Local Reliability Study,* the proposed Watson Road II BPS has been identified to increase pumping capacity in the 1720L Longview PZ and improve Watson BPS suction-side hydraulics. The proposed Menifee BPS is intended to replace the existing Romoland BPS to enhance the pumping capacity between the Perris Valley North PZ and South PZ and to provide greater operability as the existing Romoland BPS is nearing the end of its useful life. The proposed Menifee BPS would be used to pump in either direction between the 1627 Perris Valley North and 1627 Perris Valley South PZs. The proposed pipeline along Watson Road would provide the necessary conveyance capacity from EMWD's 1627 Perris Valley PZ to the 1720L Longview PZ.

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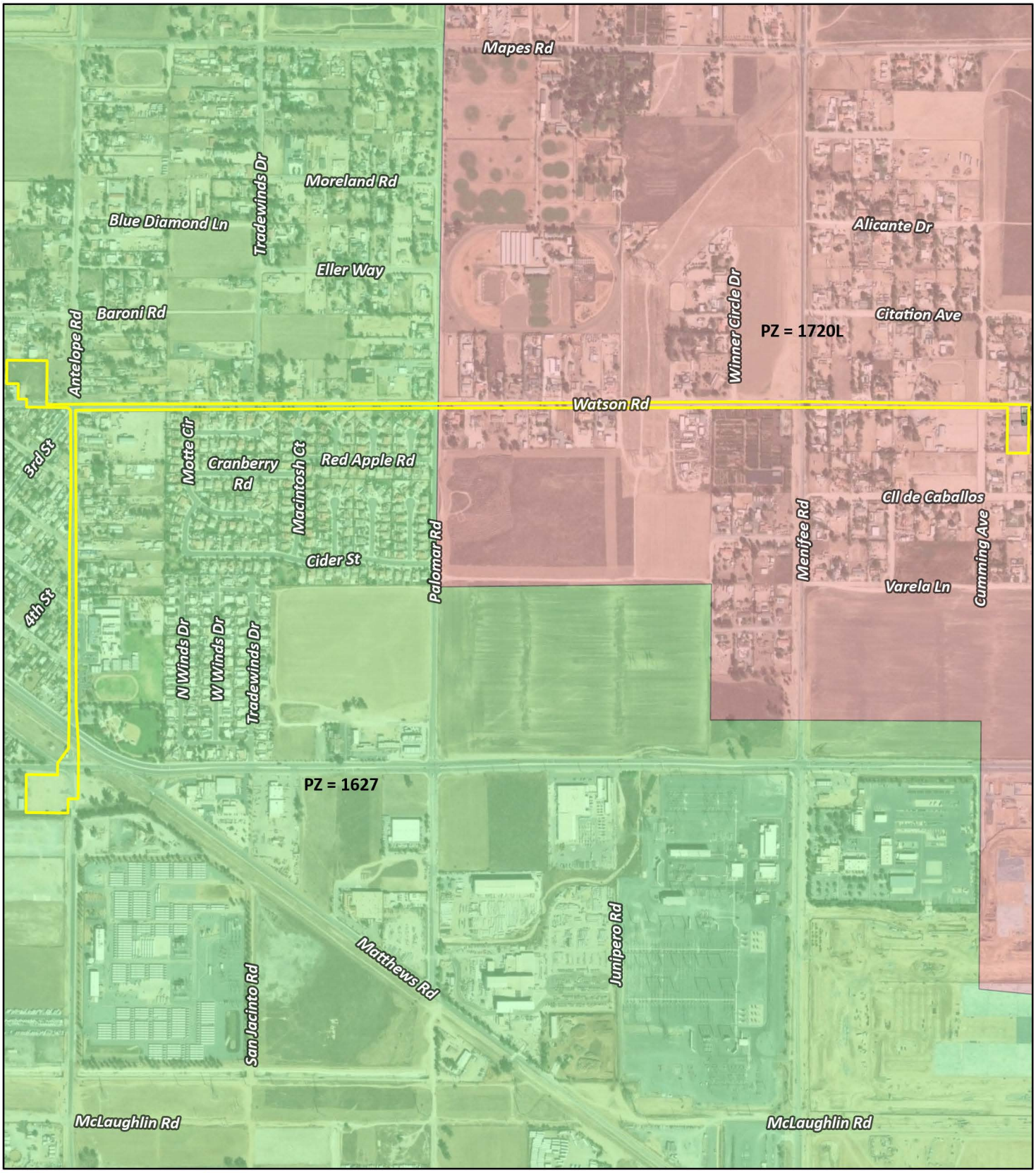

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Project Site

Water Pressure Zones

Longview

Perris Valley

N

0 500 1000

Feet

SOURCE: Maxar Imagery (2025)

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FIGURE 2-1

Menifee and Watson Road II Booster Pump Station and Matthews Transmission Pipeline Project

Pressure Zones in the Project Area

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2.2 PROJECT LOCATION

The Project site is located within Menifee, Riverside County. The new BPS site is located on an approximately 1.96-acre site west of Antelope Road, on the north side of Watson Road (APNs 329-050-049 and 329-050-048). The existing Romoland BPS, which would be decommissioned, is located on a 0.17-acre parcel at the intersection of Ethanac Road and Antelope Road (APN 329-141-005). The proposed pipelines would be constructed within approximately 1.85 miles of public roadway within Antelope Road and Watson Road (approximately 0.90 acre). The regional location is shown on **Figure 2-2,** and the Project site is shown on **Figure 2-3**.

Regional access to the Project site is provided by SR-74 and Interstate (I-)215. SR-74 travels east to west until it intersects with Antelope Road just south of the proposed Watson Road II and Menifee BPS site and turns northwest. I-215 travels north to south and is located west of the Project site.

2.3 PROJECT DETAILS

The Proposed Project includes: (1) construction of the Watson Road II BPS and Menifee BPS within a new building on the combined BPS site, (2) decommissioning and demolition of the existing Romoland BPS, and (3) installation of approximately 1.85 linear miles of pipeline within City roadways. The new BPSs would include an approximately 12,600-square-foot block wall building, piping, electrical/power system, transformer, security lighting, and perimeter block wall. The existing Romoland BPS would remain in operation until the new BPSs are constructed, after which it would be decommissioned and removed.

The proposed pipelines would consist of 30-inch and 36-inch-diameter transmission pipelines within Antelope Road north from the existing Romoland BPS to Watson Road, and within Watson Road from the new BPS to the existing Watson BPS approximately 0.33 mile east of the Watson Road and Menifee Road intersection. These pipelines are hereafter referred to as the "Matthews Transmission Pipeline," as the pipeline originally connected close to Matthews Road. The Matthews Transmission Pipeline would also include a new connection to the existing Romoland Feeder via an approximately 300-foot-long, 36-inch steel pipeline that would connect the new BPSs to the Romoland Feeder pipeline adjacent to the Antelope Road/Watson Road intersection. The new BPSs would utilize this connection when the old station is demolished/abandoned. Within Antelope Road, the 36-inch pipeline would be installed using trenchless methods[3] to avoid disruption of the existing railroad tracks and SR-74 and to reduce community impacts during construction.

Below are detailed descriptions of each Project component.

[3] Jack and bore is a trenchless construction method, involving the use of hydraulic jacks to push pipes through the ground while removing soil to minimize disruption at the ground surface. It requires excavation of entry and exit pits at the beginning and end of pipeline installation to accommodate the equipment and personnel.

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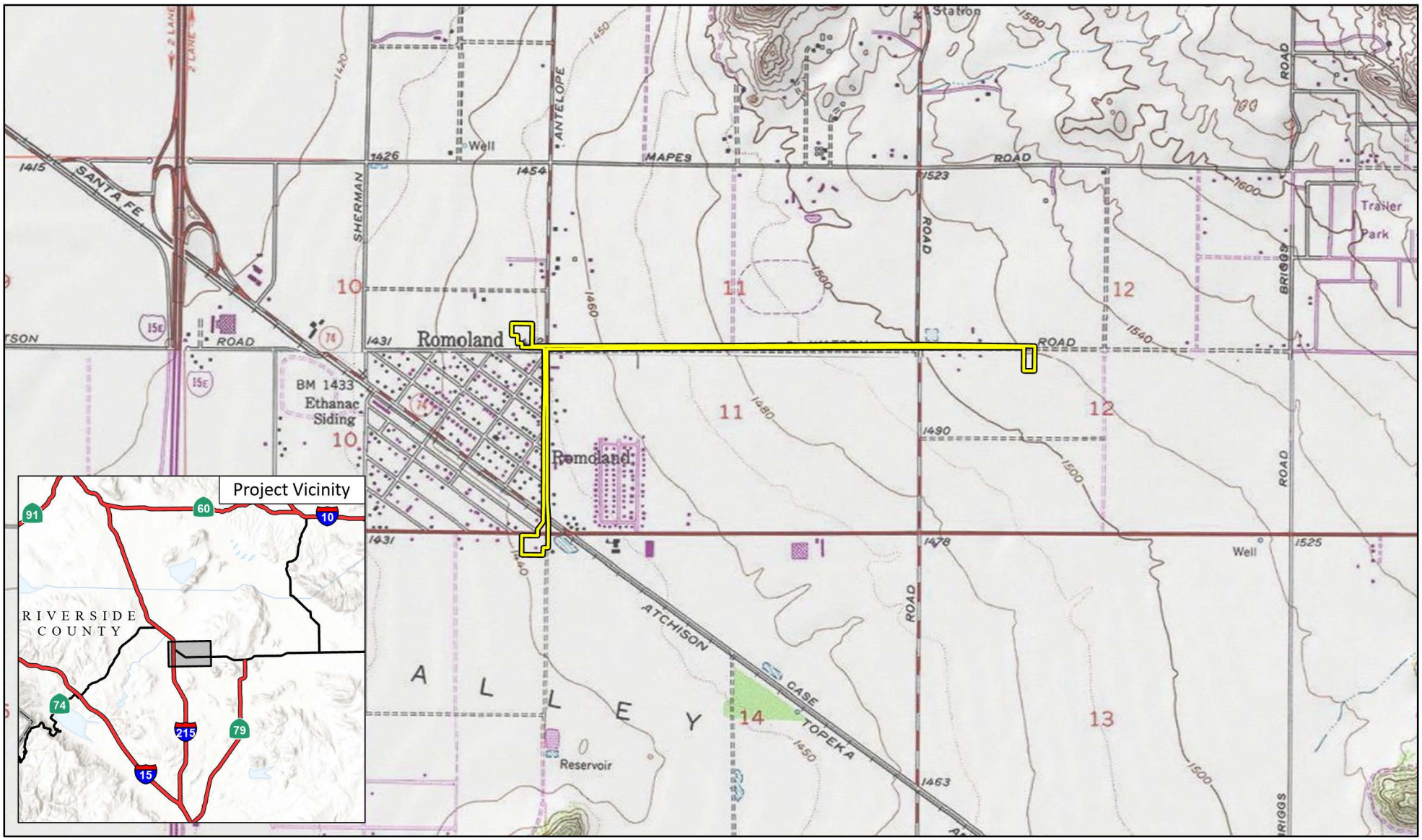

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FIGURE 2-2

0 1000 2000
FEET

Menifee and Watson Road II Booster Pump Station and Matthews Transmission Pipeline Project

Regional Location

SOURCE: USGS 7.5' Quad - *Perris (1979)* and *Romoland (1979)*, CA

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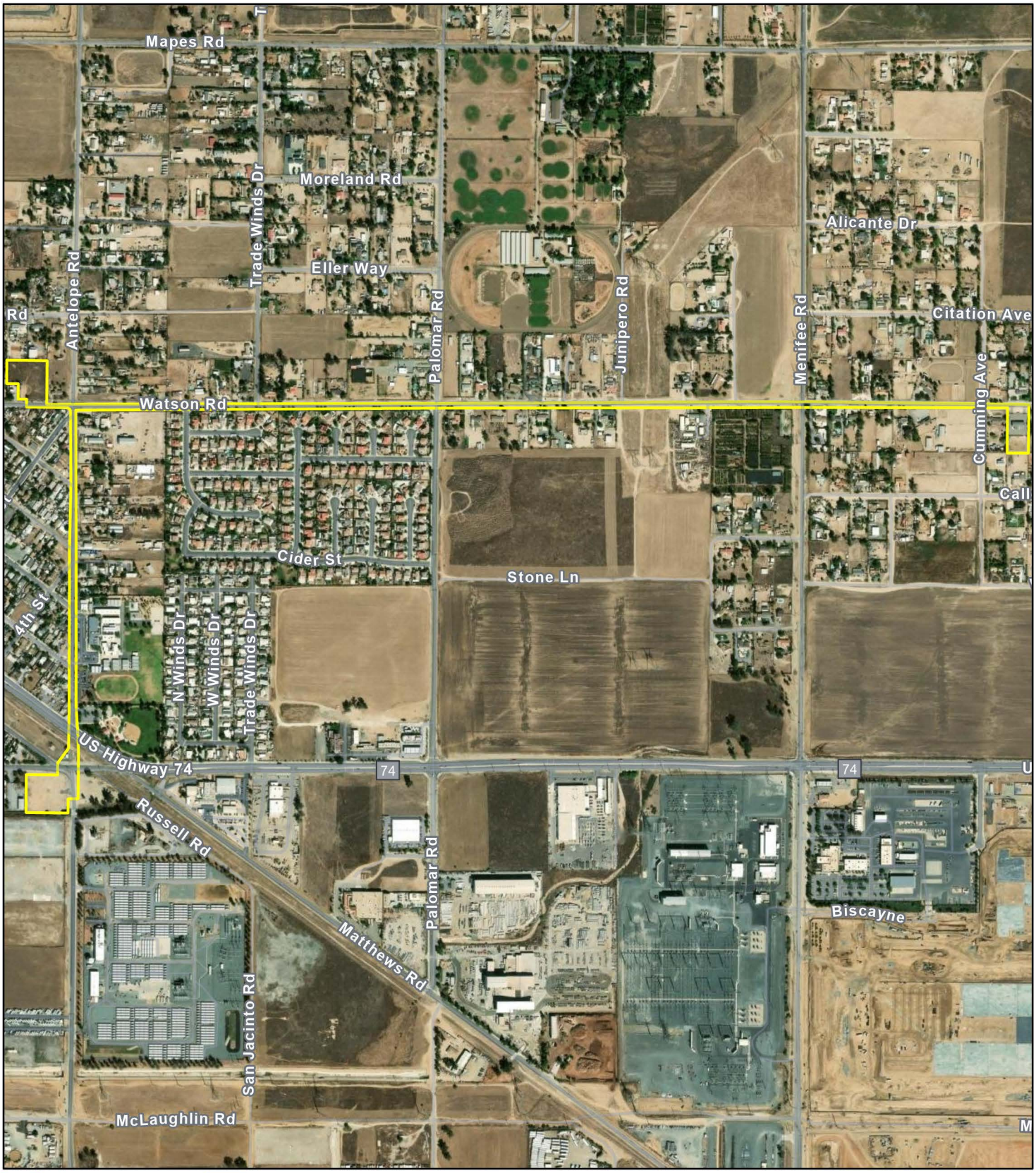

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Project Site

FIGURE 2-3

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Feet

SOURCE: Maxar Imagery (2025)

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Menifee and Watson Road II Booster Pump Station and Matthews Transmission Pipeline Project

Project Site

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2.3.1 Menifee and Watson Road II BPS Site

The new BPS building would be two-story, above-grade structure, with shallow reinforced concrete continuous footings, solid grouted and reinforced concrete masonry unit (CMU) walls, and steel roof framing. The building would measure approximately 180 feet long by 70 feet wide, for a total square footage of approximately 12,600 square feet. The building's height would be approximately 27 feet. The proposed building would consist of two separate pumping rooms, an electrical room, a generator room, a stairwell, and a restroom. The restroom would be designed to accommodate a single occupant and would be compliant with the Americans with Disabilities Act (ADA). The site plan and architectural renderings are shown on **Figures 2-4** and **2-5**, respectively.

The proposed Watson Road II BPS would initially support three pumps (two duty and one standby), with the potential for installation of one additional pump, for a total of four pumps (three duty and one standby). The Menifee BPS would initially support two pumps (one duty and one standby), with the potential installation of one additional pump, for a total of three pumps (two duty and one standby).

In addition to the building, the site would also include a variety of associated equipment, including electrical equipment; piping/valving; a 40-foot-tall antenna tower; heating, ventilation, and air conditioning (HVAC) equipment (e.g., air conditioning, evaporative coolers, exhaust fans/blowers); and site lighting and security. A 1,500-kilowatt (kW) standby, emergency diesel generator would be installed within the proposed building, with the exhaust piped for release outside of the building. Generator exhaust would be passed through a silencer and particulate filter prior to release. An external diesel fuel storage tank would be installed outside the building to provide sufficient fuel storage to meet EMWD's requirement that the emergency generator can run continuously for 24 hours.

Exterior site lighting would be installed at the site via a combination of building-mounted lighting ("wall pack" lights) and pole-mounted site lights. The site lighting levels would be a cutoff design to keep illumination within the property so it does not spill over to the neighboring properties or interfere with drivers on adjacent roadways.

The proposed BPS site would be accessed via two separate driveways directly from Watson Road. Each driveway would have a 25-foot-wide slide gate to allow for ingress and egress of EMWD vehicles. In accordance with EMWD standards, these access driveways would be a minimum of 30 feet in length between the public road sidewalk and the front of the site for vehicle staging prior to site entry. This vehicle staging area would allow vehicles to safely enter the site without impeding or causing hazardous roadway or other situations in the public right-of-way. The design would also ensure the driveway is paved with a minimum of 3-inch asphalt concrete over 5.25 inches of Class II base in conformance with design requirements. The gates would also open parallel to the new concrete masonry unit (CMU) walls.

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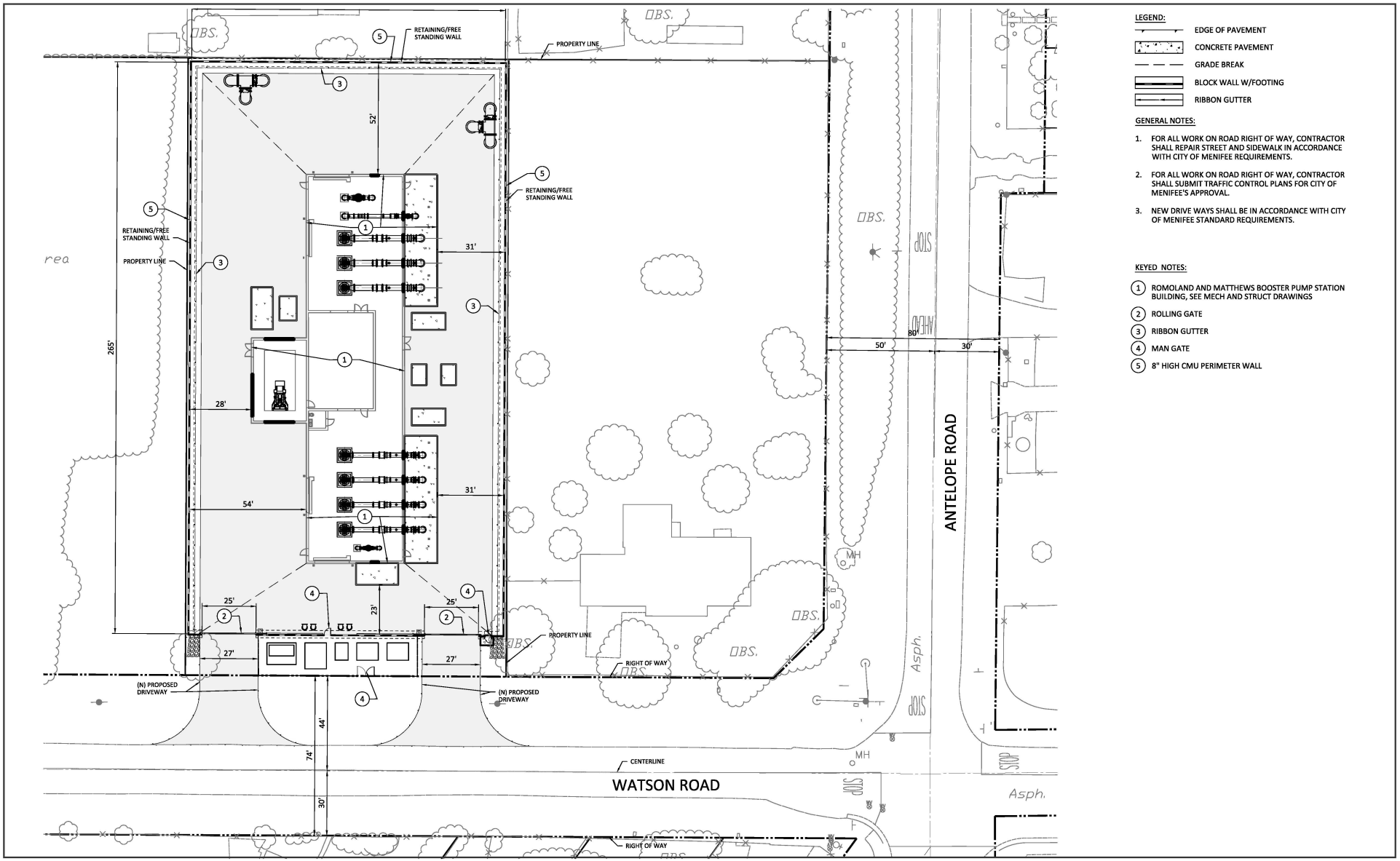

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FIGURE 2-4

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0 30 60

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SOURCE: Lee + Ro

Menifee and Watson Road II Booster Pump Station and Matthews Transmission Pipeline Project

Site Plan

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FIGURE 2-5

Menifee and Watson Road II Booster Pump Station and Matthews Transmission Pipeline Project
Architectural Renderings

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The site would be secured via an approximately 8-foot-high CMU perimeter wall with 8-foot-high automated driveway gates with card readers/sensor loops for secured access. Closed-circuit television (CCTV) security cameras would be located along entrances and target locations desired by EMWD. The Proposed Project also includes landscaping improvements at the site to blend the Proposed Project into its residential setting. Stormwater on the project site would be collected and infiltrated via a drywell[4] and/or installation of gravel patches throughout the site.

Construction would require excavation up to 12 to 15 feet deep and re-compaction for construction of the building foundation, slab, and pump-can structures. Construction would require approximately 2,100 cubic yards of cut material and approximately 1,100 cubic yards of fill material. Approximately 1,000 cubic yards of material would be exported off the Project site for disposal at the nearest landfill or appropriate disposal site. Trenching for new piping would require approximately 2,900 cubic yards of cut material and approximately 2,200 cubic yards of fill material, for a total of approximately 700 cubic yards of material exported off the Project site. Trenches would be backfilled with native soil.

Construction of the proposed BPSs is anticipated to start in late 2026/early 2027 and last approximately 18 to 24 months. Construction activities would typically occur from 8:00 a.m. to 5:00 p.m., Monday through Friday. The Project would begin with trenching and installation of underground utilities. Thereafter, building construction, shutdown and tie-in construction, and decommissioning/ removal of the existing Romoland BPS would occur.

Prior to construction, temporary laydown/staging areas would be identified. As shown on **Figure 2-3**, the contractor may stage at the existing Watson BPS site, the proposed BPS site off Watson Road, or the existing EMWD property at the corner of Ethanac Road and Antelope Road. Construction staging would be confined to existing disturbed areas. Access to the Project site would likely be via SR-74 and I-215. Once construction activities are complete, staging areas would be returned to existing conditions.

During construction, workers would arrive at the site at 7:00 a.m. and leave the site at 5:00 p.m. It is anticipated that Project construction would require a six-person crew per day, on average. The Project is expected to generate up to 24 daily trips: 6 inbound trips in the a.m. peak hour, 6 outbound trips in the p.m. peak hour, and 12 potential midday trips. All construction equipment, including construction worker vehicles, would be staged within designated staging areas for the duration of the construction period. No nighttime work is currently anticipated; however, minimal nighttime and/or weekend work may be needed to connect the new BPSs to existing pipelines along Ethanac and Antelope roads.

The contractor would employ the use of heavy construction machinery, likely including the following: an excavator and/or backhoe, flatbeds, graders, compactors, loaders, skid steers; dump trucks; mixers; lifts; pavers; pick-up trucks; a crane; an air compressor; and a generator. Net soils exported from the site would equal approximately 700 cubic yards. Export of material would generate approximately 60 truck round trips. Over the 18- to 24-month construction period, this would be fewer than 1 truck round trip per day.

[4] A dry well is a buried chamber filled with gravel or containing prefabricated storage units that collect stormwater and allow it to slowly infiltrate into the soil.

Construction of the proposed BPSs and demolition of the existing BPS would require temporary lane closures on Ethanac Road, Jackson Avenue, Antelope Road, and Watson Road. Traffic control measures would be identified and implemented as agreed to by the City of Menifee through its encroachment permit process (see Environmental Commitments [Traffic Control Plan]).

Operation of the Proposed Project would be conducted remotely, with no full-time dedicated staff at the Project site. Similar to existing operation of the existing Romoland BPS, existing EMWD staff may visit the site occasionally for routine maintenance activities. It is anticipated that any daily visit by staff would last for no more than 2 hours, depending on the maintenance required. Because daily trips to the proposed BPS site would replace existing trips to the Romoland BPS, no new vehicle trips are anticipated.

2.3.2 Romoland BPS Site

Following construction of the new BPS site, the existing approximately 560-square-foot Romoland BPS would be decommissioned and removed. Removal would include site excavation to an approximate 8-foot depth for the removal of the BPS building, and associated piping, valving, pumps, engines, engines, HVAC, appurtenances, etc. Existing on-site piping (ranging from 12 inches to 30 inches in diameter) associated with the Romoland BPS would be abandoned in place. With the exception of items to be salvaged back to the District, the debris would be off-hauled to an appropriate disposal facility. Demolition of the existing Romoland BPS is estimated to result in approximately 160 tons of debris for the building structure, pedestals, staircase, and above-grade piping. Soil would be brought to the site to fill in the cavities created by the removal of the below-grade portion of the BPS building to restore the site to a relatively level grade. Demolition of the existing Romoland BPS would require approximately 200 cubic yards of cut material and approximately 240 cubic yards of fill material. As such, approximately 240 cubic yards of fill material would need to be imported to the Project site.

2.3.3 Matthews Transmission Pipeline

The 36-inch-diameter Matthews Transmission Pipeline would connect to the Perris Valley South PZ at the intersection of Antelope Road and Ethanac Road, which is adjacent to the existing Romoland BPS, and would travel within Antelope Road north to Watson Road, then west within Watson Road to the new BPS. The 30-inch-diameter pipeline would extend from the new BPS site eastward and connect to the 1720L PZ near the existing Watson BPS (Station 108+90). The Matthews Transmission Pipeline would also include a new connection to the existing Romoland Feeder via an approximately 300-foot-long 36-inch steel pipeline that would connect the Menifee BPS to the Romoland Feeder pipeline adjacent to the Antelope Road/Watson Road intersection. The Menifee BPS would utilize this connection when the existing Romoland BPS is demolished/abandoned. The proposed pipeline alignment is shown on **Figure 2-6**.

The Matthews Transmission Pipeline would be located within paved and non-paved portions of the public right-of-way. From Station 70+00 to Station 75+00, the proposed 30-inch pipeline would be 3 feet north of the centerline of Watson Road but within an existing 20-foot-wide EMWD easement.

LSA

Project Site
Existing Romoland BPS
Proposed BPSs Site
Jack and Bore Pits
Proposed Pipeline Alignment

Potential Staging Sites
EMWD-owned Parcels
Existing Watson Rd BPS
Proposed BPSs Site

0 250 500
FEET

SOURCE: Google Maps (2024); EMWD (2026)

I:\2025\20252406\GIS\Pro\Matthews Booster Pump Station Project.aprx (Fig 2-6 Proposed Pipeline)
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FIGURE 2-6

Menifee and Watson Road II Booster Pump Station and Matthews Transmission Pipeline Project

Proposed Pipeline

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From approximately Station 10+00 to Station 14+60, the proposed 36-inch pipeline would be installed beneath the existing railroad tracks and SR-74 via trenchless methods to minimize surface disruption. This pipeline segment would be installed within the Riverside County Transportation Commission (RCTC) and California Department of Transportation (Caltrans) right-of-way. EMWD has a master license agreement (MLA) with RCTC for EMWD facilities located within RCTC right-of-way and would need to obtain an MLA amendment to include the transmission pipeline. EMWD would also obtain encroachment permits from Caltrans and the City of Menifee for construction and operation of the pipelines within Caltrans and City right-of-way. In addition, a Right of Entry would be required from the Southern California Regional Rail Authority (SCRRA), which controls the railroad road-of-way in the Project area, for work within the railroad right-of-way.

Construction of the Matthews Transmission Pipeline is anticipated to begin in October 2026 and last approximately 18 months. Construction activities would typically occur from 8:00 a.m. to 5:00 p.m., Monday through Friday, with workers arriving at the site at 7:00 a.m. and leaving the site at 5:00 p.m. Construction activities near Menifee Elementary School would be limited to the summer months to minimize disruption to school activities. Construction of the Matthews pipelines may require a maximum of 2 nights of nighttime construction for the pipeline connection at the existing Watson BPS, just east of Watson Road and Cumming Avenue.

As described above in Section 2.5.1.1, the contractor may stage at the existing Watson Road BPS site, the proposed BPS site off Watson Road, or the existing EMWD property at the corner of Ethanac Road and Antelope Road. Temporary laydown/staging areas for equipment and materials would also likely occur in the paved roadway or along roadway right-of-way. Access to the Project site would likely be via SR-74 and I-215. Once construction activities are complete, staging areas would be returned to existing conditions.

It is anticipated that Project construction would require a five-person crew per day on average. The Project is expected to generate 20 daily trips, including 5 inbound trips in the a.m. peak hour, 5 outbound trips in the p.m. peak hour, and 10 potential midday trips. All construction equipment, including construction worker vehicles, would be staged within the designated staging areas described above for the duration of the construction period.

The proposed pipeline would be installed primarily via open-trench construction. The new pipeline would be fully welded steel installed within the trench. Following installation, the pipe-bedding zone (bottom of trench to 12 inches above the new pipe) would be backfilled with sand in accordance with EMWD specifications. The intermediate zone, from 12 inches above the top of pipeline to paving subgrade, would meet EMWD requirements. Backfill would be compacted to a minimum density of 95 percent. The top elevation of the trench would be graded back to the original grade and pavement restored in kind per City standards. Construction of the 30-inch and 36-inch Matthews pipelines would require a minimum trench width of 5 feet and a maximum trench depth of approximately 10 feet. When construction work is not being performed, trenches within the public right-of-way would be covered with steel plates or backfilled to restore normal traffic flow.

Portions of the proposed transmission pipeline would be installed via trenchless technology (e.g., jack and bore). From approximately Station 10+00 to Station 14+60, the proposed 36-inch pipeline would be installed beneath the existing railroad tracks and SR-74 via jack and bore to minimize surface

disruption. Jack-and-bore installation at this location would require excavation of a boring pit approximately 35 feet long by 12 feet wide (420 square feet) and a receiving pit approximately 12 feet long by 12 feet wide (144 square feet). The proposed boring pits would be located on Antelope Road, just south of the Ethanac Road/Antelope Road intersection; proposed receiving pits would be located on Antelope Road just north of SR-74. Boring depths are anticipated to extend at least 9 feet below ground surface (bgs) and could extend between 12 and 20 feet bgs.

The contractor would employ the use of heavy construction machinery, likely including an excavator and/or backhoe, and a bobtail or larger truck to off-haul spoils. Construction of the transmission pipelines would require approximately 16,280 cubic yards of cut material and 7,250 cubic yards of reused native soils fill. Net soils exported from the site would equal approximately 9,030 cubic yards. These soils would off-hauled to the nearest landfill, which is the Lamb Canyon Landfill located at 16411 Lamb Canyon Road, Beaumont, California. Export of material would generate approximately 600 truck round trips during the construction period.

Construction of the transmission pipelines would require temporary lane closures. One lane would be kept open, with flaggers directing traffic in either direction. Temporary lane closures would be minimized to the active construction areas and move with construction activities. Use of conventional traffic control measures, such as cones, K-rails, signs, and message boards, is anticipated. Additional traffic control around Romoland Elementary School may be required; however, all driveways to the school would remain open at all times.

No blasting would be permitted, as no hard rock excavation is anticipated. In some areas, a jackhammer may be needed if a large boulder or similar obstacle is encountered during excavation.

No groundwater dewatering is anticipated. Potable pipeline dewatering may be needed to connect the new 36-inch-diameter pipeline to the existing Perris Valley South Pressure Zone located within the intersection of Antelope Road and Ethanac Road. Discharge from potable pipeline dewatering would go into the EMWD sewer system consistent with capacity, with remaining water directed to the County of Riverside (County) storm drain. In addition, pipeline installation would require pressure testing and disinfection prior to operation. This process involves filling the new pipeline with chlorinated water for disinfection while using a metering pump to verify the pipeline pressure. Chlorinated water would be dechlorinated prior to discharge.

The connection to the Watson Road BPS would require a shutdown for the new Matthews pipeline connection; however, the shutdown would be of short duration (approximately 24 hours). In addition, the Proposed Project would require shutdowns on the local distribution pipelines at the Ethanac Road/Antelope Road intersection and the existing Romoland Feeder to connect the 36-inch to the Perris Valley South PZ and tie in the connection to the new BPSs, respectively. No other temporary shutdowns would be required for Project construction.

2.4 STANDARD CONSTRUCTION PRACTICES

The following measures are EMWD standard construction practices to be implemented as part of the Proposed Project:

- Groundwater encountered during construction would be discharged to land or storm drains in accordance with the Santa Ana RWQCB's Groundwater Discharge Permit or discharged to EMWD's sewer for treatment and reuse. If groundwater quality does not meet the permitted discharge requirements for the storm drain, it would be discharged to the sanitary sewer for treatment at EMWD's wastewater treatment plant or would be temporarily stored (on site or at one of the identified staging areas) until it could be properly disposed of in the sewer or at another permitted disposal site.

- A Traffic Control Plan (TCP) would be approved for all construction work within public roadways. The TCP would be prepared in accordance with United States Department of Transportation (USDOT) *Manual of Uniform Traffic Control Devices,* the Caltrans *Manual of Uniform Traffic Control Devices,* and permit requirements of the City of Menifee. Conventional traffic control measures used for a given project could include typical traffic control devices such as traffic cones, K-rails, signs, message boards, flaggers (as needed), and related devices.

- Construction would comply with South Coast Air Quality Management District (SCAQMD) Rule 403 Fugitive Dust Control requirements.

- Specifications would require the contractor to prepare a Stormwater Pollution Prevention Plan (SWPPP). Construction would implement best management practices (BMPs) to control water quality of stormwater discharges, according to the SWPPP, such as site management "housekeeping," erosion control, sediment control, trash control, and wind erosion control. BMPs would also include placing drip pans under stationary equipment, using tarps to cover stockpiled soil, and avoiding storing equipment and materials within 50 feet of waterways as appropriate for the site and construction activities.

- The design and construction of facilities would be based on a geotechnical investigation to minimize geologic risk. Construction would be required to adhere to the recommendations included in the Project specific Geotechnical Investigation.

2.5 REQUIRED PERMITS AND APPROVALS

This IS/MND is intended to serve as the CEQA document for all actions associated with the Proposed Project. In addition, this IS/MND is the reference document for the formulation and implementation of a Mitigation Monitoring and Reporting Program for the Proposed Project.

The Proposed Project may require approvals, permits, or authorization from other agencies, classified as "Responsible Agencies" under CEQA. According to Section 15381 of the *State CEQA Guidelines*, a Responsible Agency is defined as a public agency other than the Lead Agency that will have discretionary approval power over the Proposed Project or some component of the Project, including mitigation. Section 15379 of the CEQA Guidelines defines a "public agency" as "…any state agency, board, or commission and any local or regional agency…" It goes on to state that the term public agency "…does not include agencies of the federal government." Permitting/Responsible Agencies include, but are not limited to, the agencies identified in **Table 2.A**, Probable Future Actions by Responsible Agencies. No federal approvals are needed for the Proposed Project.

Table 2.A: Required Permits and Approvals

Permitting/Responsible Agency	Action
State Water Resources Control Board	● National Pollutant Discharge Elimination System (NPDES) Construction General Permit.
City of Menifee	● Encroachment Permit ● Haul Route
Regional Water Quality Control Board	● California Department of Water Resources Permit for Groundwater Discharges
California Division of Occupational Safety and Health (CAL/OSHA)	● Project Permit ● Tunneling Classification
South Coast Air Quality Management District (SCAQMD)	● Permit to Construct – Emergency Generator ● Permit to Operate – Emergency Generator
California Department of Transportation	● Encroachment Permit
Riverside County Flood Control and Water Conservation District (discharge to stormwater)	● Encroachment Permit
MetroLink/Southern California Regional Rail Authority (SCRRA)	● Right of Entry

Source: LSA (2025).

3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact" or "Less Than Significant with Mitigation Incorporated" as indicated by the checklist in Section 3.0.

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

3.1 DETERMINATION

On the basis of this initial evaluation:

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

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

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

☐ I find that the Proposed Project MAY have a "Potentially Significant Impact" or "Potentially Significant Unless Mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the Proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Proposed Project, nothing further is required.

Joe Broadhead
Signature

5/29/26
Date

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4.0 CEQA ENVIRONMENTAL CHECKLIST

4.1 AESTHETICS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code 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? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

a. Would the project have a substantial effect on a scenic vista?

A scenic vista is a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. Aesthetic components of a scenic vista generally include: (1) scenic quality; (2) sensitivity level; and (3) view access. The Proposed Project is located in an area characterized by urban development. Light industrial land uses are located west and south of the existing Romoland BPS site and southeast of the Antelope/Watson Road intersection. Rural and single-family residential uses are scattered about the Project vicinity west of Antelope Road, and north and south of Watson Road. Commercial retail businesses are located to the east and west of Antelope Road along SR-74. Romoland Elementary School and Eller Park are located to the east of Antelope Road, south of Watson Road. A public utility corridor also runs through Watson Road from the north between Menifee Road and Junipero Road.

Scenic features in Menifee include gently sloping alluvial fans, rugged mountains and steep slopes, mountain peaks and ridges, rounded hills with boulder outcrops, farmland, and open space. Many of the scenic vistas are outside the city and include the San Jacinto Mountains to the northeast and east, the San Bernardino Mountains to the north, the San Gabriel Mountains to the northwest, and the Santa Ana Mountains to the west and southwest. As discussed in the Community Design Element of the City's General Plan, corridors play an important role in the city by providing valuable opportunities to reinforce Menifee's community identity through streetscape design and the preservation of scenic resources. As such, the City has designated a number of roadways as Enhances Landscape Corridors.[5]

[5] City of Menifee. n.d.-a. *City of Menifee General Plan, Community Design Element.* Website: https://www.cityofmenifee.us/882/Community-Design-Element (accessed November 12, 2025).

In the vicinity of the Project site, Ethanac Road, SR-74 east of Antelope Road, and Menifee Road are designated as Enhanced Landscape Corridors. In addition, the City's General Plan designates SR-74, Menifee Boulevard north of McCall Boulevard, McCall Boulevard between I-215 and Menifee Road, and I-215 south of McCall Boulevard as Scenic Corridors.[6] The Project area has a relatively flat topography and does not provide significant views of the San Jacinto Mountains, San Bernardino Mountains, San Gabriel Mountains, or Santa Ana Mountains as open and direct views are mostly obstructed by intervening topography, trees, and existing development within the city.

The Proposed Project includes: (1) construction of the Watson Road II BPS and Menifee BPS within a new building on the combined BPS site, (2) decommissioning and removal of the existing Romoland BPS, and (3) pipeline work within City roadways. During construction of the Project, activities such as trucks hauling materials and machinery would be temporarily visible to some viewers along local roadways and from adjacent residential uses, and construction equipment and materials would be staged at the existing Watson BPS site, at the proposed BPS site off Watson, at the existing EMWD property at the corner of Ethanac Road and Antelope Road, and in the paved roadway or along roadway right-of-way. However, the construction period would be temporary. Therefore, the presence of construction equipment would result in minor short-term changes in the views from public vantage points and impacts on scenic vistas would be less than significant.

The two new BPSs would be constructed within one building on an approximately 1.96-acre site west of Antelope Road, on the north side of Watson Road. The proposed combined BPS building would be a two-story, above-grade structure, with shallow reinforced concrete continuous footings, solid grouted and reinforced CMU walls, and steel roof framing. The building would measure approximately 180 feet long by 70 feet wide, for a total square footage of approximately 12,600 square feet. The building's height would be approximately 27 feet. In addition to the proposed building, the site would also include a variety of associated equipment, including electrical equipment, piping/valving, 40-foot-tall antenna tower, HVAC equipment (air conditioning, evaporative coolers, exhaust fans/blowers), and site lighting and security.

Upon completion, the proposed pipelines would be located underground and out of view. The only aboveground facilities associated with the Proposed Project would include the proposed 27-foot-tall BPS building surrounded by an 8-foot CMU wall and the 40-foot-tall antenna tower. These facilities would be visible from adjacent public roadways, including Watson Avenue and Antelope Road. With the exception of the antenna, proposed structures would be generally low level and would not block, impair, or substantially affect views on a permanent basis. In addition, the proposed structures would be similar in height, or smaller, to existing buildings in the surrounding area, which range in height from one to three stories (approximately 15 to 45 feet in height). The proposed 27-foot-tall BPS building would also be within the allowable height limit of 50 feet established for the new BPS site's High Density Residential (HDR) zoning designation. The antenna tower would create a new linear element within the landscape, extending vertically approximately 40 feet; however, due to its slender profile, it would not block, impair, or substantially affect scenic views. Overall, proposed improvements would occur on the flat lands and would not affect surrounding hillsides or significantly

[6] City of Menifee. 2013. *City of Menifee General Plan, Community Design Element, Exhibit CD-2: Enhanced Landscape Corridors and Scenic Corridors.* Website: https://www.cityofmenifee.us/DocumentCenter/View/1061/Exhibit_CD-2_Corridors_HD0913?bidId= (accessed November 12, 2025).

block views of such hillsides from publicly accessible vantage points. Therefore, implementation of the Proposed Project would not result in a substantial adverse effect on a scenic vista. This impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Caltrans administers the State Scenic Highway Program, which provides guidance to local government agencies, community organizations, and citizens on the process for officially designating a California State Scenic Highway. The nearest officially designated State scenic highway is SR-74 between the western border of the San Bernardino National Forest and SR-111 in Palm Desert.[7] This roadway segment is approximately 14.5 miles east of the Project site. Due to the distance and the presence of intervening land uses, the Project site is not visible from the portion of SR-74 that has been officially designated as a State scenic highway.

SR-74 west of the western border of the San Bernardino National Forest is considered eligible for designation as a State scenic highway.[8] The proposed pipeline would be installed via jack and bore beneath SR-74 and, therefore, would have no visual impact on this eligible State scenic highway. As such, implementation of the Proposed Project would not result in removal of or damage to scenic resources. Therefore, implementation of the Proposed Project would not damage scenic resources within a State or locally designated scenic roadway and **no impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

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

The Proposed Project is located in an urbanized area. Existing roadways and adjacent development visually dominate the character of the immediate Project area. The Project site is visible from surrounding public sites, including local roadways and public facilities (e.g., Romoland Elementary School and Eller Park).

As previously discussed, construction activities associated with the Proposed Project would be visible from public roadways and adjacent development. However, all temporary construction-related visual

[7] California Department of Transportation (Caltrans). n.d. *California State Scenic Highway System Map.* Website: https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa (accessed November 12, 2025).

[8] Ibid.

impacts, such as construction equipment, staging areas, stockpile locations, and construction fencing, would be removed following completion of construction. Therefore, impacts associated with degradation of the existing visual character or quality of the Project site during construction would be less than significant.

The combined BPS site is designated as 20.1-24 dwelling units/acre Residential (20.1-24 R)[9] and is zoned High Density Residential (HDR).[10] The HDR designation is intended for development of multifamily dwellings, including apartments and condominiums with a density range of 20 to 24 du/ac. Public utility facilities are a conditionally permitted use in the HDR district.

The Proposed Project would construct a two-story, 27-foot-tall, 12,600-square-foot structure and a 40-foot-tall antenna on a 1.96-acre site, which complies with the requirements of 3,000-square-foot minimum lot size, 50-foot maximum building height, 60 percent maximum building coverage, and required setbacks as established in Table 9.130.040-1 of the Menifee Municipal Code.[11]

The existing Romoland BPS site is designated as Business Park (BP) and zoned Business Park/Light Industrial (BP). The pipeline alignment is largely located within existing public right-of-way, which does not have a land use or zoning designation. As the existing Romoland BPS would be demolished and the pipelines would be located underground and out of view, these elements of the Proposed Project would not conflict with applicable zoning and other regulations governing scenic quality.

Therefore, the Proposed Project would not conflict with applicable zoning or other regulations governing scenic quality, and this impact would be **less than significant.**

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

There are no sources of light or glare at the proposed BPS site as it is currently undeveloped. However, the existing Romoland BPS site includes exterior lightning associated with the existing Romoland BPS. The primary sources of light and glare in the Project area include lighting from nearby development, street lighting, and vehicle lighting on adjacent roadways. No street lights currently exist along Antelope Road; however, street lights exist along Watson Road and SR-74.

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9 City of Menifee. 2023a. General Plan - Land Use Map. March 23. Website: https://cityofmenifee.us/DocumentCenter/View/11043/General-Plan--Land-Use-Map---March-2023 (accessed November 13, 2025).

10 City of Menifee. 2023b. Zoning Map. March 23. Website: https://www.cityofmenifee.us/DocumentCenter/View/11042/Zoning-Map---March-2023?bidId= (accessed November 13, 2025).

11 City of Menifee. n.d. Menifee Development Code, Title 9: Planning and Zoning, Article 3: Zones, Chapter 9.120: Residential Zones, Section 9.120.040 Development Standards, Table 9.130.040-1. Website: https://online.encodeplus.com/regs/menifee-ca/doc-viewer.aspx?secid=1333&keywords=high%27s%2Chighs%2Chighs%27%2Chigh%2Cdensities%2Cdensities%27%2Cdensity%27s%2Cdensity%2Cresidential#secid-1335 (accessed March 2026).

As described in Section 2.5.1, Project Construction, no nighttime work for construction of the proposed BPS is currently anticipated; however, minimal nighttime and/or weekend work may be needed to connect the new Menifee BPS to existing pipelines along Ethanac and Antelope roads. In addition, construction of the Matthews pipelines may require a maximum of 2 nights of nighttime construction for the pipeline connection at existing Watson BPS, just east of Watson Road and Cumming Avenue. All temporary construction-related sources of light or glare (i.e., construction equipment headlights/safety lights) would cease following completion of construction. Given the limited duration of nighttime work anticipated, impacts associated with construction-related light and glare would be **less than significant**.

As part of the Proposed Project, exterior site lighting would be installed at the BPS site via a combination of building-mounted lighting ("wall pack" lights) and pole-mounted site lights. No lighting would be associated with the proposed pipeline. The site lighting levels would be a cutoff design to keep illumination within the property and not spill over to the neighboring properties or interfere with drivers on adjacent roadways. The lighting on the BPS site would be consistent with the requirements of the City of Menifee Municipal Code Chapter 6.01 (Dark Sky; Light Pollution), which require the use of LEDs that are properly shielded.[12] Impacts would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

[12] City of Menifee. n.d.-b. *City of Menifee Municipal Code, Chapter 6.01.040 Requirement for Lamp Source and Shielding*. Website: https://codelibrary.amlegal.com/codes/menifee/latest/menifee_ca/0-0-0-1688#JD_6.01.020 (accessed December 28, 2023).

4.2 AGRICULTURE AND FORESTRY RESOURCES

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

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 non-agricultural 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?	☐	☐	☐	☒

a. Would the project 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?

The DOC's Farmland Mapping and Monitoring Program (FMMP) was accessed to determine if the proposed BPSs site and pipeline alignment are designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (collectively known as "Important Farmland"). According to the FMMP, the Project site is designated as Urban and Built-Up Land and Other Land.[13] As such, development of the Proposed Project would not convert Important Farmland (Prime Farmland,

[13] California Department of Conservation (DOC). n.d. *California Important Farmland Mapper.* Website: https://maps.conservation.ca.gov/DLRP/CIFF/ (accessed November 13, 2025).

Unique Farmland, or Farmland of Statewide Importance) to non-agricultural use. **No impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

The City's General Plan Land Use Element designates the combined BPS site as 20.1-24 R, while the zoning designation is HDR. The existing Romoland BPS site is designated as BP and zoned BP. The pipeline alignment is largely located within existing public right-of-way, which does not have a land use or zoning designation.

Neither the 20.1-24 R or BP General Plan land use designation nor the HDR or BP zoning district provide for agricultural activities. Therefore, implementation of the Proposed Project would not conflict with existing zoning for agricultural use.

The California Land Conservation Act of 1965 (commonly known as the Williamson Act) is a statutory program that offers property tax relief to owners of agricultural and open-space land in exchange for a contract restricting the use of the land to agricultural and compatible open-space purposes for a minimum 10-year term. A Williamson Act contract signifies that the subject property is under an enforceable agricultural/open-space preservation restriction, limiting development and non-agricultural conversion. As previously discussed, the Project site and surrounding area do not contain any agricultural uses, and none of the land within the Project site is under a Williamson Act contract.[14] Therefore, implementation of the Proposed Project would not conflict with a Williamson Act contract. **No impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

c. Would the project 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))?

As previously discussed, the zoning designations for the combined BPS site and the existing Romoland BPS site are HDR and BP, respectively. The pipeline alignment is largely located within existing public right-of-way, which does not have a land use or zoning designation. Neither of these zoning districts include forest land or timberland.

[14] California Department of Conservation (DOC). n.d. Williams Act Enrollment Finder. Website: https://maps.conservation.ca.gov/dlrp/WilliamsonAct/App/ (accessed March 2026).

The Proposed Project would not be located on forest land or timberland and would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. Further, there is no land zoned for such uses near the Project site, and the City of Menifee has no such zoning designations for parcels within its boundaries.[15] A such, implementation of the Proposed Project would not conflict with existing zoning for, or cause rezoning of forest land, timberland, or timberland zoned Timberland Production. **No impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

d. Would the project result in the loss of forest land or conversion of forestland to non-forest use?

As discussed above (Threshold 4.2.c), the Proposed Project would not be located on forest land or timberland. Therefore, the Proposed Project would not result in the loss of forest land or conversion of forest land to non-forest uses. **No impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

e. Would the project 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?

Refer to Thresholds 4.2.1.a and 4.2.1.c, above. The Proposed Project would not involve any other changes to the existing environment, which due to their location or nature could result in conversion of Farmland to a non-agricultural use, or conversion of forest land to a non-forest use. **No impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

[15] City of Menifee. 2023b. *Zoning Map*. March 23. Website: https://www.cityofmenifee.us/DocumentCenter/View/11042/Zoning-Map---March-2023?bidId= (accessed November 13, 2025).

4.3 AIR QUALITY

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

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

The Project site is located within the South Coast Air Basin (Basin). The SCAQMD is the regional government agency that monitors and regulates air pollution within the Basin.

An Air Quality Management Plan (AQMP) describes air pollution control strategies to be undertaken by a city or county in a region classified as a non-attainment area to meet the requirements of the federal Clean Air Act (CAA). The main purpose of an AQMP is to bring an area into compliance with the requirements of federal and State ambient air quality standards (AAQS). The Basin is in non-attainment for the federal and State standards for ozone (O_3) and particulate matter less than 2.5 microns in size ($PM_{2.5}$). In addition, the Basin is in nonattainment for the particulate matter less than 10 microns in size (PM_{10}) standard. Therefore, the Basin is classified as a non-attainment area and an AQMP is required. The applicable air quality plan is the SCAQMD's adopted 2022 AQMP.[16] The AQMP is based on regional growth projections developed by the Southern California Association of Governments (SCAG).

A consistency determination plays an essential role in local agency project review by linking local planning and unique individual projects to the air quality plans. A consistency determination fulfills the CEQA goal of fully informing local agency decision makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are addressed. Only new or amended General Plan elements, Specific Plans, and significantly unique projects need to undergo a consistency review given that the air quality plan strategy is based on projections from local General Plans.

[16] South Coast Air Quality Management District (SCAQMD). 2022. *2022 Air Quality Management Plan*. Adopted December 2, 2022.

The City's General Plan is consistent with the SCAG Regional Comprehensive Plan Guidelines and the SCAQMD AQMP. Pursuant to the methodology provided in the SCAQMD's *CEQA Air Quality Handbook*, consistency with the Basin's 2022 AQMP is affirmed when a project: (1) would not increase the frequency or severity of an air quality standards violation or cause a new violation, and (2) is consistent with the growth assumptions in the AQMP. Consistency review is presented as follows:

1. The Proposed Project would result in short-term construction and long-term operational pollutant emissions that are all less than the CEQA significance emissions thresholds established by the SCAQMD, as demonstrated in Response 4.3(b), below. Therefore, the Proposed Project would not result in an increase in the frequency or severity of an air quality standards violation or cause a new air quality standards violation.

2. The *CEQA Air Quality Handbook* indicates that consistency with AQMP growth assumptions must be analyzed for new or amended General Plan elements, Specific Plans, and significant projects. Significant projects include airports, electrical generating facilities, petroleum and gas refineries, designation of oil drilling districts, water ports, solid waste disposal sites, and offshore drilling facilities. The Project consists of improvements to existing infrastructure and would not require any amendments to the City's General Plan or City's Zoning Ordinance.

Based on the consistency analysis presented above, the Proposed Project would not conflict with or obstruct implementation of the applicable air quality plan. Impacts would be **less than significant.**

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

b. Would the project 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?

The CAA and the California Clean Air Act (CCAA) mandate the control and reduction of specific air pollutants. Under these acts, the United States Environmental Protection Agency (USEPA) and the CARB have established AAQS for specific "criteria" pollutants, designed to protect public health and welfare. Primary criteria pollutants include carbon monoxide (CO), volatile organic compounds (VOCs), nitrogen oxides (NO_X), coarse particulate matter (PM_{10}), sulfur dioxide (SO_2), and lead. Secondary criteria pollutants include O_3 and fine particulate matter ($PM_{2.5}$). These ambient air quality standards are levels of contaminants, which represent safe levels that avoid specific adverse health effects associated with each criteria pollutant.

The Basin is in nonattainment for the federal and State standards for O_3 and $PM_{2.5}$. In addition, the Basin is in non-attainment for the PM_{10} standard and in attainment/maintenance for the federal PM_{10}, CO, and NO_X standards. To meet these standards, the SCAQMD has established project-level thresholds for VOCs, NO_X, and $PM_{2.5}$. The SCAQMD has established thresholds of significance for criteria pollutant emissions generated during both construction and operation of projects as shown in **Table 4.3.A**, below. In developing thresholds of significance for air pollutants, the SCAQMD considered the emission levels for which a project's individual emissions would be cumulatively

considerable. If a project exceeds the identified SCAQMD significance thresholds identified above in **Table 4.3.A**, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions.

Table 4.3.A: SCAQMD Construction and Operation Thresholds of Significance (lbs/day)

	VOCs	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Construction Thresholds	75	100	550	150	150	55
Operation Thresholds	55	55	550	150	150	55

Source: *CEQA Air Quality Handbook* (SCAQMD 1993).
CEQA = California Environmental Quality Act
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxides
VOCs = volatile organic compounds

The following analysis assesses the potential project-level air quality impacts associated with construction and operation of the Proposed Project by comparing estimated emissions to the applicable thresholds of significance. In addition, it is noted that the proposed project would be required to comply with all applicable SCAQMD regulations, including, but not limited to, Rule 201 – Permit to Construct, Rule 203 – Permit to Operate, Rule 401 – Visible Emissions, Rule 402 – Nuisance, Rule 403 – Fugitive Dust, Rule 1110.2 – Emissions from Gaseous and Liquid Fueled Engines, Rule 1113 – Architectural Coating, Regulation XIII – New Source Review, Rule 1401 – New Source Review of Toxic Air Contaminants, and Rule 1470 – Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines. The Project Applicant would be required to obtain the appropriate permits for the proposed emergency generator, including a Permit to Construct and Permit to Operate, as applicable. Accordingly, the SCAQMD would act as a Responsible Agency under CEQA for the proposed project.

Construction Emissions. During construction, short-term degradation of air quality may occur due to the release of particulate matter emissions (i.e., fugitive dust) generated by demolition, grading, building construction, paving, and other activities. Emissions from construction equipment are also anticipated and would include CO, NO_X, VOCs, directly emitted $PM_{2.5}$ or PM_{10}, and toxic air contaminants (TACs) such as diesel exhaust particulate matter.

Construction activities associated with the proposed BPS would include site preparation, grading, trenching, building construction, and decommissioning, and construction activities associated with the proposed pipeline include land clearing, grading and excavation, utilities and sub-grade, and paving. Construction-related effects on air quality from the Proposed Project would be greatest during the grading and excavation phases due to the disturbance of soils. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture,

silt content of soil, wind speed, and amount of operating equipment. Larger dust particles would settle near the source, whereas fine particles would be dispersed over greater distances from the construction site.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. SCAQMD has established Rule 403 – Fugitive Dust, which would require the Applicant to implement measures that would reduce the amount of particulate matter generated during the construction period. The Rule 403 measures that were incorporated in this analysis include:[17]

- Water active sites at least three times daily (locations where grading is to occur shall be thoroughly watered prior to earthmoving).

- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 2 feet (0.6 meter) of freeboard (vertical space between the top of the load and the top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114.

- Reduce traffic speeds on all unpaved roads to 15 miles per hour or less.

In addition to dust-related PM_{10} emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, sulfur oxides (SO_X), NO_X, VOCs and some soot particulate ($PM_{2.5}$ and PM_{10}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles idle in traffic. These emissions would be temporary in nature and limited to the immediate area surrounding the construction site.

Construction emissions were estimated for the Proposed Project using the California Emissions Estimator Model version 2022.1 (CalEEMod). This analysis assumes that construction of each component of the Project would occur in parallel. Construction of the proposed BPSs and subsequent removal of the existing Romoland BPS was modeled to begin in mid-2026 and require approximately 700 cubic yards of net material export, and construction of the Matthews transmission pipeline would begin in October 2026 and require approximately 9,030 cubic yards of net material export. In addition, demolition of the existing Romoland BPS would result in approximately 160 tons of material export. In the absence of Project-specific details, default settings from CalEEMod were used. **Table 4.3.B** identifies the maximum daily emissions associated with construction activities during each construction phase. **Appendix A** of this IS/MND provides CalEEMod output sheets.

[17] South Coast Air Quality Management District (SCAQMD). n.d. Rule 403: Fugitive Dust. Website: www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf (accessed April 2026).

Table 4.3.B: Short-Term Construction Emissions

	Maximum Daily Pollutant Emissions (lbs/day)					
	VOCs	**NO_X**	**CO**	**SO_X**	**Total PM_{10}**	**Total $PM_{2.5}$**
Construction Emissions	5.30	45.05	56.58	0.10	4.33	2.25
SCAQMD Threshold	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Compiled by LSA (April 2026).
Note: Maximum emissions of VOCs occurred during the overlapping building construction and architectural coating phases.
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides
VOCs = volatile organic compounds

As shown in **Table 4.3.B**, construction emissions associated with the Proposed Project would not exceed the SCAQMD's thresholds for VOCs, NO_X, CO, SO_X, $PM_{2.5}$, and PM_{10}. Therefore, construction of the Proposed Project would not result in a cumulatively considerable increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or State AAQS. Impacts would be **less than significant**.

Operational Air Quality Impacts. As noted previously, operation of the Proposed Project would be conducted remotely, with no full-time dedicated staff at the Project site. Similar to existing operation of the Romoland BPS, existing EMWD staff may visit the site occasionally for routine maintenance activities. Because daily trips to the proposed BPS site would replace existing trips to the Romoland BPS, no new vehicle trips are anticipated, and no net new operational emissions, including the potential for new CO hot spots, would occur associated with vehicle trips.

Under existing conditions, two natural gas-powered pumps operate at the Romoland BPS. After implementation of the Proposed Project, three electric-powered pumps would be installed at the proposed BPS, as well as a 1,500 kW standby, emergency diesel generator.

Following implementation of the Project, the emissions that currently occur from the combustion of natural gas would be eliminated, and the proposed electric-powered pumps and electrical demand associated with building lighting would not result in direct emissions of criteria pollutants. Therefore, the only new potential source of emissions during operations is associated with the emergency generator. Emissions from the generator were estimated assuming 200 hours of operation per year. Actual permit conditions will be negotiated with the SCAQMD during the permit application process. Modeled net new operational emissions are presented in **Table 4.3.C.**

Table 4.3.C: Net New Operational Emissions

	Maximum Daily Pollutant Emissions (lbs/day)					
	VOCs	**NO_X**	**CO**	**SO_X**	**Total PM_{10}**	**Total $PM_{2.5}$**
Generator Emissions	6.56	29.35	16.74	0.03	0.97	0.97
SCAQMD Threshold	**55.0**	**100.0**	**550.0**	**150.0**	**150.0**	**55.0**
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Compiled by LSA (April 2026).
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides
VOCs = volatile organic compounds

The results shown in **Table 4.3.C** indicate operational emissions associated with the Proposed Project would not exceed the significance criteria for daily VOCs, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$ emissions. Therefore, operation of the Proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS). Impacts would be less than significant, and no mitigation is required.

Based on the discussion above, implementation of the Proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under applicable NAAQS and CAAQS, and impacts would be **less than significant.**

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

c. Would the project expose sensitive receptors to substantial pollutant concentrations?

The SCAQMD defines structures that house persons (e.g., children, the elderly, persons with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise) or places where they gather (i.e., residences, schools, playgrounds, child-care centers, convalescent centers, retirement homes, and athletic fields) as sensitive receptors. Sensitive receptors are defined as people who have an increased sensitivity to air pollution or environmental contaminants. The nearest sensitive receptors include the residential uses along Antelope Road and Watson Road and Romoland Elementary School, which is located along Antelope Road approximately 1,400 feet south of the BPSs site.

The SCAQMD published its *Final Localized Significance Threshold Methodology* in July 2008, recommending that all air quality analyses include an assessment of air quality impacts to nearby sensitive receptors.[18] This guidance was used to analyze potential localized air quality impacts associated with construction of the Proposed Project. Localized significance thresholds (LSTs) are

[18] South Coast Air Quality Management District (SCAQMD). 2008a. *Final Localized Significance Threshold Methodology.* July. Website: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf (accessed December 2023).

developed based on the size or total area of the emission source, the ambient air quality in the Source Receptor Area (SRA), and the distance between the Project and the nearest sensitive receptor.

LSTs are based on the ambient concentrations of that pollutant within the project SRA and the distance to the nearest sensitive receptor. For the Proposed Project, the appropriate SRA for the LST is the Perris Valley area (SRA 24). SCAQMD provides LST screening tables for 25-, 50-, 100-, 200-, and 500-meter source-receptor distances. The more conservative values for a 1-acre site are used. **Table 4.3.D** lists the LST thresholds that apply during Project construction and operation.

Table 4.3.D: SCAQMD LST Thresholds (lbs/day)

Emissions Source Category	NO_X	CO	PM_{10}	$PM_{2.5}$
Construction	118	602	4	3
Operations	118	602	1	1

Source: *Final Localized Significance Threshold Methodology* (SCAQMD 2008).
Note: SRA 24— Perris Valley, 1 acres, receptors at 25 meters.
CO = carbon monoxide
lbs/day = pounds per day
LST = localized significance threshold
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SRA = Source Receptor Area

By design, the localized impacts analysis only includes on-site sources. The results of the LST analysis for both construction and operation of the Proposed Project are summarized in **Tables 4.3.E** and **4.3.F,** below.

As shown in **Tables 4.3.E** and **4.3.F**, the Proposed Project would not result in an exceedance of a SCAQMD LST during Project construction or operation. Therefore, the Project would not expose sensitive receptors to substantial pollutant concentrations, and impacts would be **less than significant.**

Table 4.3.E: Construction Localized Emissions

Emissions Sources	Pollutant Emissions (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Construction Emissions	44.09	53.55	3.76	2.09
SCAQMD LST	**118**	**602**	**4**	**3**
Significant Emissions?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (April 2026).
CO = carbon monoxide
lbs/day = pounds per day
LST = localized significance threshold
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SRA = Source Receptor Area

Table 4.3.F: Operational Localized Emissions

Emissions Sources	Pollutant Emissions (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
On-Site Emissions	6.56	29.35	0.97	0.97
SCAQMD LST	**118**	**602**	**1**	**1**
Significant Emissions?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (April 2026).
CO = carbon monoxide
lbs/day = pounds per day
LST = localized significance threshold
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SRA = Source Receptor Area

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Heavy-duty equipment on the Project site during construction would emit odors, primarily from equipment exhaust. In addition, the application of asphalt and architectural coatings during construction activities may result in odors. Standard construction requirements would minimize odor impacts from construction. The construction odor emissions would be temporary, short-term, and intermittent in nature and would cease upon completion of the respective phase of construction. Thus, they are considered **less than significant.**

The Proposed Project would construct an underground pipeline and containing water pump station buildings. Therefore, the Proposed Project does not contain land uses typically associated with emitting objectionable odors. The Proposed Project would also be required to comply with SCAQMD Rule 402 – Nuisance to prevent occurrences of public nuisances. SCAQMD Rule 402 states: "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property." Therefore, odors associated with the Proposed Project construction and operations would be **less than significant.**

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

4.4 BIOLOGICAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 Game 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 Game 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?	☐	☐	☐	☒

The following section is based on the Biological Resources Assessment (BRA)[19] prepared for the Proposed Project. This report is included as **Appendix B**.

Vegetation. Vegetation within the biological study area (BSA), defined as the proposed BPS site and pipeline alignment and a 200-foot buffer on either side, consists of developed, disturbed and barren ground, non-native grassland, and ornamental landscaping located throughout residential and commercial areas. Dominant species within non-native grassland include mouse barley (*Hordeum murinum*), red brome (*Bromus rubens*), and common Mediterranean grass (*Schismus barbatus*). Other species observed within non-native grassland include Russian thistle (*Salsola tragus*), prickly lettuce (*Lactuca serriola*), and Bermuda grass (*Cynodon dactylon*). There are no other plant communities on the site. Areas mapped as developed consist of lawn, ornamental landscaping, areas containing man-made structures, and paved roads. Areas mapped as disturbed and barren ground consist of well-traveled dirt roads that do not allow for the establishment of vegetation. A complete list of plant

[19] LSA Associates, Inc. 2025a. *Biological Resources Assessment for the Menifee and Watson Road II Booster Pump Station (BPS) and Pipeline Project, City of Menifee, Riverside County, California.* (LSA Project No. 20252406). November.

species observed on the site is included as Appendix A of the BRA. **Figure 4.4-1** shows the vegetation and land cover. **Figure 4.4-2** provides photographs of the existing site conditions.

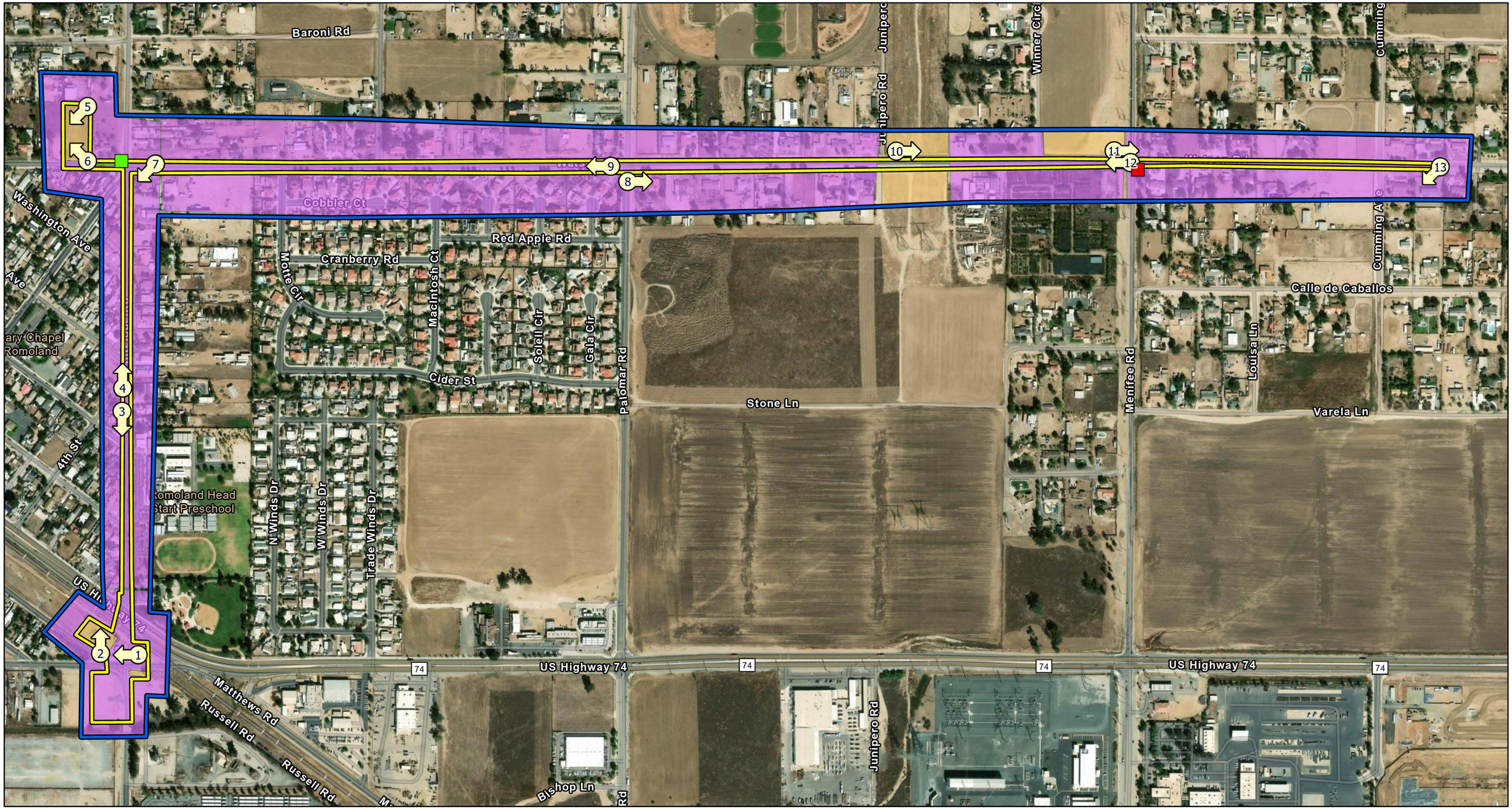
Wildlife. A few wildlife species common to urban and disturbed areas were observed during the field survey. American crow (*Corvus brachyrhynchos*), house finch (*Haemorhous mexicanus*), song sparrow (*Melospiza melodia*), black phoebe (*Sayornis nigricans*), rock pigeon (*Columba livia*), red-tailed hawk (*Buteo jamaicensis*), Say's phoebe (*Sayornis saya*), white-crowned sparrow (*Zonotrichia leucophrys*), yellow-rumped warbler (*Setophaga coronate*), California ground squirrel (*Spermophilus beecheyi*), and Botta's pocket gopher (*Thomomys bottae*) were observed within the Project study area. A complete list of wildlife species observed is provided as Appendix A of the BRA.

Regulatory Framework. The Project site is located within the planning boundaries of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) area. The MSHCP is a comprehensive multi-jurisdictional effort that includes western Riverside County and multiple cities. EMWD is not signatory to the MSHCP. The MSHCP defines Participating Special Entity (PSE) agencies as any regional public facility provider, such as a utility company, public district, or any other agency that owns land or operates a facility within the MSHCP area. The following MSHCP policies and procedures do not apply to this project because EMWD is not a signatory to the MSHCP and is not pursuing a PSE designation for the Project site:

- Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools (MSHCP Section 6.1.2);
- Protection of the Narrow Endemic Plant Species (MSHCP Section 6.1.3);
- Additional Survey Needs and Procedures (MSHCP Section 6.3.2); and
- Urban/Wildland Interface Guidelines (MSHCP Section 6.1.4).

The MSHCP allows participating entities to issue take permits for listed species so that individual applicants need not seek their own permits from the United States Fish and Wildlife Service (USFWS) and/or California Department of Fish and Wildlife (CDFW). In order to obtain MSHCP coverage as a PSE, the Project is required to demonstrate MSHCP compliance through specific habitat assessments, applicable biological surveys, and the provision of an MSHCP consistency analysis. Given that the Project would not be processed through the MSHCP for covered species, the Project is subject to the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA) for threatened, endangered, and/or candidate species.

The Proposed Project is also located within the planning area of the Stephens' kangaroo rat (SKR) Habitat Conservation Plan (HCP); however, EMWD is not a permittee under the SKR HCP. However, if the project has the potential to impact SKR, EMWD can seek a Certificate of Inclusion from Riverside County HCP.



LSA

200-ft Buffer
Project Boundary
Photo Points

Drainages
Drainage A
Drainage B

Vegetation
Developed
Non-Native Grassland
Ruderal

0 250 500
FEET

SOURCE: Vantor (2024)

I:\2025\20252406\GIS\Pro\Matthews Booster Pump Station and Transmission Line Project.aprx (Fig 4.4-1 - Vegetation, Land Use, and Photo Locations)
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FIGURE 4.4-1

Menifee and Watson Road II Booster Pump Station and Matthews Transmission Pipeline Project

Vegetation, Land Use, and Photo Locations

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Photo 1: Photo of Romoland BPS facing west.

Photo 2: Photo of field behind Romoland BPS facing north.

Photo 3: Photo facing south on Antelope Road.

Photo 4: Photo facing north on Antelope Road.

LSA

FIGURE 4.4-2

Menifee and Watson Road II Booster Pump Station and Matthews Transmission Pipeline Project

Site Photographs

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Photo 5: Photo of empty parcel facing south.

Photo 6: Photo of empty parcel facing northwest.

Photo 7: Intersection of Antelope Road and Watson Road facing southwest.

Photo 8: Intersection of Palomar Road and Watson Road facing east.

LSA

FIGURE 4.4-2

Menifee and Watson Road II Booster Pump Station and Matthews Transmission Pipeline Project

Site Photographs

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Photo 9: Intersection of Palomar Road and Watson Road facing west.

Photo 10: Photo of Watson Road facing east.

Photo 11: Intersection of Menifee Road and Watson Road facing east.

Photo 12: Intersection of Menifee Road and Watson Road facing west.

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Photo 13: Photo of Watson Road BPS facing south.

LSA

FIGURE 4.4-2

Menifee and Watson Road II Booster Pump Station and Matthews Transmission Pipeline Project
Site Photographs

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a. Would the project 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 Game or U.S. Fish and Wildlife Service?

The BRA included a literature review to determine the existence or potential occurrence of special-status plant and animal species within 3 miles of the Project site. In addition, field surveys of the BSA were conducted from public rights-of-way on January 4, 2022, and October 13, 2025. The literature review identified 38 special-status species with the potential to occur within the Project study area.

Table 4.4.A lists these species with a data summary and determination of the likelihood of each species occurring within the study area. As provided by **Table 4.4.A**, only one federally/State listed species, burrowing owl (*Athene cunicularia hypugaea* [BUOW]) was identified as having a moderate potential to occur in the Project vicinity. Of the 24 other non-listed special-status species identified, 10 species are not expected to occur based on lack of suitable habitat, 11 species are considered to have a low probability of occurrence, 3 species are considered to have a moderate probability of occurrence, and no species are considered present within the Project site.

Burrowing Owl. As noted above in Section 1.0, Project Information, the pipeline alignment is largely located within existing public right-of-way. This public right-of-way consists primarily of paved areas within an MSHCP Survey Area for BUOW. Additionally, undeveloped non-native grasslands adjacent to the pipeline alignment and within the BSA are also within MSHCP BUOW Survey Areas. In particular, undeveloped parcels adjacent to Watson Road between Junipero Road and Menifee Road may provide suitable habitat for BUOW in the form of non-native grassland with open areas and berms on either side. California ground squirrels (*Otospermophilus beecheyi*) were observed in this area and may provide suitable burrows for the owls to occupy; however, no owls were observed during either site visit conducted as part of the BRA.

The removal of non-native grassland habitat, as shown on Figure 4.4-1, could result in mortality of BUOW individuals and the abandonment of nests, if the area is occupied by BUOW. In addition, Project construction could disturb active nests near the construction area, potentially resulting in nest abandonment by the adults and mortality of chicks and eggs. Implementation of **Mitigation Measure BIO-1**, which prohibits construction along the northern pipeline alignment during the BUOW breeding season and requires a pre-construction BUOW survey and implementation of appropriate measures in consultation with CDFW, if BUOWs are present, is prescribed to reduce potential impacts on BUOWs to less than significant levels.

Non-Listed Special-Status Species. The 21 non-listed special-status species are either considered to have a low probability of occurrence or are not expected to occur in the Project study area due to marginal habitat or the absence of suitable habitat. Because the area is already disturbed and surrounded by existing development, and because wildlife movement is restricted in the Project vicinity, impacts from the Project are anticipated to have a less than significant effect on these non-listed special-status species.

Table 4.4.A: Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Plants				
Allium munzii **Munz's onion**	US: FE CA: ST	Seasonally moist sites on clay soils (generally) or within rocky outcrops (pyroxenite) on rocky-sandy loams (such as Cajalco, Las Posas, and Vallecitos) with clay subsoils, in openings within coastal sage scrub, pinyon juniper woodland, and grassland, at 300 to 1,070 meters (1,000 to 3,500 feet) in elevation. Known only from western Riverside County in the greater Perris Basin (Temescal Canyon-Gavilan Hills/Plateau and Murrieta-Hot Springs areas) and within the Elsinore Peak (Santa Ana Mountains) and Domenigoni Hills regions.	Blooms April through May (perennial bulbiferous herb)	**Not expected:** No suitable habitat (clay soils or within rocky outcrops on rocky-sandy loams) is present within the Project study area.
Atriplex coronata var. *notatior* **San Jacinto Valley crownscale**	US: FE CA: –	Alkaline flats in playas, chenopod scrub, valley and foothill grasslands, vernal pools at 365 to 520 meters (1,200 to 1,700 feet) in elevation. Endemic to the San Jacinto River Valley area of western Riverside County.	Blooms April through May (annual herb)	**Not expected:** No suitable habitat (alkaline flats in playas, chenopod scrub, valley and foothill grasslands, vernal pools at 365 to 520 meters) is present within the Project study area.
Atriplex parishii **Parish's brittlescale**	US: – CA: 1B.1	Alkali soils in meadows, vernal pools, chenopod scrub, and playas. Usually on drying alkali flats with fine soils. In California, known from Riverside and San Diego counties. Also occurs in Mexico. Believed extirpated from Los Angeles, Orange, and San Bernardino counties.	Blooms June through October	**Not expected:** No suitable habitat (alkali soils in meadows, vernal pools, chenopod scrub, and playas) is present within the Project study area.
Brodiaea filifolia **Thread-leaved brodiaea**	US: FT CA: SE	Usually on clay or associated with vernal pools or alkaline flats; occasionally in vernally moist sites in fine soils (clay loam, silt loam, fine sandy loam, loam, and loamy fine sand). Typically associated with needlegrass or alkali grassland or vernal pools. Occurs from 25 to 1,120 meters (80 to 3,700 feet) in elevation. Known only from Los Angeles, Orange, Riverside, San Bernardino, San Diego, and San Luis Obispo counties, California.	Blooms March through June (perennial herb)	**Not expected:** No suitable habitat (clay or associated with vernal pools or alkaline flats) is present within the Project study area.

Table 4.4.A: Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Caulanthus simulans **Payson's jewel-flower**	US: – CA: 4.2	Recently burned areas or disturbed sites such as streambeds in chaparral, coastal sage scrub, riparian areas, and grassland at 60 to 2,200 meters (200 to 7,200 feet) in elevation. Known from San Diego County (collections in western Riverside County misidentified, are *C. heterophyllus* var. *pseudosimulans*).	Blooms (February) March through May (June) (annual herb)	**Not expected:** No suitable habitat (recently burned areas or disturbed sites such as streambeds in chaparral, coastal sage scrub, riparian areas, and grassland at 60 to 2,200 meters) is present within the Project study area.
Centromadia pungens ssp. *laevis* **Smooth tarplant**	US: – CA: 1B.1	Generally alkaline areas in chenopod scrub, meadows, playas, riparian woodland, valley and foothill grassland below 480 meters (1,600 feet) in elevation. Known from Riverside and San Bernardino counties; extirpated from San Diego County.	Blooms April through November (annual herb)	**Not expected:** No suitable habitat (generally alkaline areas in chenopod scrub, meadows, playas, riparian woodland, valley and foothill grassland) is present within the Project study area.
Chorizanthe parryi var. *parryi* **Parry's spineflower**	US: – CA:1B.1	Sandy or rocky soils in chaparral, coastal scrub, oak woodlands, and grassland at 40 to 1,705 meters (100 to 5,600 feet) in elevation. Known only from Los Angeles, Riverside, and San Bernardino counties.	Blooms April through June	**Low:** Marginally suitable habitat (non-native grassland) is present within the Project study area.
Harpagonella palmeri **Palmer's grapplinghook**	US: – CA: 4.2	Clay soils in openings in coastal sage scrub, juniper woodland, and grassland below 830 meters (2,700 feet) in elevation. In California, known only from Orange, Riverside, and San Diego counties and the Channel Islands. Also occurs in Arizona and Mexico.	Blooms March through May	**Not expected:** No suitable habitat (clay soils) is present within the Project study area.
Hordeum intercedens **Vernal barley**	US: – CA: 3.2	Vernal pools and saline flats and depressions below 1,000 meters (3,300 feet) in elevation. Known from many California counties. Also occurs in Mexico.	Blooms March through June	**Not expected:** No suitable habitat (vernal pools and saline flats and depressions) is present within the Project study area.

Table 4.4.A: Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Lasthenia glabrata ssp. *coulteri* **Coulter's goldfields**	US: – CA: 1B.1	Vernal pools and alkaline soils in marshes, playas, and similar habitats below 1,220 meters (4,000 feet) in elevation. Known from Colusa, Merced, Tulare, Orange, Riverside, Santa Barbara, San Diego, San Luis Obispo, Tehama, Ventura, and Yolo counties. Believed extirpated from Kern, Los Angeles, and San Bernardino counties, and possibly also from Tulare County. Also occurs in Mexico.	Blooms February through June	**Not expected:** No suitable habitat (vernal pools and alkaline soils in marshes, playas, and similar habitat) is present within the Project study area.
Lepidium virginicum var. *robinsonii* **Robinson's pepper-grass**	US: – CA: 4.3	Dry soils in coastal sage scrub and chaparral below 885 meters (2,900 feet) in elevation. In California, known only from Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, and San Diego counties, and Santa Cruz Island. Also occurs in Mexico.	Blooms January through July	**Not expected:** No suitable habitat (in coastal sage scrub and chaparral) is present within the Project study area.
Navarretia fossalis **Spreading navarretia**	US: FT CA: –	In vernal pools, playas, shallow freshwater marshes, and similar sites at 15 to 820 meters (50 to 2,700 feet) in elevation. In California, known only from Los Angeles, San Luis Obispo, Riverside, and San Diego counties. Also occurs in Mexico.	Blooms April through June (annual herb)	**Not expected:** No suitable habitat (vernal pools, playas, shallow freshwater marshes) is present within the Project study area.
Tortula californica **California screw moss**	US: – CA: 1B.2	Rock outcrops, vertical rock walls and soil banks with appropriate moisture conditions, at 10 to 1,460 meters (30 to 4,800 feet) in elevation. Known only from Modoc, Kern, Los Angeles, Modoc, Monterey, Riverside, San Diego, Santa Barbara, and Ventura counties, California.	N/A	**Not expected:** No suitable habitat (rock outcrops, vertical rock walls and soil banks with appropriate moisture conditions) is present within the Project study area.

Table 4.4.A: Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Invertebrates				
Bombus crotchii **Crotch's bumble bee**	US: – CA: SCE	Inhabits scrub (including chaparral) and grassland with high floral diversity from coastal California to the crest of Sierra-Cascade and in desert edge areas, south into Mexico. Suitable bumble bee habitat requires the continuous availability of flowers suitable for foraging and in quantities sufficient to sustain the colony throughout its duration (spring through summer), as well as sites suitable for colony nesting and for overwintering of the new queens. Preferred foraging plants include milkweeds (*Asclepias* spp.), phacelias (*Phacelia* spp.), sages (*Salvia* spp.), vetches (*Vicia* spp.), deerweed (*Acmispon glaber*), lupines (*Lupinus* spp.), and poppies (*Eschscholzia* spp.) (Robert Thorpe et al., 1983, *Bumble Bees and Cuckoo Bumble Bees of California*). Usually nests underground in abandoned rodent burrows but may also nest in similar environments such as cavities in fallen logs, thatched grasses, or rock piles (California Department of Fish and Wildlife, *Survey Considerations for California Endangered Species Act [CESA] Candidate Bumble Bee Species*). Overwintering habitat is poorly understood; therefore, CDFW does not recommend surveys for it. Sloping areas insulated with moss or leaf litter under trees have been found to support overwintering gynes (ibid.).	Spring and summer	**Not expected:** The Project study area does not contain ideal foraging habitat in the form of scrub or grasslands with high floral diversity.

Table 4.4.A: Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Branchinecta lynchi **Vernal pool fairy shrimp**	US: FT CA: SA	Vernal pools and similar features in unplowed grassland areas. Pools must contain water continuously for at least 18 days in all but the driest years to allow for reproduction. Known from the Central Valley and adjacent foothill areas, the Central Coast and South Coast ranges, from the Transverse Ranges near Santa Clarita, from the Santa Rosa Plateau, Skunk Hollow, and the Stowe Road vernal pool west of Hemet in Riverside County, and from northwest San Diego County. Occurs at up to about 700 meters (2,300 feet) in elevation in areas north of Kern County and at up to 1,700 meters (5,600 feet) in elevation in areas to the south.	Seasonally following rains; typically, January through April	**Not expected:** No suitable habitat (vernal pools) is present within the Project study area.
Amphibians				
Spea hammondii **Western spadefoot**	US: FPT CA: SSC	Grasslands and occasionally hardwood woodlands; largely terrestrial but requires rain pools or other ponded water persisting at least 3 weeks for breeding; burrows in loose soils during dry season. Occurs in the Central Valley and adjacent foothills, the non-desert areas of southern California, and Baja California.	Primarily October through April (following onset of winter rains)	**Not expected:** No suitable habitat (ponded water persisting at least 3 weeks) is present within the Project study area.
Reptiles				
Actinemys pallida **Southwestern pond turtle**	US: FPT CA: SSC	Inhabits permanent or nearly permanent water from central California to northwestern Baja California. Absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries. Requires basking sites such as partially submerged logs, rocks, or open mud banks.	Year-round, with reduced activity November through March	**Not expected:** No suitable habitat (permanent water) is present within the Project study area.
Anniella stebbinsi **Southern California legless lizard**	US: – CA: SSC	Inhabits sandy or loose loamy soils with high moisture content under sparse vegetation. Found primarily in cismontane southern California from Santa Barbara County to northwestern Baja California, with a few outlying populations in the deserts of southern California.	Nearly year-round, at least in southern areas	**Not expected:** No suitable habitat (loose loamy soils with high moisture content under sparse vegetation or cismontane habitat) is present within the Project study area.

Table 4.4.A: Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Arizona elegans occidentalis **California glossy snake**	US: – CA: SSC	Scrub and grassland habitats, often with loose or sandy soils. Patchily distributed from the eastern portion of San Francisco Bay Area to southern San Joaquin Valley and in non-desert areas of southern California. Also occurs in Baja California.	Most active March through June (nocturnal)	**Low:** Marginally suitable habitat (grassland habitat with sandy soils) is present within the Project study area.
Aspidoscelis hyperythra **Orange-throated whiptail**	US: – CA: SA	Prefers washes and other sandy areas with patches of brush and rocks, in chaparral, coastal sage scrub, juniper woodland, and oak woodland from sea level to 915 meters (3,000 feet) in elevation. Perennial plants required. Occurs in Riverside, Orange, and San Diego counties west of the crest of the Peninsular Ranges, in extreme southern San Bernardino County near Colton, and in Baja California.	March through July, with reduced activity August through October	**Low:** Marginally suitable habitat (sandy areas) is present within the Project study area.
Crotalus ruber **Red-diamond rattlesnake**	US: – CA: SSC	Desert scrub, thornscrub, open chaparral, and woodland; occasional in grassland and cultivated areas. Prefers rocky areas and dense vegetation. Morongo Valley in San Bernardino and Riverside counties to the west and south into Baja California.	Primarily mid-spring through mid-fall	**Low:** Marginally suitable habitat (non-native grassland) is present within the Project study area.
Phrynosoma blainvillii **Coast horned lizard**	US: – CA: SSC	Primarily in sandy soil in open areas, especially washes and floodplains, in many plant communities. Requires open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants or other insects. Occurs west of the deserts from northern Baja California north to Shasta County below 2,400 meters (8,000 feet) in elevation.	Primarily April through July, with reduced activity August through October	**Low:** Marginally suitable habitat (sandy soil) is present within the Project study area.
Birds				
Aimophila ruficeps canescens **Southern California rufous-crowned sparrow**	US: – CA: SA	Dry, open, rocky hillsides with scattered shrubs.	Year-round	**Low:** Marginally suitable habitat (dry, open habitat) is present within the Project study area.

Table 4.4.A: Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Aquila chrysaetos (nesting & wintering) **Golden eagle**	US: – CA: SFP	Generally open country of the Temperate Zone worldwide. Nesting primarily in rugged mountainous country. Uncommon resident in southern California.	Year-round	**Not expected:** No suitable nesting habitat (rugged mountainous area) is present within the Project study area.
Artemisiospiza belli belli **Bell's sparrow**	US: – CA: SA	Occupies chaparral and coastal sage scrub from west central California to northwestern Baja California.	Year-round	**Not expected:** No suitable nesting habitat (chaparral and coastal sage scrub) is present within the Project study area.
Athene cunicularia hypugaea (burrow sites and some wintering sites) **Burrowing owl**	US: – CA: SSC/SPE	Open, treeless areas with low, sparse vegetation, usually on flat or gently sloping terrain, including grasslands, sparse scrub (cover less than 30 percent), farmland, airfields, airports, road embankments, cemeteries, urban vacant lots, desert areas, and other open habitat. They usually occupy ground squirrel burrows but may also utilize man-made structures such as culverts or debris piles, usually temporarily.	Year-round	**Moderate:** Suitable habitat (open, treeless areas with low, sparse vegetation) is present within the Project study area.
Buteo regalis (wintering) **Ferruginous hawk**	US: – CA: SA	Forages in open fields, grasslands and agricultural areas, sagebrush flats, desert scrub, fringes of pinyon-juniper habitats, and other open country in western North America. Breeds in south-central Canada and the interior of the western United States. Winters primarily in the southwestern quadrant of the United States south to central Mexico.	Mid-September through mid-April	**Moderate:** Suitable foraging habitat (open fields, grasslands and agricultural areas) is present within the Project study area.

Table 4.4.A: Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Eremophila alpestris actia **California horned lark**	US: – CA: SA	Open grasslands and fields, agricultural area, open montane grasslands. This subspecies is resident from northern Baja California northward throughout non-desert areas to Humboldt County, including the San Joaquin Valley and the western foothills of the Sierra Nevada (north to Calaveras County). Prefers bare ground such as plowed or fall-planted fields for nesting but may also nest in marshy soil. During the breeding season, this is the only subspecies of horned lark in non-desert southern California; however, from September through April or early May, other subspecies visit the area.	Year-round interior (inland areas)	**Moderate:** Suitable habitat (grasslands and fields, agricultural area) is present within the Project study area.
Lanius ludovicianus (nesting) **Loggerhead shrike**	US: – CA: SSC (breeding)	Prefers open habitats with scattered small trees and with fences, utility lines, or other perches. Inhabits open country with short vegetation, pastures, old orchards, cemeteries, golf courses, riparian areas, and open woodlands. Highest density occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Occurs only rarely in heavily urbanized areas, but often found in open cropland. Found in open country in much of North America.	Year-round	**Moderate**: Suitable habitat (open habitats with scattered small trees and with fences, utility lines, or other perches) is present within the Project study area.
Polioptila californica californica **Coastal California gnatcatcher**	US: FT CA: SSC	Inhabits coastal sage scrub in low-lying foothills and valleys up to about 500 meters (1,640 feet) in elevation in cismontane southwestern California and northwestern Baja California.	Year-round	**Not expected:** No suitable nesting habitat (coastal sage scrub in low-lying foothills and valleys) is present within the Project study area.

Table 4.4.A: Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Vireo bellii pusillus **Least Bell's vireo**	US: FE CA: SE	Riparian forests and willow thickets. The most critical structural component of least Bell's vireo habitat in California is a dense shrub layer 2 to 10 feet (0.6–3.0 meters) above ground. Willows usually dominant. Nests from central California to northern Baja California Sur. Winters primarily in Baja California Sur.	March through September	**Not expected:** No suitable nesting habitat (riparian forests and willow thickets) is present within the Project study area.
Mammals				
Chaetodipus californicus femoralis **Dulzura pocket mouse**	US: – CA: SA	Found in a variety of habitats including coastal sage scrub, chaparral and grassland in northern Baja California, San Diego County, and extreme southwestern and western Riverside County. Limit of range to northwest (at interface with *C. c. dispar*) unclear.	Year-round	**Low:** Marginally suitable habitat (non-native grassland) is present within the Project study area.
Dipodomys merriami parvus **San Bernardino kangaroo rat**	US: FE CA: SE	Gravelly and sandy soils of alluvial fans, braided river channels, active channels and terraces; San Bernardino Valley (San Bernardino County) and San Jacinto Valley (Riverside County). In San Bernardino County, this species occurs primarily in the Santa Ana River and its tributaries north of I-10, with small remnant populations in the Etiwanda alluvial fan, the northern portion of the Jurupa Mountains in the south Bloomington area, and in Reche Canyon. In Riverside County, this species occurs along the San Jacinto River east of approximately Sanderson Avenue, and along Bautista Creek. Remnant populations may also occur within Riverside County in Reche Canyon, San Timoteo Canyon, Laborde Canyon, the Jurupa Mountains, and the Santa Ana River Wash north of SR-60.	Nocturnal; active year-round	**Not expected:** The Project study area is out of the species known range.

Table 4.4.A: Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Dipodomys stephensi **Stephens' kangaroo rat**	US: FT CA: ST	Found in plant communities transitional between grassland and coastal sage scrub, with perennial vegetation cover of less than 50%. Most commonly associated with *Artemisia tridentata*, *Eriogonum fasciculatum*, and *Erodium*. Requires well-drained soils with compaction characteristics suitable for burrow construction (neither sandy nor too hard). Not found in soils that are highly rocky or sandy, less than 20 inches deep, or heavily alkaline or clay, or in areas exceeding 25 percent slope. Occurs only in western Riverside County, northern San Diego County, and extreme southern San Bernardino County, below 915 meters (3,000 feet) in elevation. In northwestern Riverside County, known only from east of I-15. Reaches its northwest limit in south Norco, southeast Riverside, and in the Reche Canyon area of Riverside County and extreme southern San Bernardino County.	Year-round; nocturnal	**Not expected:** No suitable nesting habitat (communities transitional between grassland and coastal sage scrub) is present within the Project study area.

Table 4.4.A: Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Eumops perotis californicus **Western mastiff bat**	US: – CA: SSC	In California, most records are from rocky areas at low elevations and from buildings. Occurs in many open, semiarid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in vertical cliff faces, high buildings, trees, and tunnels throughout southwestern California. May roost in tall bridges. Has been documented in palms. This species regularly forages approximately 100–200 feet above the ground and has been estimated to forage at altitudes as high as 2,000 feet above the substrate. Likely forages considerable distances from roosting sites. The diet consists primarily of moths (Lepidoptera), but also includes beetles, crickets, and katydids. Non-migratory; present year-round in southern California.	Year-round; nocturnal	**Low:** Suitable foraging habitat (non-native grassland) is present within the Project study area.
Lasiurus xanthinus **Western yellow bat**	US: – CA: SSC	Found mostly in desert and desert riparian areas of the southwest United States, but is also expanding its range with the increased usage of native and non-native ornamental palms in landscaping. Individuals typically roost amid dead fronds of palms but have also been documented roosting in cottonwood trees. Forages over many habitats.	Year-round; nocturnal	**Low:** Suitable foraging habitat is present within the Project study area.

Table 4.4.A: Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Onychomys torridus ramona **Southern grasshopper mouse**	US: – CA: SSC	Believed to inhabit sandy or gravelly valley floor habitats with friable soils in open and semi-open scrub, including coastal sage scrub, mixed chaparral, low sagebrush, riparian scrub, and annual grassland with scattered shrubs, preferring low to moderate shrub cover. More susceptible to small- and large-scale habitat loss and fragmentation than most other rodents, due to its low fecundity, low population density, and large home range size. Arid portions of southwestern California and northwestern Baja California.	Nocturnal; active year-round	**Low:** Marginally suitable habitat (sandy valley floor) is present within the Project study area.
Perognathus longimembris brevinasus **Los Angeles pocket mouse**	US: – CA: SSC	Prefers sandy soil for burrowing but has been found on gravel washes and stony soils. Found in coastal sage scrub in Los Angeles, Riverside, and San Bernardino counties.	Nocturnal; active late spring to early fall	**Low:** Marginally suitable habitat (sandy soil) is present within the Project study area.

US: Federal Classifications
– No applicable classification.
FE Taxa federally listed as Endangered.
FT Taxa federally listed as Threatened.
FPE Taxa federally listed as Proposed Endangered.
FPT Taxa federally listed as Proposed Threatened.

CA: State Classifications
– No applicable classification.
SE Taxa State listed as Endangered.
ST Taxa State listed as Threatened.
SPE Taxa State listed as Proposed Endangered.
SPT Taxa State listed as Proposed Threatened.
SFP Taxa State listed as fully protected.
SSC California Species of Special Concern. Refers to animals with vulnerable or seriously declining populations.
SCE Candidate for State-listing as Endangered.
SA Special Animal. Refers to any other animal monitored by the Natural Diversity Database, regardless of its legal or protection status.
1B California Rare Plant Rank 1B: Rare, threatened, or endangered in California and elsewhere.
2B California Rare Plant Rank 2B: Rare, threatened, or endangered in California, but more common elsewhere.
3 California Rare Plant Rank 3: A review list of plants about which more information is needed.
4 California Rare Plant Rank 4: A watch list of plants of limited distribution.

Nesting Birds. Nesting bird species, including special-status species, with the potential to occur are protected by California Fish and Game Code Sections 3503, 3503.5, and 3800, and by the Migratory Bird Treaty Act (MBTA) (16 United States Code 703–711). These laws regulate the take, possession, or destruction of the nest or eggs of any migratory bird or bird of prey. However, the USFWS has recently determined that the MBTA should apply only to "…affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs" and will not be applied to incidental take of migratory birds pursuant to otherwise lawful activities.[20]

During the bird breeding season (typically February 1 through August 31), the Project area may be used by hawks, ravens, or other common or special-status open ground birds for nesting. Shrubs and other vegetation may also provide nest sites for smaller birds. Active nests (i.e., nests containing viable eggs or young) of native birds could be adversely affected by vegetation clearing and construction activities. Adverse effects (e.g., nest removal, nest loss or abandonment through noise, vibration, or visual disturbance) to active nests would be considered significant. To ensure compliance with the California Fish and Game Code and to avoid potential impacts to nesting birds, **Mitigation Measure BIO-2,** which requires vegetation removal activities to be conducted outside the general bird nesting season (January 15 through August 31) or a pre-construction nesting bird survey by a qualified biologist prior to vegetation removal if vegetation cannot be removed outside the bird nesting season, is prescribed. Direct impacts to sensitive and common avian species from development of the Project site would be reduced to less than significant levels with implementation of **Mitigation Measure BIO-2** by ensuring that nesting birds would be protected until the young have fledged.

Mitigation Measures: The following mitigation measures would apply to the Proposed Project.

Mitigation Measure BIO-1 **Focused Burrowing Owl Survey.** Focused burrowing owl (BUOW) breeding season surveys (March 1–August 31) shall be conducted in accordance with County of Riverside survey instructions.[21] Survey visits should be conducted 1 week or more apart and spaced so that they are not all at the beginning or end of the survey season, when owls may not be present. A pre-construction survey for BUOW shall also be required within 30 days prior to any ground-disturbing activities. The focused and pre-construction surveys shall be conducted in the undeveloped lots (i.e., Assessor's Parcel Numbers [APNs] 331-150-018, 331-150-027, 329-141-005, 329-120-026, 329-050-049) within the Project site plus a 500-foot buffer, using an accepted protocol. Undeveloped lots adjacent to the Project site, where property access is not provided, shall be surveyed from the public right-of-way.

[20] Federal Register [FR]. 2021. Vol. 86, No. 4, Department of Interior - U.S. Fish and Wildlife Service. Final Rule. *Regulations Governing Take of Migratory Birds.''* January 7.

[21] Western Riverside County Regional Conservation Authority. 2022. *Western Riverside County MSHCP Biological Monitoring Program. Burrowing Owl Monitoring Protocol, 2022. Western Riverside County MSHCP.* Website: wrc-rca.org/wp-content/uploads/2023/11/BUOW-monitoring-protocol-2022_final_NRP.pdf (accessed October 30, 2025).

During the surveys, a qualified biologist shall survey the Project area including a 500-foot buffer, or to the edge of the property if less than 500 feet, for burrows that could be used by BUOW. If a burrow is located, the biologist will determine whether an owl is present in the burrow. If the burrow is determined to be occupied, the burrow shall be flagged by the qualified biologist and a buffer area shall be staked and flagged in accordance with California Department of Fish and Wildlife (CDFW) guidelines (*Staff Report on Burrowing Owl Mitigation,* March 7, 2012). No development activities shall be permitted within the buffer until the young are no longer dependent on the burrow.

If the burrow is within the project disturbance area, CDFW shall be consulted to coordinate relocation of the owl in accordance with accepted protocols. This coordination will require preparation of a Burrowing Owl Mitigation and Monitoring Plan. The appropriate relocation method, either passive relocation or active relocation, will be determined based on site-specific conditions, (e.g., distance to nearest suitable habitat and presence of burrows within that habitat) in coordination with CDFW. Both passive and active relocation methods require the preservation and ongoing maintenance of suitable BUOW habitat, as identified through coordination with CDFW.

Mitigation Measure BIO-2

Preconstruction Nesting Bird Survey. To ensure compliance with the California Fish and Game Code and the Migratory Bird Treaty Act, and to avoid potential impacts to nesting birds, vegetation removal activities shall be conducted outside the general bird nesting season (January 15 through August 31). Any vegetation removal and/or construction activities that occur during the nesting season will require that all suitable habitats be thoroughly surveyed for the presence of nesting birds by a qualified biologist. Prior to commencement of clearing within each Project segment, a qualified biologist shall conduct a pre-construction survey within 3 days prior to ground-disturbing activities. This may warrant various pre-construction surveys for the pipeline segment to ensure that each survey aligns with the start of each segment of the Project. Should nesting birds be found, an exclusionary buffer shall be established by the qualified biologist. The buffer may be up to 500 feet in diameter, depending on the species of nesting bird found. This buffer will be clearly shown on project maps and visibly marked in the field (e.g., with stakes, fencing, or flagging) by construction personnel under guidance of the qualified biologist, and construction or clearing shall not be conducted within this zone until the qualified biologist determines that the young have fledged or the nest is no

longer active. The buffer may be modified and/or other recommendations proposed as determined appropriate by the biologist to minimize impacts. Nesting bird habitat within the Project site shall be resurveyed during the bird breeding season if there is a lapse in construction activities longer than 7 days.

Significance Determination: Less Than Significant with Mitigation Incorporated

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

As previously discussed, developed, disturbed and barren ground, non-native grassland, and ornamental landscaping is located throughout residential and commercial areas. There are no other plant communities on the site, and the Project area does not contain any other sensitive natural community. No federally designated critical habitat is present within the study area; thus, there will be no Project-related effects to critical habitat.

As part of the field survey, all potential jurisdictional features within the Project area were mapped. Two drainage features were identified within the study area (see **Figure 4.4-3,** Potential Jurisdictional Features):

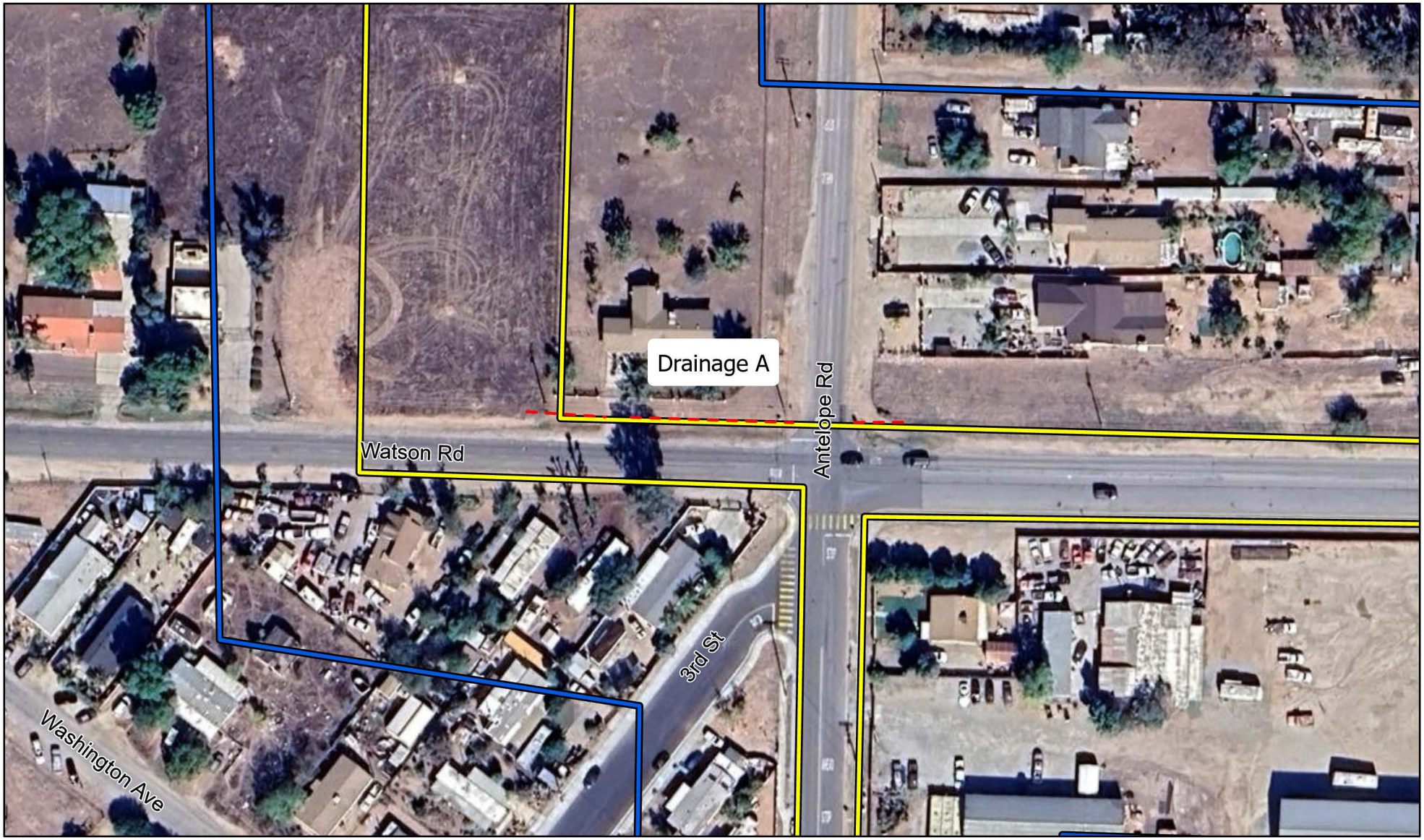
- Drainage A is a roadside drainage ditch that runs parallel to the north side of Watson Road and conveys flows from east to west underneath Antelope Road via a 24-inch corrugated metal pipe. This feature is an ephemeral, V-shaped drainage with an earthen bottom, approximately 3 feet wide and supports primarily non-native, ruderal vegetation.

- Drainage B is a roadside drainage ditch that runs parallel to the easterly side Menifee Road and conveys flows from north to south underneath Watson Road via a 36-inch corrugated metal pipe. Drainage B is an ephemeral, V-shaped drainage with an earthen bottom, approximately 8 feet wide and supports primarily non-native, ruderal vegetation.

As both of these drainages feature non-native ruderal vegetation, the Project site does not contain any riparian habitat. Therefore, implementation of the Proposed Project would have **no impact** on any riparian habitat or other sensitive natural community identified in local or regional plans (i.e., MSHCP), policies, regulations, or by the CDFW or USFWS.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact



LSA

200-ft Buffer

Project Boundary

Potential Jurisdictional Waters

0 50 100

FEET

SOURCE: Google Imagery (6/2021)

I:\2025\20252406\GIS\Pro\Matthews Booster Pump Station and Transmission Line Project.aprx (4/22/2026)

FIGURE 4.4-3

Sheet 1 of 2

Menifee and Watson Road II Booster Pump Station and Matthews Transmission Pipeline Project

Potential Jurisdictional Waters

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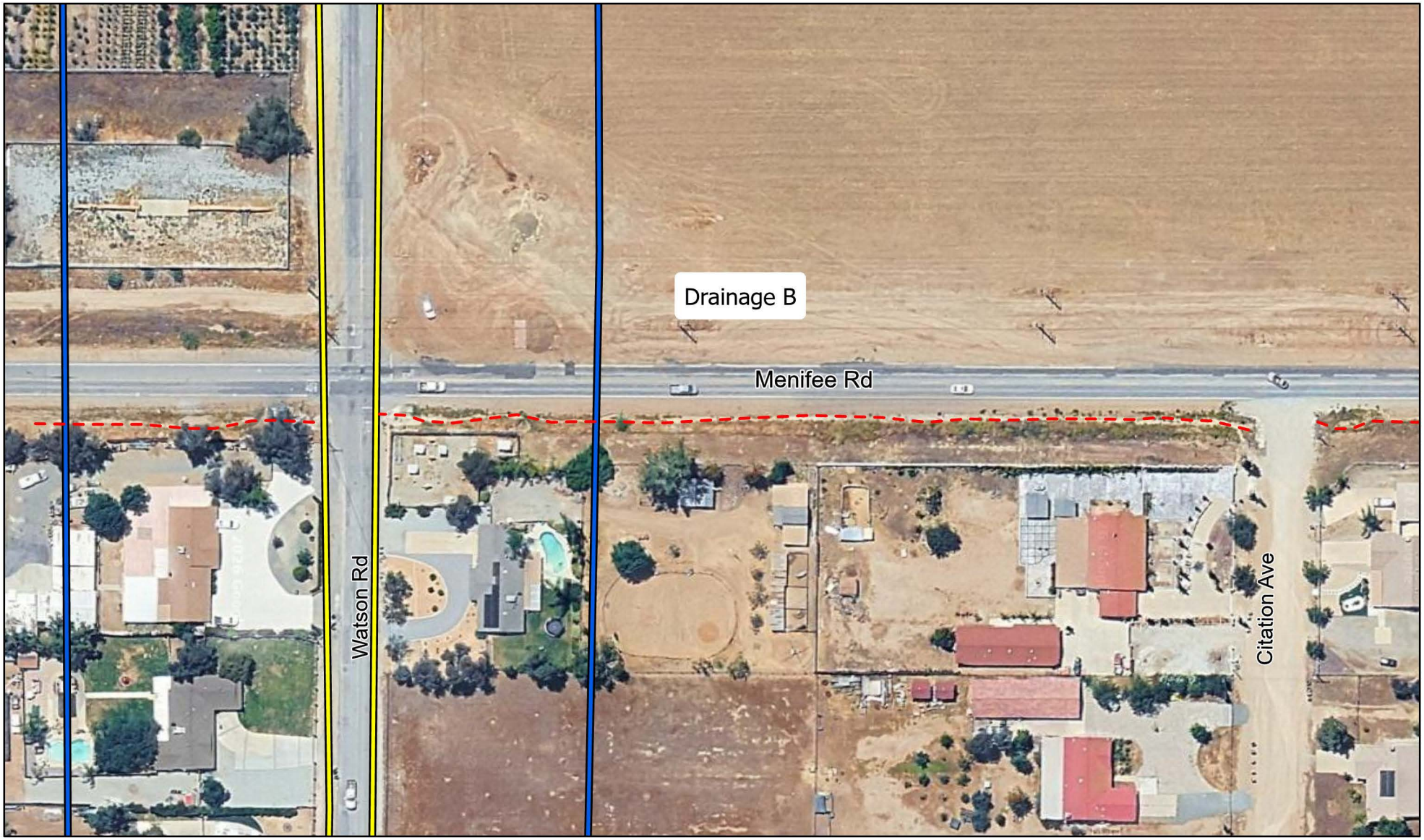

LSA

200-ft Buffer

Project Boundary

Potential Jurisdictional Waters

0 50 100

FEET

SOURCE: Google Imagery (6/2021)

I:\2025\20252406\GIS\Pro\Matthews Booster Pump Station and Transmission Line Project.aprx (4/22/2026)

FIGURE 4.4-3

Sheet 2 of 2

Menifee and Watson Road II Booster Pump Station and Matthews Transmission Pipeline Project

Potential Jurisdictional Waters

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c. Would the project 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 known federally or State-protected wetlands are present on the Project site, as seen on the National Wetlands Inventory Wetlands Mapper.[22] The drainage ditches within the study area were examined for wetland characteristics (e.g., hydric soils, wetland vegetation, wetland hydrology) during the reconnaissance field surveys for the Project. Hydric soils are formed under conditions of saturation, flooding, or ponding for a long enough period during the growing season to develop anaerobic conditions. As discussed above, the drainage ditches featured non-native ruderal vegetation. Further, these ditches are ephemeral; therefore, neither Drainage A nor Drainage B would be considered "traditional navigable waters" and they would not be considered jurisdictional by the United States Army Corps of Engineers (USACE). However, a final determination as to the jurisdictional status of these ditches is subject to verification by the USACE, Regional Water Quality Control Board (RWQCB), and CDFW.

As described above, Drainage B is a roadside drainage ditch that runs parallel to Menifee Road and underneath Watson Road, across the proposed pipeline alignment. Drainage B would be protected in place and avoided during project construction. Drainage A, which runs parallel to Watson Road across a portion of the proposed BPS site, would be temporarily impacted during project construction. Following construction of proposed BPS improvements, EMWD intends to restore the grades to pre-Project conditions.

If Drainage A is determined to be jurisdictional by the RWQCB, and/or the CDFW, implementation of the Proposed Project would result in temporary impacts to jurisdictional waters. Implementation of **Mitigation Measure BIO-3**, which requires that a formal jurisdictional delineation be prepared and that EMWD obtain and comply with appropriate regulatory permits and provide compensatory mitigation, as needed, would reduce potential impacts to jurisdictional waters to a less than significant level.

Mitigation Measures: The following mitigation measure applies to the Proposed Project:

Mitigation Measure BIO-3 **Jurisdictional Delineation.** Prior to commencing construction activities associated with the booster pump station (BPS) site and the pipeline connections along Watson Road west of Antelope Road, a jurisdictional delineation shall be conducted. A three-parameter delineation shall be conducted according to the California Department of Fish and Wildlife's (CDFW) *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Regional Supplement) and the 1987 United States Army Corps of Engineers (USACE) Wetland Delineation Manual, and to delineate the jurisdictional limit of non-wetland waters of the

[22] United States Fish and Wildlife Service (USFWS). n.d. National Wetlands Inventory Surface Waters and Wetlands. Website: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/ (accessed December 1, 2025).

United States following the procedures set forth in 33 Code of Federal Regulations 328.3(e). If impacts to identified aquatic resources are expected to occur, appropriate permits will need to be acquired from the appropriate agencies. This includes the issuance of a Streambed Alteration Agreement, as issued by CDFW under Section 1602 of the Fish and Game Code, and Waste Discharge Requirements, as issued by the Regional Water Quality Control Board under the Porter-Cologne Water Quality Control Act. A verification, in the form of a jurisdictional determination, will also need to be requested from the USACE on the regulatory conclusions made in the jurisdictional delineation for USACE jurisdiction. Should the USACE determine aquatic resources under its jurisdiction are present within the Project site and are proposed for impacts, a Section 404 permit will need to be acquired from the USACE. The Eastern Municipal Water District (EMWD) shall comply with all permit conditions, including the provision of compensatory mitigation, if required by the regulatory agencies.

Significance Determination: Less Than Significant with Mitigation Incorporated

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Wildlife movement and habitat fragmentation are important issues in assessing effects to wildlife. Habitat fragmentation occurs when a proposed action results in a single, unified habitat area being divided into two or more areas such that the division isolates the two new areas from each other. Isolation of habitat occurs when wildlife cannot move freely from one portion of the habitat to another or from one habitat type to another. An example is the fragmentation of habitats within and around "checkerboard" residential development. Habitat fragmentation can also occur when a portion of one or more habitats is converted into another habitat, as when scrub habitats are converted into annual grassland habitat because of frequent burning. Habitat fragmentation and isolation reduce connectivity, limit movement, lower reproductive success, and leave species more vulnerable to environmental disturbances. Species with high sensitivity or limited ranges are often most impacted, while generalist species may be able to adapt more readily.

The Project site does not correspond to any natural landscape blocks, small natural areas, interstate connections, essential connectivity areas, or potential riparian connections, as documented in the *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California* report.[23] Wildlife movement of species such as coyote (*Canis latrans*) is expected within most of the Project site given the Project's proximity to vacant undeveloped lands, such as the two fields adjacent

[23] Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. California Essential Habitat Connectivity Project. *California Essential Habitat Connectivity: A Strategy for Conserving a Connected California.* February. Website: consbio.org/wp-content/uploads/2022/05/CEHC_Plan_MASTER_030210_31_2.pdf (accessed October 30, 2025).

to Watson Road and an undeveloped section adjacent to the northwest intersection of Watson Road and Menifee Road. Undeveloped lands within the study area are bordered by existing paved roads that already restrict wildlife movement in the Project vicinity. Due to the Project occurring within an urban environment, wildlife movement within the Project site is anticipated to be limited to wildlife present on site or present on the undeveloped land to the east of the Project site.

The wildlife species that occur in the vicinity of the Project site are likely adapted to the urban-wildland interface, and the Project would not introduce new effects to the area. Potential noise, vibration, light, dust, or human disturbance associated with Project construction activities would only temporarily deter wildlife from using areas in the immediate vicinity. These indirect effects could temporarily alter migration behaviors, territories, or foraging habitats in select areas. However, because these are temporary effects and the Project vicinity is partially developed, it is likely that wildlife already living and moving close to the Project site would alter their normal functions for the duration of land use changes and development and then re-establish these functions once all temporary effects have been removed. Project activities would not place any permanent barriers within any known wildlife movement corridors or interfere with habitat connectivity. Therefore, the Proposed Project would not substantially limit wildlife movement.

In addition, most birds and their active nests are protected from "take" (meaning destruction, pursuit, possession, etc.) under the MBTA and/or Sections 3503–3801 of the California Fish and Game Code. Activities that cause destruction of active nests or that cause nest abandonment and subsequent death of eggs or young may constitute violations of one or both of these laws. To avoid potential effects to fully protected raptors, special-status bird species, and other nesting birds protected by the California Fish and Game Code, and for compliance with MSHCP Incidental Take Permit Condition 5, State regulations require a nesting bird pre-construction survey to be conducted by a qualified biologist 3 days prior to ground-disturbing activities. Should nesting birds be found, an exclusionary buffer would be established by the qualified biologist. The buffer may be up to 500 feet in diameter depending on the species of nesting bird found. This buffer would be clearly marked in the field by construction personnel under guidance of the qualified biologist, and construction or clearing would not be conducted within this zone until the qualified biologist determines that the young have fledged or the nest is no longer active. Nesting bird habitat within the Project site would be resurveyed during bird breeding season if there is a lapse in construction activities longer than 7 days. The nesting bird pre-construction survey would be satisfied through **Mitigation Measure BIO-2** as described above.

Mitigation Measures: Implement Mitigation Measure BIO-2, above.

Significance Determination: Less Than Significant with Mitigation Incorporated

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The City of Menifee's Tree Preservation Regulations (Section 9.205.030 of the City's Municipal Code) establishes requirements for tree protection and removal in Menifee. Section 9.205.030 outlines its purpose to protecting mature trees that are in good health, do not pose safety threats, and are not nuisance trees, as well as those categorized as heritage trees.

The Proposed Project would result in the removal of one non-native tree. However, pursuant to California Code Section 53090, the Proposed Project would not be subject to the City's tree removal ordinance. Therefore, implementation of the Proposed Project would not conflict with any local policies or ordinances protecting biological resources, and **no impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The Proposed Project is located within the MSHCP. However, because EMWD is not a signatory, the Proposed Project is not subject to applicable provisions of the MSHCP as specified in Section 4.4.a, above. EMWD is not pursuing a PSE designation for the Project site, and the Project would not be subject to MSHCP policies and procedures. (For example, the following MSHCP policies and procedures do not apply to this Project: Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools [MSHCP Section 6.1.2], Protection of the Narrow Endemic Plant Species [MSHCP Section 6.1.3], Additional Survey Needs and Procedures [MSHCP Section 6.3.2], and Urban/Wildland Interface Guidelines [MSHCP Section 6.1.4]).

As noted above, the Proposed Project is within the SKR HCP fee area However, EMWD is not a permittee under the SKR HCP. Further, as indicated in Table 4.4.A, no suitable nesting habitat for SKR is present within the Project study area. Therefore, EMWD is exempt from this requirement, and no further action is necessary to comply with the SKR HCP and obtain coverage for the species.

Since the Proposed Project is not signatory to the MSHCP and is exempt from payment of the SKR HCP fee, **no impact** to any local policies or ordinances protecting biological resources would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

4.5 CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 formal cemeteries?	☐	☒	☐	☐

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

For a cultural resource to be considered a historical resource (i.e., eligible for listing in the California Register of Historical Resources [California Register]), it generally must be 50 years or older. Under CEQA, historical resources can include pre-contact (i.e., Native American) archaeological deposits, historic-period archaeological deposits, historic buildings, and historic districts. To identify cultural resources at the Project site and evaluate the Proposed Project's potential to adversely impact a cultural resource, including historic resources, a Cultural Resources Study[24] was prepared for the Proposed Project.

As part of the Cultural Resources Study, the following tasks were completed: (1) a records search at the Eastern Information Center of the California Historical Resources Information System, and (2) a field survey of the Project site by a qualified archaeologist. EMWD also undertook consultation outreach with California Tribal organizations pursuant to the requirements of AB 52 (refer to Section 4.18, Tribal Cultural Resources).

Records Search. Data from the records search conducted at the Eastern Information Center indicate 36 cultural resources studies have been previously conducted within the 0.5-mile search radius, including 6 that overlapped the Project site. There are 18 previously recorded cultural resources within the search radius, consisting of pre-contact and historic-period archaeological resources and built-environment cultural resources. One previously recorded resource was identified within the Project footprint: a section of Antelope Road (P-33-020640/CA-RIV-10543) just north of SR-74. The road segment was recorded as a historic-period archaeological site due to the road alignment appearing on United States Geological Survey (USGS) topographic maps dating to the mid-1950s.

Field Survey. An LSA archaeologist performed the initial survey on September 22, 2023. Ground surface visibility was limited throughout the survey area, primarily due to the presence of landscaping, sidewalks, and vegetation. On October 13, 2025, an LSA archaeologist performed a supplemental

[24] LSA Associates, Inc. 2025b. *Cultural Resource Study for the Menifee and Watson Road II Booster Pump Station and Pipeline Project, Menifee, Riverside County, California (LSA Project No. 20252406)*. November 14.

survey of the new proposed BPS site, located just north of Watson Road and west of Antelope Road. Seasonal grasses and Russian thistle were prevalent throughout the updated Project site, resulting in poor surface visibility at the time of survey. No new cultural resources were identified. As a result of the original survey, two previously recorded resources of historic age, the San Jacinto Valley Railway (P-33-015743) and Antelope Road (P-33-020640), were identified. The resources are described in detail below.

- **San Jacinto Valley Railway (P-33-015743).** This resource is a segment of the San Jacinto Valley Railroad. The resource was originally recorded by Easter and Beedle in 2005 and subsequently updated in 2007, 2008, 2009, and 2023. The railway originates at the Perris Station and travels in a semicircular route through the San Jacinto Valley. The railway was constructed in 1888 by Fred Perris and C.W. Smith of the California Southern Railroad, and the Valley Railway was later incorporated by J.A. Green. The railroad provided transportation of products from the San Jacinto Valley to markets in San Diego and Los Angeles, as well as passenger services to Los Angeles. The segment of the rail line within the current Project location was not previously recorded.

- **Antelope Road (P-33-020640).** This site, originally recorded in 2011, consists of a segment of the asphalt-paved, marked, two-lane historical-period road known as Antelope Road. The site was identified on the *Murrieta* (1942) 15-minute and *Romoland* (1953) 7.5-minute USGS topographic quads.

Summary of Results. A cultural resources records search and a field survey were conducted for the project area. Two resources were identified within the project site during this study, consisting of segments of Antelope Road (P-33-020640) and the San Jacinto Valley Railway (P-33-015743).

The San Jacinto Valley Railway was previously recorded in other locations but was found during the field survey to extend through the southern end of the project site. The rail line is mostly intact within the current study area. However, the project will avoid the railroad by using trenchless (jack-and-bore) technology to install the proposed pipeline underneath the railroad bed without incurring surface impacts. Therefore, impacts to this resource would be less than significant.

Antelope Road was previously recorded because the road alignment was depicted on historical maps dating to the mid-1950s. The road, however, has been substantially altered over time byre-paving and other improvements, as well as installation of multiple underground utilities beneath the road. While the historical alignment of the road is extant, all other features of the original road have been changed by modernization of the road prism and the installation of underground utilities. Given the lack of physical integrity, the road does not meet the criteria for inclusion on the National Register of Historic Places (National Register) or the California Register. As such, the road no longer qualifies as a historical resource for the purposes of CEQA, as defined in Public Resources Code (PRC) Section 21084.1, as defined in PRC Section 5020.1(k), nor is it deemed significant pursuant to criteria set forth in PRC Section 5024.1(g). Therefore, impacts to this resource would be less than significant.

The records search results revealed a general sensitivity for pre-contact resources in the area based on previously recorded resources in the 0.5-mile search radius. Therefore, archaeological monitoring is recommended for all ground-disturbing project activities that occur within previously undisturbed soils.

Should archaeological deposits be encountered during project ground disturbance, a substantial adverse change in the significance of a historical resource would occur from its demolition, destruction, relocation, or alteration such that the significance of the resource would be materially impaired (*State CEQA Guidelines* Section 15064.5(b)(1)). However, the Proposed Project would be required to implement **Mitigation Measures TRI-1 through TRI-4**, which require Native American tribal monitoring, worker environmental awareness training, and evaluation and proper disposition of any discovered resources. With implementation of **Mitigation Measures TRI-1 through TRI-4**, potential impacts to historical resources would be **less than significant with mitigation incorporated**.

Mitigation Measures: The following mitigation measures apply to the Proposed Project:

Mitigation Measure TRI-1

Tribal Monitoring. At least 30 days prior to the start of ground-disturbing activities, the Eastern Municipal Water District (EMWD) shall contact the Consulting Tribe to develop a Cultural Resources Treatment Monitoring Agreement (Agreement). The Agreement shall address the treatment of archaeological resources inadvertently discovered on the project site; project grading; ground disturbance and development scheduling; the designation, responsibilities, and participation of tribal monitor(s) during grading, excavation, and ground-disturbing activities; and compensation for the tribal monitors, including overtime, weekend rates, and mileage reimbursement.

A tribal monitor shall be present for ground-disturbing activities associated with the project. At least 7 business days prior to ground-disturbing activities, EMWD shall notify the tribe(s) of the grading/excavation and monitoring program/schedule, to coordinate the tribal monitoring schedule. The tribal monitor shall have the authority to stop and redirect grading activities to evaluate the nature and significance of any archaeological resources discovered within the project limits. Such evaluation shall include culturally appropriate temporary and permanent treatment pursuant to the Cultural Resources Treatment and Monitoring Agreement, which may include avoidance of cultural resources, in-place preservation, data recovery, and/or reburial so the resources are not subject to further disturbance in perpetuity. Any reburial shall occur at a location determined between EMWD and the Consulting Tribe, the details of which shall be addressed in the Cultural Resources Treatment and Monitoring Agreement. Treatment may also include curation of the cultural resources at a tribal curation facility, as determined in discussion among EMWD, the project archaeologist, and tribal representatives as addressed in the Cultural Resources Treatment and Monitoring Agreement.

Mitigation Measure TRI-2 **Worker Environmental Awareness Program.** A Consulting Tribe(s) tribal monitor shall attend a pre-grade meeting with EMWD staff, the contractor, and appropriate subcontractors to discuss the monitoring program, including protocols to be followed if tribal cultural materials are encountered.

Mitigation Measure TRI-3 **Evaluation of Discovered Artifacts.** Artifacts discovered at the development site shall be treated as noted within the Cultural Resources Treatment Monitoring Agreement.

Mitigation Measure TRI-4 **Disposition of Inadvertent Discoveries.** If Native American cultural resources are recovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries with the tribe. The District shall relinquish ownership of all cultural resources, including sacred items, burial goods, and all archaeological artifacts and non-human remains, as part of the required mitigation for impacts to cultural resources, and adhere to the following:

1. Preservation-in-place is the preferred option; preservation-in-place means avoiding the resources and leaving them in the place where they were found with no development affecting the integrity of the resource.

2. If preservation-in-place is not feasible, on-site reburial of the discovered items, as detailed in the Cultural Resources Treatment Monitoring Agreement, is the next preferable treatment measure. This shall include measures and provisions to protect the future reburial area from further impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items shall be permitted without the written consent of all Consulting Native American Tribal Governments.

Significance Determination: Less Than Significant with Mitigation Incorporated

b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

According to the *State CEQA Guidelines*, "When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource" (*State CEQA Guidelines* Section 15064.5(c)(1)). Those archaeological sites that do not qualify as historical resources shall be assessed to determine if these qualify as "unique archaeological resources" (PRC Section 21083.2).

Archaeological deposits identified during project construction shall be treated by the EMWD—in consultation with a qualified archaeologist meeting the Secretary of the Interior's Professional

Qualifications Standards for Archaeology—in accordance with **Mitigation Measures TRI-1** through **TRI-4**. With implementation of **Mitigation Measures TRI-1 through TRI-4,** identified above, impacts to archaeological resources would be **less than significant with mitigation incorporated**.

Mitigation Measures: Implement Mitigation Measures TRI-1 through TRI-4.

Significance Determination: Less Than Significant with Mitigation Incorporated

c. Would the project disturb any humans remains, including those interred outside of formal cemeteries?

Based on the Cultural Resources Study prepared for the Proposed Project, there is a low potential for the disturbance of archaeological cultural resources or human remains at the project site. However, if human remains are encountered at the project site, implementation of **Mitigation Measures TRI-5** and **TRI-6** would ensure compliance with Section 7050.5 of the California Health and Safety Code, *State CEQA Guidelines* Section 15064.5(e)(1), and PRC Section 5097.98 regarding the treatment of human remains. State Health and Safety Code Section 7050.5 and *State CEQA Guidelines* Section 15064.5(e)(1) state that no further disturbance shall occur to the area of the find until the County Coroner has made a determination of origin and disposition of the human bone(s) pursuant to PRC Section 5097.98. The County Coroner must be notified of the find immediately and shall make a determination within 2 working days of being notified. If the remains are determined to be Native American, the County Coroner shall notify the Native American Heritage Commission (NAHC) by phone within 24 hours, and the NAHC shall then immediately determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection and make recommendations or preferences for treatment of the remains within 48 hours of being granted access to the site. The MLD's recommendations may include scientific removal and nondestructive analysis of human remains and items associated with Native American burials, preservation of Native American human remains and associated items in place, relinquishment of Native American human remains and associated items to the descendants for treatment, or any other culturally appropriate treatment. With implementation of **Mitigation Measures TRI-5 and TRI-6,** which require compliance with Section 7050.5 of the California Health and Safety Code and PRC Section 5097.98 regarding the treatment of human remains, impacts to human remains would be **less than significant with mitigation incorporated**.

Mitigation Measures: The following mitigation measure applies to the Proposed Project:

Mitigation Measure TRI-5 **Non-Disclosure of Reburial Locations.** It is understood by all parties that unless otherwise required by law, the site of any reburial of culturally sensitive resources shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The coroner, pursuant to the specific exemption set forth in California Government Code 6254(r), parties, and Lead Agencies will be asked to withhold public disclosure information related to such reburial.

Mitigation Measure TRI-6 **Procedure for Discover of Human Remains.** If Native American human remains are encountered, California Public Resources Code (PRC) Section 5097.98 and California Health and Safety Code Section 7050.5 will be followed. If human remains are encountered, no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to the origin. Further, pursuant to PRC Section 5097.98(b), the remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours. Subsequently, the NAHC shall identify the person or persons it believes to be the "Most Likely Descendant" (MLD). The MLD shall then make recommendations and engage in consultations concerning the treatment of the remains as provided in PRC Section 5097.98.

Significance Determination: Less Than Significant with Mitigation Incorporated

4.6 ENERGY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in a 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?	☐	☐	☒	☐

a. Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?

The project site is within the service territory of SCE. SCE provides electricity to more than 15 million people in a 50,000-square-mile area of central, coastal, and southern California.[25] According to the California Energy Commission (CEC), total electricity consumption in the SCE service area in 2024 was 282,783 gigawatt-hours (GWh).[26] Total electricity consumption in Riverside County in 2024 was 17,418 GWh.[27]

Southern California Gas (SoCalGas) is the natural gas service provider for the project area. SoCalGas provides natural gas to approximately 21.1 million consumers in a 24,000-square-mile service area throughout central and southern California, from Visalia to the Mexican border.[28] According to the CEC, total natural gas consumption in the SoCalGas service area in 2024 was 4,959 million therms.[29] Total natural gas consumption in Riverside County in 2024 was 426.7 million therms.[30]

Petroleum is also a non-renewable fossil fuel. Petroleum is a thick, flammable, yellow-to-black mixture of gaseous, liquid, and solid hydrocarbons that occurs naturally beneath the Earth's surface. Petroleum is primarily recovered by oil drilling. It is refined into a large number of consumer products, primarily fuel oil, gasoline, and diesel.

25 Southern California Edison (SCE). n.d. Fact Sheets. Website: https://download.newsroom.edison.com/create_memory_file/?f_id=5cc32d492cfac24d21aecf4c&content_verified=True (accessed November 2025).

26 California Energy Commission (CEC). 2024. Electricity Consumption. Website: https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/california-energy-consumption-dashboards-0 (accessed November 2025).

27 Ibid.

28 Southern California Gas Company (SoCalGas). 2025. About Us. Website: https://www.socalgas.com/ about-us (accessed November 2025).

29 California Energy Commission (CEC). 2024. Natural Gas Consumption. Website: https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/california-energy-consumption-dashboards-1 (accessed March 2026).

30 Ibid.

Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles. According to the most recent data available, in 2023, total gasoline consumption in California was 648,296 thousand barrels or 3,490.8 trillion British thermal units (BTU).[31] Of the total gasoline consumption, roughly 86 percent (555,413 thousand barrels, or 2,974.0 trillion BTU) was consumed for transportation.[32]

The Proposed Project would result in demand for energy resources in the form of electricity, natural gas, and petroleum fuel during construction and operations. The discussion and analysis provided below are based on data included in the California Emission Estimator Model (CalEEMod) output sheets, which are included in **Appendix A**.

Construction Energy Use. Construction of the Proposed Project is anticipated to last up to 24 months. Construction activities associated with the proposed BPS would include demolition, site preparation, grading, trenching, building construction, and decommissioning, and construction activities associated with the proposed pipeline include land clearing, grading and excavation, utilities and sub-grade, and paving. All construction activities would require energy, but all or most of this energy would be derived from non-renewable resources. Petroleum fuels (e.g., diesel and gasoline) would be the primary sources of energy for these activities. Construction of the Proposed Project would not involve the consumption of natural gas because none of the construction-related equipment would be powered by natural gas.

Construction activities are not anticipated to result in an inefficient use of energy because gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the Proposed Project. In addition, unnecessary idling and associated fuel combustion would be limited due to the Proposed Project's required compliance with CARB's In-Use Off-Road diesel regulations, which establish limits on equipment idling. Energy usage on the project site during construction would be temporary in nature and would be relatively small in comparison to the State's available energy sources. Additionally, there are no unusual project characteristics that would necessitate the use of construction equipment or vehicles that would be less energy efficient than at comparable construction sites in other parts of the State. Therefore, construction energy impacts would be less than significant, and no mitigation would be required.

Operational Energy Use. As noted previously, operation of the Proposed Project would be conducted remotely, with no full-time dedicated staff at the project site. Similar to existing operation of the Romoland BPS, existing EMWD staff may visit the site occasionally for routine maintenance activities. Because daily trips to the proposed BPS site would replace existing trips to the Romoland BPS, no new vehicle trips are anticipated.

Under existing conditions, two natural gas-powered pumps operate at the Romoland BPS. Following implementation of the project, the natural gas pumps would be retired and project operations would not involve the consumption of natural gas. The Proposed Project would include the installation of

[31] United States Energy Information Administration (EIA). 2023. California State Profile and Energy Estimates, Data. Website: https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_use_pa.html&sid=US&sid=CA (accessed September 2025).

[32] Ibid.

three electric-powered pumps at the proposed BPS, as well as a 1,500 kW standby, emergency diesel generator. Therefore, the new sources of energy demand associated with the Proposed Project would be electricity for the pumps and diesel fuel for the backup generator.

Electricity to power the pumps would be purchased from SCE, which is required to comply with the Renewable Portfolio Standards (RPS) set forth in Senate Bill (SB) 100. The RPS establish requirements for the proportion of electricity that is generated from renewable sources, with a goal for 100 percent of electricity to be from renewable sources by 2045. Therefore, the electricity fueling the on-site pumps will be produced from an increasing percentage of renewable sources over time. Additionally, the electrical demand required to power three BPSs is not considered a significant demand on the grid compared to the demands within the SCE service area.

The backup generator would not be used as part of normal operations. The diesel fuel consumption associated with the backup generator would be limited to emergency situations only and would be regulated via the permit conditions established by SCAQMD at the time of permit application.

Overall, the Proposed Project would not result in the wasteful, inefficient, or unnecessary consumption of fuel or energy and would incorporate renewable energy or energy-efficiency measures into building design, equipment uses, and transportation. Impacts would be **less than significant.**

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

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

In 2002, the Legislature passed SB 1389, which required the CEC to develop an integrated energy plan every 2 years for electricity, natural gas, and transportation fuels for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and their infrastructure needs, as well as encouragement of urban designs that reduce vehicle miles traveled (VMT) and accommodate pedestrian and bicycle access. The most recently adopted report is the *2024 Integrated Energy Policy Report.*[33] The *Integrated Energy Policy Report* covers a broad range of topics, including decarbonizing buildings, integrating renewables, energy efficiency, energy equity, integrating renewable energy, climate adaptation activities for the energy sector, natural gas assessment, transportation energy demand forecast, and the California Energy Demand Forecast.

The Proposed Project would comply with all applicable federal, State, and local regulations aimed at reducing energy consumption. Local regulations have been developed in accordance with federal and

[33] California Energy Commission (CEC). 2024. *2024 Integrated Energy Policy Report*. Docket Number: 24-IEPR-01.

State energy regulations, such as the California Energy Code Building Energy Efficiency Standards (California Code of Regulations [CCR[Title 24, Part 6), the California Green Building Standards Code (CALGreen) (CCR Title 24, Part 11), and SB 743, which are also aimed at reducing energy consumption.

As indicated above, energy usage on the project site during construction would be temporary in nature and would be relatively small in comparison to the overall use in Riverside County. In addition, energy usage associated with operation of the Proposed Project would be relatively small in comparison to the overall use in the county and the State's available energy sources. Therefore, energy impacts at the regional level would be negligible. Because California's energy conservation planning actions are conducted at a regional level, and because the Proposed Project's total impact on regional energy supplies would be minor, the Proposed Project would not conflict with or obstruct California's energy conservation plans as described in the CEC's *Integrated Energy Policy Report.*

In conclusion, potential impacts related to a conflict with or obstruction of a State or local plan for renewable energy or energy efficiency would be **less than significant.**

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

4.7 GEOLOGY AND SOILS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative 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?	☐	☒	☐	☐

The following discussion is based on the project-specific *Matthews Booster Pumping Station and Pipeline Project Geotechnical Report* (Geotechnical Exploration) (**Appendix C**),[34] the *Geotechnical Update* (Geotechnical Update) (**Appendix C**),[35] and the *Paleontological Analysis of the Matthews Booster Pump Station Project, Menifee, Riverside County, California* (Paleontological Analysis) (**Appendix D**).[36]

[34] Leighton Consulting, Inc. 2021. *Geotechnical Exploration, Matthews Booster Pump Station and Pipeline Project, Eastern Municipal Waer District (EMW), Menifee, Riverside County, California.* September 27.

[35] Verdantas. 2025. *Geotechnical Update, Eastern Municipal Water District (EMWD), Matthews/Romoland Booster Pump Station, City of Menifee, Riverside County, California.* June.

[36] LSA Associates, Inc. 2025c. *Paleontological Analysis of the Menifee and Watson Road II Booster Pump Station and Pipeline Project, Menifee, Riverside County, California.* December 8.

a. Would the project 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.

The State of California enacted the Alquist-Priolo Earthquake Fault Zoning Act in 1972, requiring the State Geologist to delineate Earthquake Fault Zones (EFZs) along known active faults that have high potential for fault rupture. Active faults are defined as faults that have surface displacement within the last 11,000 years.[37] Alquist-Priolo EFZs delineate areas around active faults with potential surface fault rupture hazards that would require specific geological investigations prior to approval of certain kinds of development within the delineated area. State regulations prohibit habitable structures from being sited within 50 feet of an active fault.

According to the project-specific Geotechnical Exploration and the Geotechnical Update, the project site is not located within a designated EFZ. In addition, the City's General Plan does not identify the project site as being within or adjacent to any active fault or designated fault zone.[38] Nearby active faults include the Casa Loma and Glen Ivy North faults, which are located 11 miles and 12 miles, respectively, from the site. According to the California Earthquake Hazards Zone Application ("EQ Zapp"),[39] the Casa Loma Fault is the nearest Alquist-Priolo EFZ.

Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. The location of surface rupture generally can be assumed to be along an active or potentially active major fault trace. Based on the distance from the project site, rupture of the Casa Loma fault through the site is not anticipated. Therefore, the Proposed Project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving the rupture of a known earthquake fault. **No impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

ii. Strong seismic ground shaking?

Ground shaking is a general term referring to all aspects of motion of the Earth's surface resulting from an earthquake and is normally the major cause of damage in seismic events. The extent of ground shaking is controlled by the magnitude and intensity of the earthquake, distance from the

[37] California Department of Conservation (DOC). n.d.-b. *California Earthquake Hazards Zone Application ("EQ Zapp").* Website: https://maps.conservation.ca.gov/cgs/EQZApp/app/ (accessed November 13, 2025).

[38] City of Menifee. 2021a. *City of Menifee General Plan, Safety Element, Exhibit S-1: Fault Map.* Website: https://www.cityofmenifee.us/DocumentCenter/View/18261/FINAL_Safety-Element-6723_complete_reduced-size-for-webpage?bidId= (accessed November 13, 2025).

[39] California Department of Conservation (DOC). n.d.-b. *California Earthquake Hazards Zone Application ("EQ Zapp").* Website: https://maps.conservation.ca.gov/cgs/EQZApp/app/ (accessed November 13, 2025).

epicenter, and local geologic conditions. The magnitude of a seismic event is a measure of the energy released by an earthquake; it is assessed by seismographs that measure the amplitude of seismic waves. The intensity of an earthquake is a subjective measure of the perceptible effects of a seismic event at a given point. The Modified Mercalli Intensity scale is the most commonly used scale to measure the subjective effects of earthquake intensity. It uses values ranging from I to XII.[40] The closest faults to the project site are the Casa Loma fault, located approximately 11 miles east of the project site, and the Glen Ivy North fault, located approximately 12 miles west of the project site.[41]

Buried pipelines, like those proposed as part of the project, are generally less susceptible to damage from strong ground shaking than aboveground structures since belowground pipelines are typically embedded in compacted backfill that can tolerate more seismic movement. Accepted procedures for placement of the water lines and construction measures necessary to minimize potential adverse effects have been incorporated into the project design. The Proposed Project would be required to comply with the most current California Building Code (CBC) standards, which stipulate appropriate seismic design provisions that shall be implemented with project design and construction. In addition, the Geotechnical Exploration and the Geotechnical Update completed for the Proposed Project include design recommendations to manage potential concerns associated with strong seismic shaking, including, but not limited to, excavation and subgrade preparation, pipeline bedding and subgrade, backfill requirements, foundation and retaining wall design, pavement design, pipeline design, and construction of cut and fill slopes no steeper than 2:1 (horizontal: vertical). These reports also provided recommendations regarding appropriate construction techniques. The geotechnical reports are provided as **Appendix C**.

While the project site would be exposed to seismic ground shaking, the Proposed Project would not cause or exacerbate strong seismic ground shaking that would expose people or structures to significant risk of injury or loss of property. Compliance with the CBC, the recommendations in the Geotechnical Exploration and the Geotechnical Update, EMWD standards, and the latest edition of the Standard Specifications for Public Works Construction[42] would reduce any potential impacts related to on-site seismic ground shaking to a less than significant level. Therefore, the Proposed Project would not expose people or structures to substantial effects related to ground shaking. Impacts would be **less than significant.**

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

[40] United States Geological Survey (USGS). 2018. The Modified Mercalli Intensity Scale. Website: www.usgs.gov/natural-hazards/earthquake-hazards/science/modified-mercalli-intensity-scale?qt-science_center_objects=0#qt-science_center_objects (accessed November 13, 2025).

[41] California Department of Conservation (DOC). 2015. Fault Activity Map of California. Website: https://maps.conservation.ca.gov/cgs/fam/ (accessed November 13, 2025).

[42] Public Works Standards, Inc. 2021. "Greenbook" Standard Specifications for Public Works Construction, published by BNI Building News.

iii. Seismic-related ground failure, including liquefaction?

Liquefaction is the transformation of saturated, loose, fine-grained sediment to a fluid-like state because of earthquake shaking or other rapid loading. Soils most susceptible to liquefaction are loose to medium-dense, saturated sands, silty sands, sandy silts, non-plastic silts and gravels with poor drainage, or those capped by or containing seams of impermeable sediment.

The California Geological Survey (CGS) has mapped Seismic Hazard Zones that delineate areas susceptible to liquefaction and/or landslides that require proposed new developments in these areas to conduct additional investigation to determine the extent and magnitude of potential ground failure. According to the CGS,[43] the project site is not located within a mapped liquefaction zone. Both the Geotechnical Exploration and the Geotechnical Update indicate that the project site is overlain by dense older alluvium underlain by bedrock, which is not prone to liquefaction.

In addition, as described in Threshold 4.7.a.ii, above, accepted procedures for placement of the water lines and construction measures necessary to minimize potential adverse effects have been incorporated into the project's design. Additionally, the Proposed Project, including the proposed BPS facility, would be required to be designed and constructed in conformance with applicable provisions of the CBC and the recommendations cited in the project-specific Geotechnical Exploration and Geotechnical Update. Therefore, the impact of seismic-related ground failure, including liquefaction, would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

iv. Landslides?

The project area and surrounding vicinity are generally level, and the surfaces along the proposed pipeline alignment is primarily impervious. According to the City's General Plan, the project site and surrounding area are not located within a mapped landslide hazards area.[44] In addition, the project-specific Geotechnical Exploration indicated that no landslides have been recorded along the proposed pipeline alignment. Therefore, the Proposed Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. No impact would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

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[43] California Geological Survey (CGS). 2021. Earthquake Zones of Required Investigation. Website: https://maps.conservation.ca.gov/cgs/EQZApp/app/ (accessed November 13, 2025).

[44] City of Menifee. 2021b. *City of Menifee General Plan, Safety Element, Exhibit S-3: Liquefaction and Landsides.* Website: https://www.cityofmenifee.us/DocumentCenter/View/18261/FINAL_Safety-Element-6723_complete_reduced-size-for-webpage?bidId= (accessed November 13, 2025).

b. Would the project result in substantial soil erosion or the loss of topsoil?

During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions during the period of earthwork activities and between the time when earthwork is completed and new vegetation is established, or hardscape is installed. As discussed in Section 4.10, Hydrology and Water Quality, because construction of the Project would disturb more than 1 acre of soil, the Proposed Project would be subject to the requirements of the State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharge Associated with Construction and Land Disturbance Activities (Order No. WQ 2022-0057-DWQ, NPDES No. CAS000002) (CGP), which requires preparation of a SWPPP and implementation of Erosion Control and Sediment Control BMPs. Therefore, preparation of a SWPPP and implementation of Erosion Control and Sediment Control BMPs would be required during construction of the Proposed Project. The SWPPP would provide the details of the erosion control measures to be applied on the Project site during the construction period, including BMPs for erosion control that are recognized by the RWQCB. Implementation of a SWPPP, as required by the CGP and as specified in Section 2.6, Environmental Commitments, would ensure that potential impacts related to soil erosion and loss of topsoil associated with Project construction would be reduced to a **less than significant** level.

Implementation of the Proposed Project would result in approximately 40,000 square feet of new impervious surface area at the combined BPS site. The proposed pipeline would be installed within the existing right-of-way, would not result in an increase in impervious surfaces, and would not require any structures. An increase in impervious surface area increases the rate and volume of runoff during a storm, which can more effectively transport sediments to receiving waters. However, the impervious surface areas on the Project site would not be prone to erosion because there would be no exposed soil. The remaining pervious surfaces on the Project site would be similar to the existing condition and, due to the relatively flat topography, are not expected to result in a significant increase in the rate and volume of stormwater runoff that would result in substantial soil erosion or the loss of topsoil. Therefore, implementation of the Project would not result in any long-term operational impacts related to soil erosion or loss of topsoil.

Overall, implementation of the Proposed Project would not result in substantial erosion or loss of topsoil. Impacts would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

c. Would the project 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?

As previously described, the Project site is located on relatively level terrain and is not within a mapped landslide or liquefaction hazard zone. The proposed pipeline and combined BPS would be designed and constructed with adequate foundations and bedding in accordance with the CBC, standard engineering practices, and the recommendations identified in the Geotechnical Exploration

and Geotechnical Update. The Geotechnical Exploration indicated that lateral spreading is not considered to be a geologic hazard for the Proposed Project. The project site is not anticipated to become unstable as a result of the Proposed Project or potentially result in on- or off-site landslides, liquefaction, or lateral spreading. Therefore, the Proposed Project would not result in a geologic hazard from landslide, lateral spreading, subsidence, liquefaction, or collapse. Impacts would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

d. Would the project 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)***

Expansion and contraction of volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly. Changes in soil volume could result in significant expansion pressure on any structures proposed as part of future development of the project site. Expansive soils are common throughout California and can cause damage to foundations and slabs unless properly treated during construction.

According to the Geotechnical Exploration, subsurface materials in the project area primarily include artificial fill and dense alluvial deposits, which were classified as Occupational Safety and Health Administration (OSHA) Soil Type C. Artificial fill is typical embankment fill associated with existing roadways and generally consists of silty sand materials. Quaternary old alluvial materials were encountered beneath the artificial fill in all borings. This alluvium is generally dense to very dense and consists of silty sand and sandy silt soils.

According to the Geotechnical Update, the BPS site is underlain by quaternary-aged older fan deposits overlain by a thin layer of artificial fill/disturbed soil. This older alluvium consists of dense to very dense silty sand and clayey sand, as well as very hard sandy silt. Based on laboratory testing, the shallow soils possess very low expansion potential and possess very slight potential for collapse.

Both the Geotechnical Exploration and the Geotechnical Update completed for the Proposed Project include design recommendations, including the appropriate selection of backfill materials that do not exhibit expansive behavior. As previously discussed, the Proposed Project would be required to adhere to the applicable provisions of the CBC, the recommendations cited in the project-specific Geotechnical Exploration and Geotechnical Update, EMWD standards, and the latest edition of the Standard Specifications for Public Works Construction. Compliance with these regulatory requirements would ensure that any potential impacts related to expansive soils would be **less than significant.**

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

e. Would the project 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?

Implementation of the project would not include installation of septic tanks or alternative wastewater disposal systems. Therefore, there would be **no impact** to soils and wastewater disposal.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The Paleontological Analysis[45] (**Appendix D**) prepared for the Proposed Project evaluated potential impacts on paleontological resources with implementation of the Proposed Project. The project is at the northern end of the Peninsular Ranges Geomorphic Province, a 900-mile-long northwest-southeast-trending structural block that extends from the Transverse Ranges in the north to the tip of Baja California in the south and includes the Los Angeles Basin. This province is characterized by mountains and valleys that trend in a northwest-southeast direction, roughly parallel to the San Andreas Fault. The total width of the province is approximately 225 miles, extending from the Colorado Desert in the east, across the continental shelf, to the Southern Channel Islands (i.e., Santa Barbara, San Nicolas, Santa Catalina, and San Clemente). It contains extensive pre-Cenozoic (more than 66 million years ago [Ma]) igneous and metamorphic rock covered by limited exposures of Cenozoic (less than 66 Ma) sedimentary deposits. Within this province, the project site is located on the Perris Block, a fault-bounded structural block that extends from the southern foot of the San Gabriel and San Bernardino mountains southeast to the vicinity of Bachelor Mountain and Polly Butte. It is bounded on the northeast by the San Jacinto fault and on the southwest by the Elsinore Fault Zone.

Geologic mapping indicates the project site is underlain by Old Alluvial Fan Deposits, which are late to middle Pleistocene (11,700–774,000 years ago) in age. Although not mapped, Artificial Fill is also present at the surface of the project site, where it was placed for previous development of roads and landscaping, as confirmed by the Geotechnical Investigation and the Geotechnical Update. According to the locality search conducted by the Natural History Museum of Los Angeles County (LACM), no fossil localities are present within the boundaries of the project site. However, this search noted records of five fossil localities nearby from geologic deposits of similar Pleistocene age to those within the project site (e.g., the Old Alluvial Fan Deposits). The closest fossil locality, LACM VP 6059, located just east-southeast of Lake Elsinore yielded remains of camel (Camelidae) while the next closest locality, LACM IP 437 located on the west side of Castile Canyon, north of the Soboba Indian Reservation, yielded invertebrate remains of insect (*Sobobapteron kirkbaye*) and brachiopod (*Terebratalia hemphili*). Slightly further away, LACM VP 7261, located at Skinner Reservoir, produced remains of elephant (Proboscidea) and ungulate (Ungulata); LACM VP 1207, located to the east of a sewage disposal plant 1 mile north-northwest of Corona, yielded remains of an unknown bovine

[45] LSA Associates, Inc. 2025c. *Paleontological Analysis of the Menifee and Watson Road II Booster Pump Station and Pipeline Project, Menifee, Riverside County, California.* December 8.

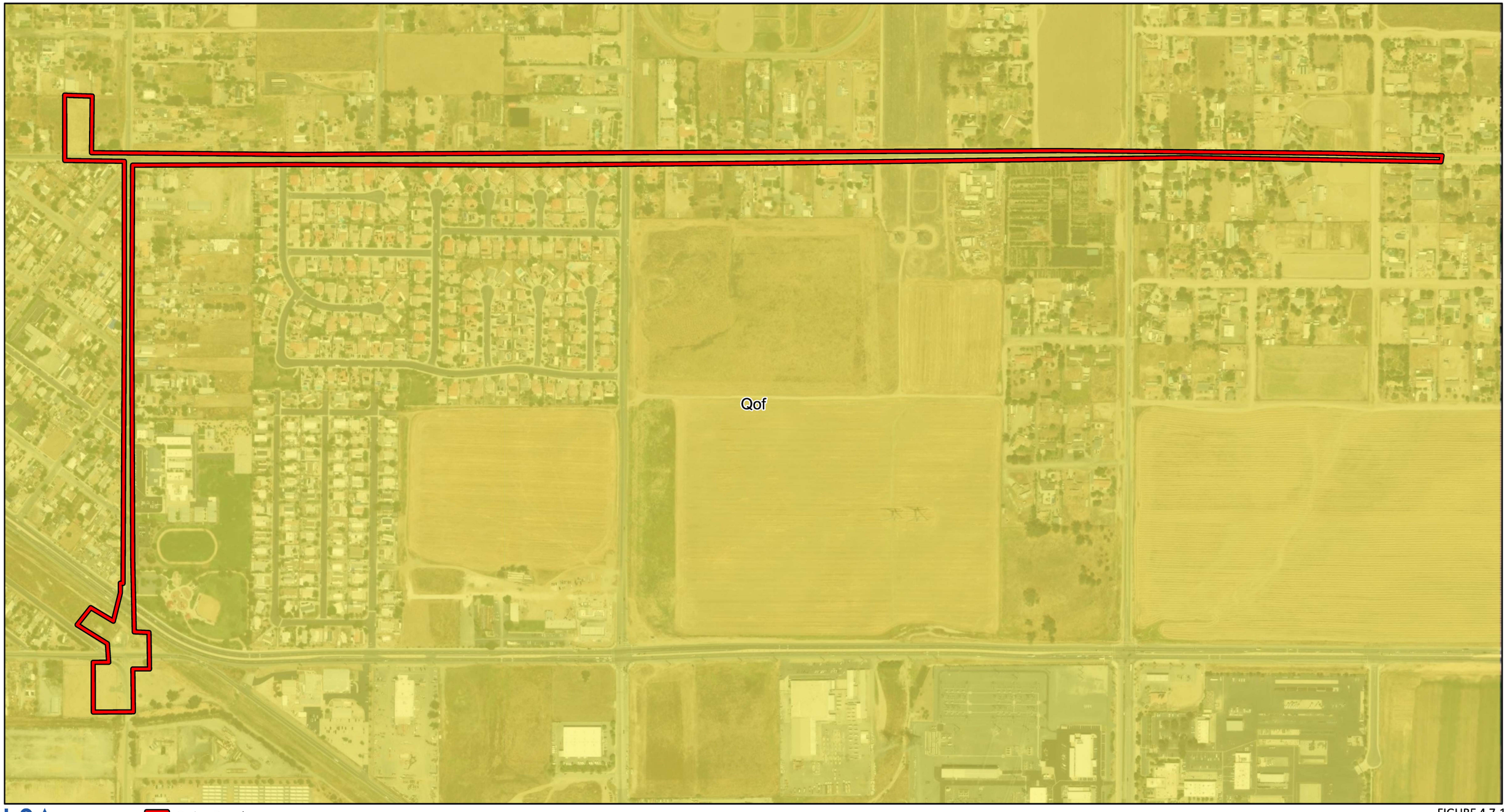
(Bovidae); and LACM VP 7811, situated west of Orchard Park in Chino Valley, produced fossil remains of whip snake (*Masticophis*).

Artificial Fill consists of sediments that have been removed from one location and transported to another location by human activity, rather than by natural means. The transportation distance can vary from a few feet to many miles, and composition is dependent on the source and purpose. Artificial Fill will sometimes contain modern debris, such as asphalt, wood, bricks, concrete, metal, glass, plastic, or plant material, and may contain fossils. Any fossils encountered in Artificial Fill have been removed from their original location and are thus out of stratigraphic context. Therefore, they are not considered important for scientific study. As such, Artificial Fill has no paleontological sensitivity.

The Old Alluvial Fan Deposits formed during the late to middle Pleistocene (11,700–774,000 years ago) from sediments that were eroded from the mountains and carried to lower elevations by rivers and streams. They are found at the mouths of canyons, along the sides of hills that flank river and stream valleys, and within the valleys themselves. These deposits span the latest two North American Land Mammal Ages: the Rancholabrean (11,700–240,000 years ago) and the Irvingtonian (240,000 years ago–1.8 Ma). Fossils are known in similar Rancholabrean and Irvingtonian deposits from excavations for roads, housing developments, and quarries, as well as scientific investigations in Riverside County and the southern California area. These fossils include mammoths, mastodons, horses, bison, camels, saber-toothed cats, coyotes, deer, and sloths, as well as smaller animals like rodents, rabbits, birds, reptiles, and fish. As such, these deposits are considered to have high paleontological sensitivity.

As shown in Figure 4.7-1, the entire project site is underlain by Old Alluvial Fan Deposits, which have high paleontological sensitivity. Excavation is expected to extend to 8 feet bgs for demolition of the existing Romoland BPS and construction of the combined BPS building would require over-excavation up to 12-15 feet bgs. Construction of the Matthews pipeline would require a maximum trench depth of 10 feet bgs, with boring depths anticipated to extend at least 9 feet bgs and could extend between 12 and 20 feet bgs. With a maximum depth of 20 feet, excavation for the Proposed Project is expected to extend into deposits with high paleontological sensitivity. Based on the finding that the project site has a “high sensitivity” for paleontological resources, the project may have a significant impact related to unanticipated discoveries of unique paleontological resources. As such, implementation of **Mitigation Measures GEO-1, GEO-2,** and **GEO-3** is required to ensure impacts are reduced to a less than significant level.

Implementation of Mitigation Measures GEO-1 through GEO-3 would reduce the level of the potential impact through the preparation of a Paleontological Resources Impact Mitigation Program; monitoring during construction; the evaluation of unanticipated discoveries; and the recovery of significant paleontological data from those resources that warrant such investigation. This process would recover scientifically consequential information from at-risk resources to offset their potential loss. Therefore, with implementation of Mitigation Measures GEO-1 through GEO-3, impacts on paleontological resources would be **less than significant with mitigation incorporated**.



LSA

Project Boundary

Geology

Old alluvial-fan deposits

0 250 500

FEET

SOURCE: Maxar

I:\2025\20252406\GIS\Pro\Matthews Booster Pump Station and Transmission Line Project.aprx (Fig 2 - Geology Map (11x17))
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FIGURE 4.7-1

Menifee and Watson Road II Booster Pump Station and Matthews Transmission Pipeline Project
Geology Map

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Mitigation Measures: The following mitigation measures apply to the Proposed Project:

Mitigation Measure GEO-1 **Paleontological Resources Impact Mitigation Program.** A paleontologist who meets the qualifications established by the Society of Vertebrate Paleontology (SVP) shall be retained to develop a Paleontological Resources Impact Mitigation Program (PRIMP) for this project. The PRIMP shall be consistent with the standards of the SVP and include the methods that will be used to protect paleontological resources that may exist within the project site, as well as procedures for monitoring, fossil preparation and identification, curation into a repository, and preparation of a report at the conclusion of grading.

Mitigation Measure GEO-2 **Paleontological Monitoring.** Excavation and grading activities in deposits with high paleontological sensitivity (i.e., Old Alluvial Fan Deposits) shall be spot-checked by a qualified paleontological monitor following a PRIMP. Monitoring may be reduced or halted at the discretion of the project paleontologist, in consultation with the Eastern Municipal Water District (EMWD), if site conditions indicate that there is little likelihood of encountering intact deposits. No monitoring is required for excavations in deposits with no paleontological sensitivity (i.e., Artificial Fill and Lakeview Mountains Pluton). If paleontological resources are encountered during the course of ground disturbance, the paleontological monitor shall have the authority to temporarily redirect construction away from the area of the find. In the event that paleontological resources are encountered when a paleontological monitor is not present, work in the immediate area of the find shall be redirected, and the paleontologist or paleontological monitor shall be contacted to assess the find for scientific significance. If determined to be scientifically significant, the fossil shall be collected from the field.

Mitigation Measure GEO-3 **Treatment of Paleontological Resources.** Collected resources shall be prepared to the point of identification, identified to the lowest taxonomic level possible, cataloged, and curated into the permanent collections of a museum repository. At the conclusion of the monitoring program, a report of findings shall be prepared to document the results of the monitoring program.

Significance Determination: Less Than Significant with Mitigation Incorporated

4.8 GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Greenhouse gases (GHGs) are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

These gases vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to carbon dioxide (CO_2), the most abundant GHG; the definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e).

State CEQA Guidelines Section 15064(b) provides that the "determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data," and further states that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, the SCAQMD convened a GHG CEQA Significance Threshold Working Group (Working Group). The Working Group has identified a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency:

- **Tier 1—Exemptions:** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.

- **Tier 2—Consistency with a Locally Adopted GHG Reduction Plan:** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.

- **Tier 3—Numerical Screening Threshold:** If GHG emissions are less than the numerical screening-level threshold, project-level and cumulative GHG emissions are less than significant.

  For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment of GHG emissions. SCAQMD, under Option 1, is proposing a "bright-line" screening-level threshold of 3,000 metric tons (MT) of CO_2e (or MT CO_2e) per year (or MT CO_2e/year) for all land use types or, under Option 2, the following land use-specific thresholds: 1,400 MT CO_2e for commercial projects; 3,500 MT CO_2e for residential projects; or 3,000 MT CO_2e for mixed-use projects. This bright-line threshold is based on a review of the Governor's Office of Land Use and Climate Innovation (LCI) database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold would have a nominal and thus less than cumulatively considerable impact on GHG emissions.

- **Tier 4—Performance Standards:** If emissions exceed the numerical screening threshold, a more detailed review of the project's GHG emissions is warranted. The SCAQMD has proposed an efficiency target for projects that exceed the bright-line threshold. The current recommended approach is per-capita efficiency targets. The SCAQMD is not recommending use of a percentage emissions reduction target. Instead, the SCAQMD proposes proposed a 2020 efficiency target of 4.8 MT CO_2e per year per service population for project-level analyses and 6.6 MT CO_2e per year per service population for plan-level projects (e.g., program-level projects such as General Plans).

For the purpose of this analysis, the Proposed Project will be compared to the Tier 3 numerical screening threshold of 3,000 MT CO_2e/year for all land use types. As described in Section 4.8.b, the project is also evaluated for compliance with CARB's 2022 Scoping Plan Update and the 2024 SCAG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

Construction Emissions. Demolition and construction activities associated with the Proposed Project would produce combustion emissions from various sources. During construction, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, methane (CH_4), and nitrous oxide (N_2O). Furthermore, CH_4 is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

The SCAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, lead agencies are required to quantify and disclose GHG emissions that would occur during construction. The SCAQMD suggests that construction GHG emissions be amortized over

the life of the project (defined as 30 years), added to the operational emissions, and compared to the applicable interim GHG significance threshold tier.

Using CalEEMod, it is estimated that the Proposed Project would generate a total of approximately 1,092 MT CO_2e during construction of the project. When annualized over the 30-year life of the project, annual emissions would be 36.4 MT CO_2e.

Operational Emissions. As described in Section 4.3, Air Quality, the only new potential source of emissions during operations is associated with the emergency generator. GHG emissions from the generator were estimated to be 152.8 MT CO_2e. Even in combination with total construction emissions, project emissions of GHGs would be well below the SCAQMD's bright-line threshold of 3,000 MT CO_2e.

Therefore, operation of the Proposed Project would not generate significant GHG emissions that would have a significant effect on the environment. As such, impacts related to operational GHG emissions would be **less than significant.**

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

b. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The Proposed Project was analyzed for consistency with the goals of CARB's 2022 Scoping Plan Update and the 2024–2050 RTP/SCS.

2022 Scoping Plan Update. Executive Order (EO) B-30-15 added the immediate target of reducing GHG emissions to 40 percent below 1990 levels by 2030. CARB released a second update to the Scoping Plan, the 2017 Scoping Plan, to reflect the 2030 target set by EO B-30-15 and codified by SB 32. SB 32 affirms the importance of addressing climate change by codifying into statute the GHG emissions reductions target of at least 40 percent below 1990 levels by 2030 contained in EO B-30-15. The companion bill to SB 32, AB 197, provides additional direction to CARB related to the adoption of strategies to reduce GHG emissions. Additional direction in AB 197 intended to provide easier public access to air emissions data that are collected by CARB was posted in December 2016.

The 2022 Scoping Plan Update[46] assesses progress toward the statutory 2030 target while laying out a path to achieving carbon neutrality no later than 2045. The 2022 Scoping Plan Update focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others, and is designed to meet the State's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

[46] California Air Resources Board (CARB). 2022. *California's 2022 Climate Change Scoping Plan.* November.

As identified above, the 2022 Scoping Plan Update contains GHG reduction measures that work toward reducing GHG emissions, consistent with the targets set by EO B-30-15 and codified by SB 32 and AB 197. The measures applicable to the Proposed Project include energy efficiency measures, water conservation and efficiency measures, and transportation and motor vehicle measures, as discussed below.

Any vehicle fuel consumed to support on-road transportation to and from the Project site during the construction period would comply with relevant fuel standards. However, many measures set forth in the 2022 Scoping Plan Update, including those related to water conservation and on-road motor vehicle emissions, are not applicable to the Proposed Project. Nevertheless, the project would further the energy efficiency initiatives by updating the pumping station equipment from petroleum-based, non-renewable fuel (natural gas) to electric, which results in no direct emissions and may be generated from renewable sources. Additionally, the proposed structures would comply with the latest CALGreen standards regarding energy conservation, and any new landscaped areas would be required to comply with the California Model Water Efficient Landscape Ordinance. Overall, the Proposed Project would comply with existing State regulations adopted to achieve the overall GHG emissions reduction goals.

2024–2050 RTP/SCS. SCAG adopted the 2024–2050 RTP/SCS on April 4, 2024, and in May 2025, CARB accepted the 2024–2050 RTP/SCS.[47] SCAG's RTP/SCS identifies that land use strategies that focus on new housing and job growth in areas served by high-quality transit and other opportunity areas would be consistent with a land use development pattern that supports and complements the proposed transportation network. The core vision of the plan is to better manage the existing transportation system through design management strategies, integrate land use decisions and technological advancements, create complete streets that are safe to all roadway users, preserve the transportation system, and expand transit and foster development in transit-oriented communities. The plan identifies transportation projects to help more efficiently distribute population, housing, and employment growth, as well as forecast development that is generally consistent with regional-level general plan data. The forecasted development pattern, when integrated with the financially constrained transportation investments identified in the 2024–2050 RTP/SCS, would reach the regional target of reducing GHG emissions from automobiles and light-duty trucks by 19 percent by 2035 (compared to 2005 levels). The 2024–2050 RTP/SCS does not require that local general plans, specific plans, or zoning be consistent with the RTP/SCS but provides incentives for consistency for governments and developers. Implementing SCAG's RTP/SCS will greatly reduce the regional GHG emissions from transportation, helping to achieve statewide emissions reduction targets.

Because the Proposed Project would not result in any net new vehicle trips or develop any new habitable structures, the measures set forth in the 2024–2050 RTP/SCS are generally not applicable to the project. It is noted that the increase in water conveyance capacity that would be facilitated as a result of the Proposed Project would indirectly support population, housing, and employment growth within the EMWD service area. However, the proposed infrastructure improvements are consistent with regional planning efforts and were accounted for in the growth projections that were

[47] Southern California Association of Governments (SCAG). n.d. *California Air Resource Board Accepts SCAG's Sustainable Communities Strategy*. Website: https://scag.ca.gov/news/california-air-resource-board-accepts-scags-sustainable-communities-strategy (accessed November 2025).

used in developing the RTP/SCS. As such, implementation of the Proposed Project would not interfere with SCAG's ability to implement the regional strategies outlined in the 2024–2050 RTP/SCS.

In conclusion, the Proposed Project would not conflict with plans, policies, or regulations adopted for the purpose of reducing GHG emissions. Impacts would be **less than significant.**

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

4.9 HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 Section 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 2 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?	☐	☐	☒	☐

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Hazardous materials are chemicals that could cause harm during an accidental release or mishap, and are defined as being toxic, corrosive, flammable, reactive, and irritant, or a strong sensitizer.[48] Hazardous substances include all chemicals regulated under the USDOT "hazardous materials" regulations and the USEPA "hazardous waste" regulations. Hazardous wastes require special handling and disposal because of their potential to damage public health and the environment. The probable frequency and severity of consequences from the routine transport, use, or disposal of hazardous materials is affected by the type of substance, the quantity used or managed, and the nature of the activities and operations.

Construction. The Proposed Project includes: (1) construction of the Watson Road II BPS and Menifee BPS within a new building on the combined BPS site, (2) decommissioning and removal of the existing Romoland BPS, and (3) pipeline work within City roadways.

[48] A "sensitizer" is a chemical that can cause a substantial proportion of people or animals to develop an allergic reaction in normal tissue after repeated exposure to a chemical.

Construction activities associated with the Proposed Project would use a limited amount of hazardous and flammable substances (e.g., oils) during heavy equipment operation for site excavation and construction. Potentially hazardous substances (e.g., chemical agents, solvents, and paints) would also be used during construction. However, the amount of hazardous chemicals present during construction is limited and would be used in compliance with existing government regulations, including implementation of BMPs to protect water quality, as described in Section 4.10, Hydrology and Water Quality. In addition, the potential for the release of hazardous materials during project construction is low, and even if a release would occur, it would not result in a significant hazard to the public, surrounding land uses, or environment due to the small quantities of these materials associated with construction vehicles.

Demolition activities associated with decommissioning and the removal of the existing Romoland BPS has the potential to release hazardous materials, specifically asbestos and lead-based paint. In 2018, a survey was conducted to identify suspect asbestos-containing materials (ACMs) and lead-based paints (LBPs) at the existing Romoland BPS. The results of the survey are presented in the *Asbestos and Lead-Based Paint Survey Report*[49] provided as **Appendix E**. As part of the report, a destructive survey of the site structures was performed, bulk samples of suspect ACMs were collected and submitted to a State-certified laboratory for analysis, and testing of suspect LBPs was performed. Laboratory analysis for asbestos did not detect asbestos in the suspect material sampled; however, a lead concentration greater than 1.0 milligram per square centimeter (mg/cm^2) was detected in grey paint on metal engine components located inside the existing Romoland BPS at the north side and in tan paint on the metal door frame of the office located at the southwest side of the interior of the BPS. Both the grey and tan paint were intact and in good condition. As such, the report determined that if at the time of demolition of the existing Romoland BPS the LBP is still in good condition, no abatement or paint stabilization would be necessary. If the LBP is in damaged conditions at the time of demolition, the peeling, delaminating, and/or flaring paint must be stabilized prior to demolition activities.

In 2025, a subsequent survey was conducted that included survey and sampling of areas that had not previously been sampled and analyzed for ACMs and LBPs. The results of this subsequent survey are presented in the *Supplemental Asbestos & Lead-Based Paint Survey Report,*[50] provided as **Appendix E.** Consistent with the initial survey, the subsequent survey did not detect asbestos in the suspect material sampled; however, LBPs were identified on the door frame and stair rail. All LBPs were observed to be in intact condition at the time of the survey. In addition, some of the painted surfaces that were sampled contained other metals (e.g., zinc, chromium, barium and copper), which exceeded the Total Threshold Limit Concentration as defined by CCR Title 22, Division 4.

The removal of hazardous building materials prior to demolition of structures is governed by federal and State laws and regulations. Federal regulations require that LBP be removed prior to demolition if the paint is loose and peeling. Loose and peeling paint must be disposed of as a State and/or federal hazardous waste if the concentration of lead exceeds applicable waste thresholds. State and federal construction worker health and safety regulations require air monitoring and other protective

[49] Converse Consultants. 2018. *Asbestos and Lead-Based Paint Survey Report.* March 7.

[50] Converse Consultants. 2025. *Supplemental Asbestos & Lead-Based Paint Survey Report.* June 6.

measures during demolition activities where LBP is present, and notification to the California Division of Occupational Safety and Health (DOSH) for abatement activities.

Workers who conduct hazardous materials abatement and demolition activities must be trained in accordance with OSHA and California OSHA (Cal/OSHA) requirements. Hazardous building materials removed during construction must be transported in accordance with USDOT regulations and disposed of in accordance with the federal Resource Conservation and Recovery Act, the CCR, and/or the California Universal Waste Rule at a facility permitted to accept the wastes. Section 19827.5 of the California Health and Safety Code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos. If asbestos is identified, SCAQMD Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities requires specific work practices to limit asbestos emissions from jobsites, including asbestos surveying, notification to SCAQMD, removal procedures and time schedules, handling and clean-up procedures, and the storage, disposal, and landfilling requirements for resulting waste materials. Other hazardous building materials, such as electrical equipment and fluorescent light ballasts containing polychlorinated biphenyls (PCBs), and fluorescent tubes or thermostats containing mercury, must be removed from buildings prior to demolition and disposed of in accordance with the California Universal Waste Rule and other federal and State regulations. Compliance with these regulations would ensure that demolition and removal of existing structures on the project site would be less than significant.

Operation. Operation of the Proposed Project would be conducted remotely, and there would be no full-time dedicated staff at the site. EMWD staff may visit the site occasionally for routine maintenance activities. During operation and maintenance, no hazardous materials would be routinely transported, used, or disposed of. As currently occurs, the EMWD would be required to comply with existing government regulations in the use and disposal of any hazardous materials necessary for maintenance of the combined BPS and proposed pipeline, and such materials would not be used in sufficient strength or quantity to create a substantial risk to human or environmental health.

Transport and use of hazardous materials would be subject to all applicable State and federal laws, such as the Hazardous Materials Transportation Act, the Resource Conservation and Recovery Act, the California Hazardous Materials Management Act, the California Health and Safety Code, and CCR Title 8 and Title 22. Therefore, compliance with existing regulations would ensure that the Proposed Project would not create a significant hazard to the public, or the environment associated with the routine transport, use, or disposal of hazardous materials by ensuring these materials are properly handled during construction of the Proposed Project. Therefore, this impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

b. Would the project 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?

There are two main ways that the public and/or the environment could be affected by the release of hazardous materials from the project site, including: (1) exposing workers and/or the public to potentially contaminated soil and groundwater during construction and/or operation of the project; or (2) exposing workers and/or the public to hazardous building materials (e.g., lead paint, asbestos) during demolition of existing structures.

As described in Threshold 4.9.a, above, small quantities of common hazardous materials would be used at the project site during construction and operation of the Proposed Project. Improper use, storage, or handling could result in the release of hazardous materials into the environment which could pose a risk to construction workers and the public. Such materials would be kept at construction staging areas and would be secured when not in use. In the unlikely event of a spill, fuels would be controlled and disposed of in accordance with applicable regulations. Drips and small spills would be the most likely potential hazardous materials releases to occur; however, any release that occurs in close proximity to a stream or drainage channel could have a significant impact on the environment if it is not properly controlled. The EMWD would be required to prepare and implement a SWPPP for the Proposed Project in accordance with the CGP permitting requirements, which would reduce the potential for hazardous materials releases to occur during construction and would reduce the potential for spills to impact sensitive habitat or human health to a less than significant level.

The portion of the project site proposed for construction of the combined BPS is currently vacant; however, the Proposed Project includes installation of pipelines within existing roadways and decommissioning and removal of the existing Romoland BPS. The project site is surrounded by residential and industrial land uses and public facilities (e.g., a school and park). As described further below in Section 4.9.d, there are no known hazardous materials sites located in proximity to the project site that would represent a significant risk to public health or safety (e.g., on-site storage, leaking tanks, an approaching groundwater contamination plume). Therefore, it is unlikely that the soil and/or groundwater are contaminated with significant toxic or hazardous materials that would be released during construction. Additionally, compliance with the regulations described previously in Section 4.9.a would ensure that the Proposed Project would not create a significant hazard to the public or the environment through accident conditions involving the release of hazardous building materials during demolition of the existing Romoland BPS by ensuring that these materials are properly handled. Therefore, this impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Schools in the project area include Romoland Elementary School (located on Antelope Road adjacent to the proposed pipeline alignment), Harvest Valley Elementary School (located approximately 0.6

mile east of the project site), and Heritage High School (located approximately 0.7 mile southeast of the project site). As described above in Thresholds 4.9.a and 4.9.b, EMWD would be required to comply with all applicable local, State, and federal regulations and standards related to hazardous emissions and materials. With compliance with regulatory requirements, impacts associated with the emission or handling of hazardous materials within 0.25 mile of an existing or proposed school would be **less than significant.**

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

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

Government Code Section 65962.5 states that the California Department of Toxic Substances Control (DTSC) shall compile and maintain annually a list of hazardous waste facilities subject to corrective action as part of the Health and Safety Code. This list is commonly referred to as the Cortese List. The Cortese List includes hazardous material site listings from the SWRCB's Geotracker database (including Cease and Desist Orders and Cleanup and Abatement Orders), the California Environmental Protection Agency's (CalEPA) highly hazardous solid waste sites; and the DTSC's EnviroStor database and hazardous waste sites.

According to the SWRCB Geotracker website,[51] no State-listed hazardous materials cleanup sites are within 1,000 feet of the proposed BPS site. The nearest listed hazardous site to the Proposed Project is a Leaking Underground Storage Tank (LUST) Cleanup Site located at 26100 Menifee Road, adjacent to the south side of the proposed pipeline alignment within Watson Road. Other listed hazardous sites in the vicinity of the project site include a LUST Cleanup Site associated with the Romoland Market located at 27856 SR-74, approximately 670 feet west of the proposed pipeline alignment within Antelope Road, and a LUST Cleanup Site associated with Caltrans, located at 2764 SR-74, approximately 1,780 feet west of the proposed pipeline alignment within Antelope Road. According to the SWRCB Geotracker website, these sites are designated "closed" as of April 4, 1989, July 25, 1996, and May 31, 1994, respectively. A closed site indicates that regulatory requirements for response actions (e.g., site assessment and remediation) have either been completed or were not necessary. Therefore, potential migration of residual contaminants in groundwater beneath the project site (if any) does not likely pose a risk to human health and the environment.

[51] State Water Resources Control Board (SWRCB). 2021. Geotracker Website Application. Website: https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=27900+Watson+Road%2C+Menifee%2C+CA%2C+USA (accessed November 14, 2025).

In addition, the project area, including the combined BPS site, the existing Romoland BPS site, and the proposed pipeline alignment, are not located on the DTSC EnviroStor database[52] or any list of highly hazardous solid waste sites compiled by CalEPA.[53]

As such, the project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Since the project would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would not create a significant hazard to the public or the environment, impacts would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

e. Would the project be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

The project site is not located within an airport land use plan, or within 2 miles of a public airport or public use airport. The closest airport to the project site is the Perris Valley Airport, located approximately 2.8 miles to the northwest. Therefore, the project would not result in a safety hazard for people residing or working in the project area. **No impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The City of Menifee has developed the Emergency Management program to implement, monitor, and coordinate the Standardized Emergency Management System and Emergency Operations Center (EOC) in support of the City, public safety, and emergency readiness responsibilities. The program also provides overall coordination and training and monitors the operational readiness within various sections of the emergency management organizational structure. The City of Menifee EOC's principal function is information and resource management to protect lives, property, and the environment and to promote public safety. The EOC coordinates resource support for fire, police, public works, and

[52] California Department of Toxic Substances Control (DTSC). n.d. *Hazardous Waste ad Substances Site List (Cortese).* Website: https://www.envirostor.dtsc.ca.gov/public/search?cmd=search&reporttype=CORTESE&site_type=CSITES,FUDS&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+%28CORTESE%29 (accessed November 14, 2025).

[53] California Environmental Protection Agency (CalEPA). n.d. *Cortese List Data Resources.* Website: https://calepa.ca.gov/sitecleanup/corteselist/ (accessed November 14, 2025).

other response agencies; and coordinates general public emergency notifications, evacuations, and sheltering.[54]

The City has also prepared the 2021 Emergency Operations Plan (EOP),[55] which outlines the City's planned deployment, mobilization, and tactual operations in response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies in or affecting the City. The EOP does not identify specific evacuation routes within the City.

Construction. Construction of the Proposed Project would not result in substantial temporary traffic delays because traffic flow would largely be maintained even though temporary lane closures may be required. Temporary lane closures would be implemented in accordance with the recommendations of the current California Temporary Traffic Control Handbook (CATTCH) (previously known as the California Joint Utility Traffic Control Manual). The CATTCH provides basic standards for the safe movement of all road users (including emergency responders) through construction zones in accordance with Section 21400 of the California Vehicle Code and the California Manual on Uniform Traffic Control Devices (CA MUTCD). Adherence to applicable emergency access codes and ordinances would ensure that construction of the Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, the Proposed Project would not physically interfere with the implementation of an adopted emergency response plan or evacuation plan. This impact would be **less than significant**.

Operation. The design of the combined BPS would be required to comply with all applicable codes and ordinances for emergency vehicle access, which would ensure adequate access to, from, and on site for emergency vehicles. Further, the Proposed Project would not reconfigure any existing roadways, result in road closures during operation of the project, or include features that would otherwise hinder emergency response or evacuation. Therefore, operation of the Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Potential project impacts would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

[54] City of Menifee. n.d. *Emergency Management.* Website: https://www.cityofmenifee.us/525/Emergency-Management (accessed November 14, 2025).

[55] City of Menifee. 2021c. *2021 City of Menifee Emergency Operations Plan.* Website: https://www.cityofmenifee.us/DocumentCenter/View/12396/Emergency-Operations-Plan-EOP?bidId= (accessed November 14, 2025).

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

As discussed in Section 4.20, Wildfire, the project site is not located within a Very High Fire Hazard Severity Zone (VHFHSZ).[56] Additionally, the City of Menifee General Plan does not identify the project site or surrounding area as being in a moderate or high wildfire risk area.[57]

Construction of the Proposed Project would involve the use of some flammable materials such as gasoline, diesel fuel, hydraulic oils, paints, solvents, or other wastes. During construction, there would be increased human activity and ignition sources, including equipment that could create spark, be a source of heat, or leak flammable materials on the project site. However, all construction equipment is required to have fire suppression equipment (such as a fire extinguisher) on board or at the work site, secondary containment would be required for fuel-powered equipment, and a spill kit would be required to be kept on site during construction for use in case of any leaks or spills of flammable materials. These existing requirements would reduce the potential exacerbation of wildfire risks related to construction activities.

In its existing condition, the proposed BPS site is undeveloped, flat, and largely devoid of vegetation. Construction of the combined BPS facility would not significantly change the degree of exposure to wildfires because no new housing would be constructed, and people would not regularly access the combined BPS site. In addition, the Proposed Project would also be subject to requirements in Section 13000 et seq. of the California Health and Safety Code, the California Building Standards Code, and the California State Fire Code, which include regulations concerning the following: building standards for fire protection; fire protection and notification systems such as extinguishers and smoke alarms; safety for firefighters and emergency responders during emergency operations; minimum standards for hazardous vegetation and fuel management, defensible space, and building construction; and minimum standards for emergency access and water supply for fire response.

Compliance with these existing regulatory requirements would ensure that the Proposed Project would not exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Impacts would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

[56] California Department of Forestry and Fire Protection (CAL FIRE). n.d. Fire Hazard Safety Viewer. Website: https://egis.fire.ca.gov/FHSZ/ (accessed November 14, 2025).

[57] City of Menifee. n.d. *City of Menifee General Plan, Safety Element, Exhibit S-6: High Fire Hazard Areas* Website: https://www.cityofmenifee.us/DocumentCenter/View/18261/FINAL_Safety-Element-6723_complete_reduced-size-for-webpage?bidId= (accessed November 14, 2025).

4.10 HYDROLOGY AND WATER QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater 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 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?	☐	☐	☒	☐

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

The SWRCB and nine RWQCBs regulate the quality of surface water and groundwater bodies throughout California. In Menifee, the Santa Ana RWQCB is responsible for implementation of the Water Quality Control Plan (Basin Plan). The Basin Plan establishes beneficial water uses and water quality objectives for waterways and water bodies within the region. Section 303(d) of the federal Clean Water Act (CWA) requires that states identify water bodies, including bays, rivers, streams, creeks, and coastal areas, that do not meet water quality standards and the pollutants that are causing the impairment. Total Maximum Daily Loads (TMDLs) describe the maximum amount of a pollutant that a water body can receive while still meeting established water quality standards. A TMDL establishes limits for pollutant discharges into impaired water bodies.

The project site consists of two vacant parcels totaling approximately 1.96 acres planned for the combined BPS, one approximately 0.17-acre parcel currently developed with the existing Romoland BPS, and approximately 1.85 miles of public roadway planned for the new Matthews transmission main within Antelope Road and Watson Road. Under existing conditions, stormwater at the proposed BPS site and the existing Romoland BPS site either infiltrates on site or sheet flows into existing stormwater infrastructure in the surrounding roadways. Stormwater from the area planned for the

new Matthews transmission main within Antelope Road and Watson Road is collected by existing stormwater infrastructure in Antelope Road and Watson Road.

Runoff water quality is regulated by the NPDES Program (established through the federal CWA). The NPDES program objective is to control and reduce pollutant discharges to surface water bodies. Compliance with NPDES permits is mandated by State and federal statutes and regulations. Locally, the NPDES Program is administered by the Santa Ana RWQCB.

Construction activities are subject to the SWRCB NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Order No. 2022-0057-DWQ, NPDES No. CAS000002.[58] Any construction activity, including grading, that would result in the disturbance of 1 acre or more would require compliance with SWRCB's CGP, which requires preparation of a SWPPP and implementation of Construction BMPs during construction activities. Construction BMPs would include, but not be limited to, Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on site and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters.

EMWD would address post-construction water quality through the use of gravel pocket and drywell BMPs.

Construction. The Proposed Project includes: (1) construction of the Watson Road II BPS and Menifee BPS within a new building on the combined BPS site, (2) decommissioning and removal of the existing Romoland BPS, and (3) pipeline work within City roadways. Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked, and they have the potential to be transported via stormwater runoff into receiving waters.

Because construction of the Proposed Project would disturb greater than 1 acre of soil, the project is subject to the requirements of the CGP. As specified in Section 2.0 and required by the CGP and City Municipal Code, the EMWD has committed to prepare a SWPPP and implement construction BMPs detailed in the SWPPP during construction activities. Construction BMPs would include, but not be limited to, erosion and sediment control (designed to minimize erosion and retain sediment on site), and good housekeeping practices to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. The Proposed Project would also be required to comply with the City of Menifee Municipal Code Chapters 15.01, Storm Water/Urban Runoff, and 8.26, Grading Regulations, which set forth standards to protect water quality in Menifee, including the submittal and approval of an Erosion Control Plan by the City.

[58] NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order No. 2022-0057-DWQ, NPDES No. CAS000002).

According to the Geotechnical Exploration[59] prepared for the Proposed Project, no groundwater was encountered during exploratory borings to a maximum depth of 15 feet bgs. The Geotechnical Update[60] indicates that no groundwater was observed or encountered to a depth of 51.5 feet explored. However, both the Geotechnical Exploration and the Geotechnical Update indicate that groundwater conditions can fluctuate seasonally and be directly impacted by other factors not observed at the time of the geotechnical field explorations. Excavation is expected to extend to 8 feet bgs for demolition of the existing Romoland BPS and construction of the combined BPS building would require over-excavation up to 12–15 feet bgs. Construction of the proposed pipeline would require a maximum trench depth of approximately 10 feet for open trench construction. Proposed jack and bore would extend at least 9 feet bgs and could extend between 12 and 20 feet below ground surface. Therefore, saturated subgrade conditions during or following periods of wet weather could have the potential to impact grading or construction. Although no groundwater dewatering is anticipated, if needed, groundwater dewatering activities could affect surface water quality through the discharge of polluted groundwater to surface water bodies. As specified in Section 2.6, Environmental Commitments, groundwater encountered during construction would be discharged to land or storm drains in accordance with applicable permits, including the *Waste Discharge Requirements (WDR) Permit for Discharges to Surface Waters That Pose an Insignificant (De Minimus) Threat to Water Quality* (Groundwater Discharge Permit) (Order No. R8-2020-0006, NPDES No. CAG998001), or discharged to EMWD's sewer for treatment and reuse. In compliance with the requirements of the Groundwater Discharge Permit, groundwater would be tested and treated (if necessary) prior to discharge to surface water. Compliance with the Groundwater Discharge Permit would ensure that construction impacts related to water quality standards, WDRs, and degradation of groundwater quality would be **less than significant.**

With implementation of the environmental commitments specified in Section 2.6, Environmental Commitments, and compliance with existing regulations, including preparation and implementation of a SWPPP and construction BMPs, impacts associated with the violation of water quality standards or WDRs during project construction would be **less than significant**.

Operation. The Proposed Project includes construction and operation of a combined BPS facility and associate conveyance infrastructure (e.g., pipelines) to improve water supply reliability and provide greater operability as the existing Romoland BPS is nearing the end of its useful life. The proposed pipeline would be installed within the existing right-of-way, would not result in an increase in impervious surfaces, and would not require any structures. Therefore, the proposed pipeline would not result in any changes to the physical environment that would impact drainage patterns or water quality.

The Proposed Project would construct a new BPS facility on an undeveloped parcel north on Watson Road west of Antelope Road. Pollutants of concern from vehicle traffic (e.g., leaks of fuels and lubricants, tire wear particulates, brake dust, and fallout from exhaust emissions) would be generated on the Project site and would be conveyed in runoff during storm events. Debris and particulates that

[59] Leighton Consulting, Inc. 2021. *Geotechnical Exploration, Matthews Booster Pump Station and Pipeline Project, Eastern Municipal Water District (EMW), Menifee, Riverside County, California.* September 27.

[60] Verdantas. 2025. *Geotechnical Update, Eastern Municipal Water District (EMWD), Matthews/Romoland Booster Pump Station, City of Menifee, Riverside County, California.* June.

gather on impervious surfaces such as paved areas and roofs of buildings could also add heavy metals and sediment to the pollutant load in the runoff. These pollutants could be transported in runoff from the Project site and conveyed via the municipal storm drain system to receiving waters.

Overall, development of the new BPS facility would result in approximately 40,000 square feet of new impervious surface area at the combined BPS site. This increase in impervious surfaces would increase the volume and rate of stormwater runoff discharged from the Project site, which would more effectively transport pollutants of concern to receiving waters. As described in Section 2.3.1, the Project would include installation of a drywell[61] and/or gravel patches throughout the site to capture and infiltrate stormwater runoff prior to discharge to the municipal storm drain system. With implementation of these Project design features, operational impacts related to surface water quality standards, WDRs, and surface water quality would be less than significant.

Overall, because the Proposed Project would be required to comply with existing regulations, including the CGP and the Groundwater Discharge Permit (if necessary), and because the Proposed Project would include stormwater treatment facilities as part of the Project's design, the Proposed Project would not violate any water quality standards or WDRs or otherwise substantially degrade surface or groundwater quality. Impacts would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

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

The project site is located within the San Jacinto Groundwater Basin,[62] which underlies the San Jacinto, Perris, Moreno, and Menifee valleys in western Riverside County. Approximately 39 percent of the basin is adjudicated under three separate adjudications, 2 percent is under the jurisdiction of the federal government, and the remaining 59 percent lies within the jurisdictional boundaries of EMWD. The surface area of the basin is approximately 158,500 acres or 248 square miles, with average annual rainfall over the basin ranging from approximately 10 to 12 inches. The basin boundaries are formed by the San Jacinto Mountains on the east, the San Timoteo Badlands on the northeast, the Box Springs Mountains on the north, lower-relief hills on the west (e.g., Gavilan Peak and Steele Peak), and the Santa Rosa Hills and Bell Mountain on the south. The bedrock hills surrounding the basin prevent hydraulic connection with other nearby groundwater basins; therefore, there is no significant groundwater flow between other nearby groundwater basins.[63]

[61] A dry well is a buried chamber filled with gravel or containing prefabricated storage units that collect stormwater and allow it to slowly infiltrate into the soil.

[62] California Department of Water Resources. n.d. Groundwater Basin Boundary Assessment Tool. Website: https://gis.water.ca.gov/app/bbat/ (accessed April 23, 2024).

[63] Eastern Municipal Water District (EMWD). 2021a. Groundwater Sustainability Plan for the San Jacinto Groundwater Basin. September.

The estimated groundwater storage capacity of the San Jacinto Groundwater Basin is 3,070,000 acre-feet, and in 1975, the calculated groundwater in storage was 2,700,000 acre-feet.[64] EMWD's groundwater model estimates the groundwater in storage increased by an average rate of approximately 15,600 acre-feet per year (AFY) between water years 1985 and 2012.[65] Natural recharge to the basin is primarily from percolation of flow in the San Jacinto River and its tributary streams, with some minimal recharge from infiltration of rainfall on the valley floor. Natural recharge is augmented by the spreading of State Water Project (SWP) and reclaimed water through infiltration ponds in the upper reaches of the San Jacinto River. Percolation of water stored in Lake Perris has been an additional source of recharge since construction of the lake in the 1970s, and reclaimed water percolates through several storage ponds distributed throughout the valley. In some years, artificial recharge exceeds natural recharge, particularly in years with low precipitation.[66]

Construction. As described above, although no groundwater dewatering is anticipated, if needed, groundwater dewatering would be conducted in accordance with the Groundwater Discharge Permit, as specified in Section 2.6, Environmental Commitments, which sets forth procedures to follow that would reduce potential impacts to a less than significant level. In addition, compared to the estimated 2,700,000-acre feet of groundwater in storage in the San Jacinto Groundwater Basin, the amount of water that would be extracted would not be substantial and would only occur temporarily during construction. Therefore, construction of the Proposed Project would not substantially decrease groundwater supplies such that the project may impede sustainable groundwater management of the basin. Construction impacts associated with substantial decrease in groundwater supplies or interference with groundwater recharge would be **less than significant**.

Operation. The Proposed Project includes: (1) construction of the Watson Road II BPS and Menifee BPS within a new building on the combined BPS site, (2) decommissioning and removal of the existing Romoland BPS, and (3) pipeline work within City roadways. The Proposed Project would result in approximately 40,000 square feet of new impervious surface at the combined BPS site, which is currently undeveloped. This increase in impervious surface area would decrease on-site infiltration. However, as discussed above, natural recharge to the basin is primarily from percolation of flow in the San Jacinto River and its tributary streams, with only minimal recharge from infiltration of rainfall on the valley floor. As such, the project site does not provide a significant source of groundwater recharge and implementation of the Proposed Project would not substantially interfere with groundwater recharge.

The EMWD supplies water to Menifee. The EMWD's 2020 Urban Water Management Plan (UWMP) indicates that the EMWD uses local and imported water to supply potable and non-potable water within its jurisdictional boundary.[67] EMWD obtains potable groundwater from two management areas within the San Jacinto Groundwater Basin, including the West San Jacinto Groundwater Basin

64 State Water Resources Control Board (SWRCB), Division of Water Rights. 2006. *San Jacinto Groundwater Basin Bulletin 118*. January 20.

65 Eastern Municipal Water District (EMWD). 2021a. Groundwater Sustainability Plan for the San Jacinto Groundwater Basin. September.

66 State Water Resources Control Board (SWRCB), Division of Water Rights. 2006. *San Jacinto Groundwater Basin Bulletin 118*. January 20.

67 Eastern Municipal Water District (EWMD). 2021b. *2020 Urban Water Management Plan.* July 1.

Management Plan management area and the Hemet/San Jacinto Groundwater Management Plan management area. The project site is located within the West San Jacinto Groundwater Basin Management Plan management area.

The EMWD imports approximately half of its water supply from the Metropolitan Water District (MWD), which projects it would have adequate supply to meet demand of all of its member agencies through the year 2045 under Average Year, Single-Dry Year, and Multiple-Dry Year conditions.[68] Through a combination of locally-sourced groundwater in conjunction with imported water from the MWD, the EMWD anticipates to have sufficient water supplies to meet demand through the year 2045 under Average Year, Single-Dry Year, and Multiple-Dry Year conditions.[69] The EMWD models each scenario based on the land use and zoning designations of each local jurisdiction it serves.

The City of Menifee General Plan Land Use Map designates the combined BPS site as 20.1-24 Dwelling Units/Acre Residential (20.1-24 R), and the existing Romoland BPS site is designated as Business Park (BP).[70] The City's Zoning Ordinance designates the combined BPS site as High Density Residential (HDR) and the existing Romoland BPS site as Business Park/Light Industrial (BP).[71] The pipeline alignment is largely located within existing public right-of-way, which does not have a land use or zoning designation. The Proposed Project would be consistent with the intent of the City's General Plan Land Use and Zoning Regulations for the site. As such, the Proposed Project within Menifee is already accounted for in the water (groundwater) supply and demand scenarios determined by EMWD. As described further in Section 4.19, Utilities and Service Systems, operation and maintenance activities associated with the Proposed Project would be similar to existing EMWD operations and maintenance for other water pipelines and BPSs within its jurisdiction. Further, overall water demands would remain similar to existing conditions, and any increase in water demand during project construction or operation would be minimal and incidental to the overall EMWD system. Therefore, it is expected that the Proposed Project would rely on existing groundwater entitlements to serve the Proposed Project's minimal water needs and would not contribute to a substantial depletion of groundwater supplies.

For the reasons listed above, impacts related to the decrease of groundwater supplies or interference with groundwater recharge would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

[68] *Ibid.* Page 7-2.

[69] *Ibid.* Page 7-7, Page 7-8, and Page 7-9.

[70] City of Menifee. 2023a. *General Plan - Land Use Map.* March 23. Website: https://cityofmenifee.us/DocumentCenter/View/11043/General-Plan--Land-Use-Map---March-2023 (accessed November 13, 2025).

[71] City of Menifee. 2023b. *Zoning Map*. March 23. Website: https://www.cityofmenifee.us/DocumentCenter/View/11042/Zoning-Map---March-2023?bidId= (accessed November 13, 2025).

c. Would the project 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:

Under existing conditions, stormwater at the proposed BPS site and the existing Romoland BPS site either infiltrates on site or sheet flows into existing stormwater infrastructure in the surrounding roadways. Stormwater from the area planned for the new Matthews transmission main within Antelope Road and Watson Road is collected by existing stormwater infrastructure in Antelope Road and Watson Road. With implementation of the Proposed Project, stormwater would continue to discharge into existing stormwater infrastructure, similar to existing conditions. Stormwater from the combined BPS site would be collected and infiltrated via a drywell and/or gravel patches, before discharging to the existing storm drain system in Watson Road. These Project design features would capture, treat, and reduce pollutants of concern in stormwater runoff and would minimize the rate and volume of stormwater runoff.

i. Result in substantial erosion or siltation on- or off-site;

During construction activities, more than 1 acre of soil would be disturbed. During grading and other construction activities, soil would be exposed, drainage patterns would be temporarily altered, and there would be an increased potential for soil erosion and siltation compared to existing conditions. Additionally, during a storm event, soil erosion and siltation could occur at an accelerated rate. The Proposed Project would be required to comply with the Construction General Permit, which requires the preparation of a SWPPP to identify construction BMPs to be implemented during construction of the Proposed Project to reduce impacts on water quality, including those impacts associated with soil erosion and siltation. Compliance with the requirements in the CGP, including implementation of construction BMPs, would ensure that construction impacts related to on- or off-site erosion or siltation would be **less than significant**.

After the completion of project construction, the Proposed Project would not significantly alter the existing drainage pattern of the site. The new pipeline would be installed within the existing right-of-way and would not result in an increase in impervious surfaces. In addition, development of the BPS facility site, which would increase the amount of impervious surface area at the site, would include the installation of Project design features (e.g., drywell and/or gravel patches), as detailed in Section 2.3.1, to minimize the rate and volume stormwater runoff, thereby minimizing on-site erosion and siltation. With implementation of these Project design features, operational impacts related to on- or off-site erosion or siltation would be **less than significant.**

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

Project construction would comply with the requirements of the CGP and would include the preparation and implementation of a SWPPP. The SWPPP would include construction BMPs (e.g., soil binders, straw mulch, non-vegetative stabilization, fiber rolls, sandbag barrier, straw bale barrier, stabilized construction entrance/exit, stabilized construction roadway, and entrance/outlet tire wash) to control the rate and amount of on-site surface runoff and to direct flows to ensure that stormwater runoff from the construction site does not result in on- or off-site flooding. With adherence to the

CGP, construction impacts related to a substantial increase in the rate or amount of surface runoff that would result in flooding and impede or redirect flood waters would be less than significant, and no mitigation is required.

After the completion of project construction, the new pipeline would be installed within the existing right-of-way and would not result in an increase in impervious surfaces. In addition, development of the BPS facility site, which would increase the amount of impervious surface area at the site, would include the installation of Project design features (e.g., drywell and/or gravel patches), as detailed in Section 2.3.1, to minimize the rate and volume of stormwater runoff to ensure that stormwater runoff from the BPS facility site does not result in on- or off-site flooding. With implementation of these Project design features, the Proposed Project would not substantially increase the rate or amount of surface runoff during operation in a manner that would result in flooding on or off site. Impacts would be **less than significant**.

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

Stormwater Drainage System Capacity. The proposed pipeline would not alter the existing drainage pattern of the site or result in an increase in impervious surfaces on the project site during project construction or operation. Development of the BPS facility site, which would increase the amount of impervious surface area at the site, would include the installation of Project design features (e.g., drywell and/or gravel patches), as detailed in Section 2.3.1, to infiltrate, harvest and use, evapotranspire and/or bio-treat stormwater runoff at the BPS facility site before discharging to the existing storm drain system in Watson Road. Overall, because the Proposed Project would be required to comply with existing regulations, and would implement Project design features to manage stormwater runoff, the Proposed Project would not contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems, and impacts would be **less than significant**.

Polluted Runoff. As discussed in Section 4.10.a, pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. Drainage patterns would be temporarily altered during construction activities, and construction-related pollutants could be spilled, leaked, or transported via storm runoff into downstream receiving waters. However, as previously discussed, the Proposed Project would be required to comply with the requirements set forth by the Construction General Permit, including preparation of a SWPPP, which would specify BMPs to be implemented to control the discharge of pollutants in stormwater runoff as a result of construction activities. After the completion of construction, the proposed pipeline would be installed within the existing right-of-way and would not result in an increase in impervious surfaces. As described above, development of the BPS facility site would increase the amount of impervious surface area at the site. This increase in impervious surface area would increase the volume and rate of stormwater runoff discharged from the Project site, which would more effectively transport pollutants of concern to receiving waters. In order to address potential water quality impacts during operation, the Proposed Project would include the installation of Project design features (e.g., drywell and/or gravel patches), as detailed in Section 2.3.1, to address pollutants of concern before discharging to the existing storm drain system in Watson Road. Because the Proposed Project would be required to comply with existing regulations and would implement the

Project design features described in Section 2.3.1, the Proposed Project would not provide substantial additional sources of polluted runoff and impacts would be **less than significant**.

iv. Impede or redirect flood flows?

According to the Federal Emergency Management Administration (FEMA) Flood Insurance Rate Map (FIRM) Panels 06065C1445H and 06065C2060H, the majority of the project site is located within an area of 1 percent annual chance of flood (Zone X).[72,73] However, a small portion of the existing EMWD property proposed for construction staging is located within a special flood hazard area (Zone A).[74] Flood Zone A includes areas with a 1 percent annual change of flooding; however, no base flood elevations have been identified. Because this portion of the project site would be used only for temporary construction staging and would not result in construction of any permanent facilities within the flood zone, the Proposed Project would not impede or redirect flood flows, and impacts would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

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

Flooding. As discussed above, according to FEMA FIRM Panels 06065C1445H and 06065C2060H, the majority of the project site is located within an area of 1 percent annual chance of flood (Zone X).[75,76] However, a small portion of the existing EMWD property proposed for construction staging is located within a special flood hazard area (Zone A).[77] Flood Zone A includes areas with a 1 percent annual change of flooding; however, no base flood elevations have been identified. Because this portion of the project site would be used only for temporary construction staging and would not result in

72 Federal Emergency Management Agency (FEMA). 2014. National Flood Insurance Program (FIRM). Flood Insurance Rate Map, Riverside County, California. Panel Number 06065C1445H. August 18. Website: https://msc.fema.gov/portal/search?AddressQuery=25890%20Antelope%20Road%2C%20menifee%2C%20ca (accessed November 14, 2025).

73 Federal Emergency Management Agency (FEMA). 2014. National Flood Insurance Program (FIRM). Flood Insurance Rate Map, Riverside County, California. Panel Number 06065C2060H. August 18. Website: https://msc.fema.gov/portal/search?AddressQuery=25890%20Antelope%20Road%2C%20menifee%2C%20ca (accessed November 14, 2025).

74 Ibid.

75 Federal Emergency Management Agency (FEMA). 2014. National Flood Insurance Program (FIRM). Flood Insurance Rate Map, Riverside County, California. Panel Number 06065C1445H. August 18. Website: https://msc.fema.gov/portal/search?AddressQuery=25890%20Antelope%20Road%2C%20menifee%2C%20ca (accessed November 14, 2025).

76 Federal Emergency Management Agency (FEMA). 2014. National Flood Insurance Program (FIRM). Flood Insurance Rate Map, Riverside County, California. Panel Number 06065C2060H. August 18. Website: https://msc.fema.gov/portal/search?AddressQuery=25890%20Antelope%20Road%2C%20menifee%2C%20ca (accessed November 14, 2025).

77 Ibid.

construction of any permanent facilities within the flood zone, the Proposed Project would not risk release of pollutants due to project inundation. During construction, BMPs would be implemented to ensure that during a rain event, pollutants would be retained on site and would be prevented from reaching downstream receiving waters in accordance with the CGP. During operation, the Proposed Project would include the installation of Project design features (e.g., drywell and/or gravel patches), as detailed in Section 2.3.1,, which would ensure that pollutants would be treated and prevented from reaching downstream receiving waters. Impacts associated with the release of pollutants resulting from inundation of the project site due to flooding would be **less than significant,** and no mitigation is required.

Tsunami. The project site is over 34 miles east of the Pacific Ocean. Based on the distance from the Pacific Ocean, the project site is not located in a tsunami hazard zone and would not result in the release of pollutants due to inundation caused by a tsunami. Impacts associated with the release of pollutants resulting from inundation of the project site due to a tsunami would be **less than significant,** and no mitigation is required.

Seiche. Seiches are waves that are created in an enclosed body of water such as a bay, lake, or harbor and go up and down or oscillate and do not progress forward like standard ocean waves. The nearest sizeable, enclosed body of water to the project site is the Perris Reservoir, which is located approximately 6.1 miles north of the project site. Because impacts from seiches are very localized and the project site is located miles from enclosed bodies of water, impacts associated with the release of pollutants due to inundation caused by a seiche would be **less than significant,** and no mitigation is required.

Dam Inundation. According to the DWR Division of Safety of Dams, the project site is not located within a dam inundation area.[78] Therefore, the Proposed Project would not result in the release of pollutants due to flooding cause by a dam failure. **No impact** would occur.

With adherence to the CGP, and because the project site is not within a tsunami, seiche, or dam inundation hazard zone, implementation of the Proposed Project would not result in the release of pollutants from a flood, dam inundation, tsunami, or seiche, and impacts would be **less than significant**. No mitigation is required.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The project site is within the jurisdiction of the Santa Ana RWQCB. The Santa Ana RWQCB adopted a Water Quality Control Plan (i.e., Basin Plan) (January 1995, updated June 2019) that designates beneficial uses for all surface and groundwater within its jurisdiction and establishes the water quality

[78] Department of Water Resources Division of Safety of Dams. *California Dam Breach Inundation Map.* Website: https://fmds.water.ca.gov/maps/damim/ (accessed February 2, 2024).

objectives and standards necessary to protect those beneficial uses. The Proposed Project would comply with the CGP, which requires preparation of a SWPPP, and implementation of construction BMPs to reduce pollutants of concern in stormwater runoff during project construction. In addition, in order to address potential water quality impacts during operation, the Proposed Project would include the installation of Project design features (e.g., drywell and/or gravel patches), as detailed in Section 2.3.1, to address pollutants of concern before discharging to the existing storm drain system in Watson Road. Therefore, the Proposed Project would not result in water quality impacts that would conflict with the Santa Ana RWQCB Basin Plan. Impacts related to a conflict with or obstruction of the implementation of a water quality control plan would be **less than significant**.

The Sustainable Groundwater Management Act (SGMA) was enacted in September 2014. SGMA requires governments and water agencies located within high- and medium-priority groundwater basins to halt overdraft of the basins. SGMA requires the formation of local Groundwater Sustainability Agencies (GSAs), which are required to adopt Groundwater Sustainability Plans (GSPs) to manage the sustainability of the groundwater basins. The project site is in the San Jacinto Groundwater Basin, which the DWR designates as a high-priority basin. The GSA identified for the San Jacinto Groundwater Basin is EMWD.

The San Jacinto GSP Public Draft was finalized in September 2021. SGMA does not apply to adjudicated basins; therefore, the sustainability goal and sustainability management criteria defined in the San Jacinto GSP apply only to the Plan Area, which is the non-adjudicated part of the San Jacinto Groundwater Basin, because the remaining areas of the San Jacinto Groundwater Basin are under the oversight of a Court-appointed watermaster. The plan indicates that groundwater levels within the basin have been rising and that groundwater recharge likely exceeded groundwater production since the mid-1970s. The sustainability goal for the Plan Area is to manage groundwater resources in a way that facilitates long-term sustainable use of groundwater in the San Jacinto Groundwater Basin.[79] Long-term sustainable management includes:

- Maintaining sufficient groundwater in storage to allow for ongoing groundwater production that meets the operational demands of groundwater users in the Plan Area.

- Protecting fresh groundwater resources in the Lakeview and Perris North groundwater management zones (GMZs) to the extent possible by minimizing the northward and eastward migration of brackish groundwater from the Perris South GMZ.

- Avoiding subsidence related to groundwater production that substantially interferes with surface land uses.

- Ensuring that groundwater production does not result in significant and unreasonable loss of Groundwater Dependent Ecosystems.

The GSP identifies four projects and three management actions to support implementation efforts of the GSP. Management actions include adjusting groundwater production as needed to meet water

[79] Eastern Municipal Water District (EMWD). 2021a. *Groundwater Sustainability Plan for the San Jacinto Groundwater Basin.* September.

level and/or water quality objectives; imposing a recharge or imported water purchase/pumping offset fee; and developing a groundwater allocation. Projects include assessing feasibility of recycled water delivery to private producers in the Menifee production area; conducting additional investigations and/or technical studies; constructing additional dedicated monitoring wells; and determining the location and status of domestic wells in the plan area.[80]

As previously discussed, the Proposed Project would not substantially contribute to groundwater depletion as the EMWD has determined it would have adequate supply to meet the water demand of all its member agencies and the Proposed Project is already accounted for in the water (groundwater) supply and demand scenarios determined by EMWD. In addition, as discussed above, the Proposed Project would not interfere with groundwater recharge because natural recharge to the basin is primarily from percolation of flow in the San Jacinto River and its tributary streams, with only minimal recharge from infiltration of rainfall on the valley floor. As such, the project site does not provide a significant source of groundwater recharge and implementation of the Proposed Project would not substantially interfere with groundwater recharge.

Therefore, the Proposed Project would not substantially decrease on-site infiltration and groundwater recharge when compared to existing conditions. Therefore, the Proposed Project would not conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan, and impacts would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

[80] Eastern Municipal Water District (EMWD). 2021a. *Groundwater Sustainability Plan for the San Jacinto Groundwater Basin.* September.

4.11 LAND USE AND PLANNING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

a. Would the project physically divide an established community?

The physical division of an established community typically refers to the construction of a physical feature (e.g., an interstate highway or railroad tracks) or removal of a means of access (e.g., a local road or bridge) that would impair mobility within an existing community or between a community and outlying areas.

The Proposed Project includes: (1) construction of the Watson Road II BPS and Menifee BPS within a new building on the combined BPS site, (2) decommissioning and removal of the existing Romoland BPS, and (3) pipeline work within City roadways. The two new booster pump stations would be constructed on a vacant site on Watson Road, northwest of the Watson Road/Antelope Road intersection and the pipeline is proposed within the Antelope Road and Watson Road rights-of-way. The proposed BPS site is currently undeveloped. The entirety of the proposed pipeline would be placed underground. Neither of these project components would physically divide an established community, and **no impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

b. Would the project 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?

The City of Menifee's General Plan is the primary land use plan containing policies and regulation applicable to the Proposed Project. The proposed pipeline alignment would be located within existing public rights-of-way that do not have a land use or zoning designation. The area surrounding the proposed pipeline alignment has a variety of zoning designations, including rural residential, high-density residential, business park, commercial retail, and public facilities. The proposed BPS facilities would be constructed on a vacant site northwest of the intersection of Watson Road and Antelope Road that is designated for high-density residential use. Public utilities are a conditionally permitted use in this zoning district. Therefore, the Proposed Project would not change existing land use within the project area and would not result in the conversion of adjacent land uses or conflicts with applicable City land use designations or zoning standards. The Proposed Project would not conflict with any applicable land use plan, policy, or regulation with jurisdiction over the project.

The City's General Plan outline relevant policies and regulations applicable to the Proposed Project, including policies to preserve visual, cultural, and natural resources and to protect the health and safety of their citizens. Consistent with the goals and policies of these relevant planning documents, the project has been designed to minimize impacts to natural and cultural resources. Project conformance and/or potential conflicts with these ordinances are described in the relevant resource sections of this IS/MND. Where potentially significant environmental impacts have been identified in this IS/MND, they have been mitigated to a less than significant level with implementation of appropriate mitigation measures. Therefore, the project would be consistent with applicable land use plans, policies, and regulations. Impacts would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

4.12 MINERAL RESOURCES

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

a. Would the project 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?

Minerals are any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances including, but not limited to, coal, peat, and oil-bearing rock, but excluding geothermal resources, natural gas, and petroleum. In 1975, the California Legislature enacted the Surface Mining and Reclamation Act (SMARA), which, among other things, provided guidelines for the classification and designation of mineral lands. Areas are classified on the basis of geologic factors without regard to existing land use and land ownership. The areas are categorized into four Mineral Resource Zones (MRZs):

- **MRZ-1:** An area where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- **MRZ-2:** An area where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.
- **MRZ-3:** An area containing mineral deposits, the significance of which cannot be evaluated.
- **MRZ-4:** An area where available information is inadequate for assignment to any other MRZ.

Of the four categories, lands classified as MRZ-2 are of the greatest importance. Such areas are underlain by demonstrated mineral resources or are located where geologic data indicate that significant measured or indicated resources are present. MRZ-2 areas are designated by the Mining and Geology Board as being "regionally significant." Such designations require that a Lead Agency's land use decisions involving designated areas be made in accordance with its mineral resource management policies and that it considers the importance of the mineral resource to the region or the State as a whole, not just to the Lead Agency's jurisdiction.

According to the City's General Plan Open Space and Conservation Element, Menifee Valley has a history of mining activities dating back to 1880. Today, the city has no active mining activities. Further, the city is nearly entirely designated as Urban Area (meaning there is no MRZ associated with that area) or MRZ-3, except for a small area along Murrieta Road, north of McCall Boulevard, which is

designated as MRZ-1. As such, the City's General Plan determined that, based on available information, the city has no known significant mineral deposits.[81]

According to the City's General Plan Open Space and Conservation Element, the project site (including the proposed BPS site and the pipeline alignment) is located within Urban Land.[82] Further, the project site is not designated or zoned for the extraction of mineral deposits. 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. **No impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

b. Would the project 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?

As previously discussed, the City's General Plan determined that, based on available information, the city has no known significant mineral deposits. In addition, the project site (including the proposed BPS site and the pipeline alignment) is located within Urban Land, and the project site is not designated or zoned for the extraction of mineral deposits. Therefore, the Proposed Project would not result in the loss of availability of a locally important mineral recovery site. **No impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

[81] City of Menifee. n.d.-e. *City of Menifee General Plan, Open Space and Conservation Element, Open Space and Conservation Background Document and Definitions.* Website: https://www.cityofmenifee.us/DocumentCenter/View/1081/3_OSC_Background-Document_HD_0913?bidId= (accessed November 14, 2025).

[82] City of Menifee. 2008. *City of Menifee General Plan, Open Space and Conservation Element, Exhibit OSC-3: Mineral Resource Zones.* Website: https://www.cityofmenifee.us/DocumentCenter/View/1084/ExhibitOSC-3_Mineral_Resource_Zones_HD0913?bidId= (accessed November 14, 2025).

4.13 NOISE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 2 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?	☐	☐	☐	☒

The following provides an overview of the characteristics of sound and vibration as well as the regulatory framework that applies to noise within the vicinity of the project site. The existing noise environment in and around the project site is also described.

Characteristics of Sound. Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep.

Several noise measurement scales exist that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative intensity of a sound. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a tenfold increase in acoustic energy, while 20 dB is 100 times more intense, and 30 dB is 1,000 times more intense. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness; and similarly, each 10 dB decrease in sound level is perceived as half as loud.

Sound intensity is normally measured through the A-weighted sound level (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. The A-weighted sound level is the basis for 24-hour sound measurements that better represent human sensitivity to sound at night. As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level would be. Geometric spreading causes the sound level to attenuate or be reduced, resulting in a 6 dB reduction in the noise level for each doubling of distance from a single point source of noise to the noise-sensitive receptor of concern.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq}, the community noise equivalent level (CNEL), and the day-night average level (L_{dn}) based on dBA. L_{dn}, sometimes

denoted as DNL, represents the time varying noise over a 24-hour period, with a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale, but without the adjustment for events occurring during the evening relaxation hours of 7:00 p.m. to 10:00 p.m.

Characteristics of Vibration. Vibration refers to ground-borne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may not be discernible. Typically, there is more adverse reaction to effects associated with the shaking of a building. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by occupants as the motion of building surfaces, the rattling of items on shelves or hanging on walls, or a low-frequency rumbling noise. The rumbling noise is caused by the vibration of walls, floors, and ceilings that radiate sound waves. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by 10 dB or less. This is an order of magnitude below the damage threshold for normal buildings.

Typical sources of ground-borne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Problems with both ground-borne vibration and noise from these sources are usually localized to areas within approximately 100 feet from the vibration source, although there are examples of ground-borne vibration causing interference to distances greater than 200 feet.[83] When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. It is assumed for most projects that the roadway surface will be smooth enough that ground-borne vibration from street traffic will not exceed the impact criteria; however, both the construction of the project could result in ground-borne vibration that may be damaging.

Ground-borne vibration has the potential to damage buildings. Although it is very rare for typical construction activities to cause even cosmetic building damage, it is not uncommon for construction processes such as blasting and pile driving to cause vibration of sufficient amplitudes to damage nearby buildings. Ground-borne vibration is usually measured in terms of vibration velocity, either the root-mean-square (RMS) velocity or peak particle velocity (PPV). The PPV is used to characterize potential for damage.

Regulatory Framework. A project would have a significant noise effect if it would substantially increase the ambient noise levels for adjoining areas or conflict with adopted environmental plans and goals of applicable regulatory agencies. The following analysis compares the potential impacts to the criteria within the City of Menifee Noise Element of the General Plan and Development Code. Because the City does not provide vibration assessment criteria for damage related to construction, the guidelines within the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Manual* (FTA Manual) have been used.

[83] California Department of Transportation (Caltrans). 2013. *Caltrans Transportation and Construction Vibration Guidance Manual*. September.

City of Menifee Noise Element. The City of Menifee General Plan Noise Element establishes the following policies applicable to the Proposed Project:

- **Goal N-1**: Noise-sensitive land uses are protected from excessive noise and vibration exposure.
    - **Policy N-1.7**: Mitigate exterior and interior noises to the levels listed in the table below (**Table 4.13.A**) to the extent feasible, for stationary (permanent) sources adjacent to sensitive receptors.
    - **Policy N-1.13**: Require new development to minimize vibration impacts to adjacent uses during demolition and construction.

Table 4.13.A: City of Menifee Stationary (Permanent) Source Noise Standards

Residential Land Use	Interior Standards	Exterior Standards
10:00 p.m.–7:00 a.m.	40 dB L_{eq} (10 minute)	45 dB L_{eq} (10 minute)
7:00 a.m.–10:00 p.m.	55 dB L_{eq} (10 minute)	65 dB L_{eq} (10 minute)

Source: City of Menifee Noise Element (2013).
dBA = A-weighted decibels L_{eq} = equivalent continuous sound level

The above goal and policies are applicable to the Proposed Project's operational stationary noise sources. There are no other goals or policies in the Noise Element applicable to the Project.

City of Menifee Development Code. When the City of Menifee incorporated, the City adopted the County of Riverside Noise Ordinance (Ordinance No. 847). The City is in the process of updating its Municipal Code to adopt the stationary noise standards into Chapter 9.09 of the Menifee Municipal Code, which are consistent with the standards in the County Municipal Code.

Allowable hours of construction are regulated in Section 9.210.060, Noise Control Regulations, of the Menifee Development Code. Section 9.210.060 (C)(2.) states that any construction within the City located within 0.25 mile from an occupied residence shall be permitted Monday through Saturday, from 6:30 a.m. to 7:00 p.m., except on nationally recognized holidays. Construction activities on Sundays and national holidays are prohibited unless approval is obtained from the City Building Official or City Engineer.

Because the City's Municipal Code does not establish construction noise thresholds, for the purposes of analyzing significance under CEQA, the FTA's criteria[84] are used. The general assessment criteria for construction noise identifies a 1-hour noise level of 90 dBA L_{eq} for residential uses during daytime hours. This provides reasonable criteria for assessing construction

[84] Federal Transit Administration (FTA). 2018. *Transit Noise and Vibration Impact Assessment Manual*. September.

noise impacts based on the potential for adverse community reaction when the noise criteria are exceeded.

Additionally, the City's Noise Element and Municipal Code do not provide specific noise level requirements or vibration impact criteria associated with construction activities; therefore, the FTA criteria will be used in this analysis.

Federal Transit Administration. The criteria for environmental impacts resulting from ground-borne vibration are based on the maximum levels for a single event. The guidelines within the *FTA Manual* have been used to determine vibration impacts (refer to **Table 4.13.B**, below).

Table 4.13.B: Construction Vibration Damage Criteria

Building Category	PPV (in/sec)
Reinforced concrete, steel, or timber (no plaster)	0.50
Engineered concrete and masonry (no plaster)	0.30
Non-engineered timber and masonry buildings	0.20
Buildings extremely susceptible to vibration damage	0.12

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018), Table 12-3.
FTA = Federal Transit Administration PPV = peak particle velocity
in/sec = inches per second

The FTA Manual guidelines show that a vibration level of up to 0.2 in/sec PPV is considered safe for non-engineered timber and masonry buildings and would not result in any construction vibration damage. Therefore, in order to be conservative, the 0.2 in/sec PPV threshold has been used when evaluating vibration impacts at the nearest structures to the site.

Existing Noise Environment. The project site is primarily surrounded by residential uses, including single-family homes adjacent to the project site. In order to assess the existing noise environment surrounding the project site, a combination of long-term and short-term noise measurements were gathered around the perimeter of the project site. LSA conducted three long-term 24-hour measurements from November 12, 2025, to November 13, 2025. The locations of the noise measurements are shown on **Figure 4.13-1**, with the results shown in **Table 4.13.C**. Additionally, one short-term noise level measurement was gathered near the proposed BPS site. Daytime traffic noise levels range from 47.3 to 69.0 dBA L_{eq}. Noise monitoring sheets are included in **Appendix F**.

Sensitive Land Uses in the Vicinity. Certain land uses are considered more sensitive to noise than others. Examples of these include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The nearest sensitive receptors include the residential uses along Antelope Road and Watson Road, approximately 50 feet from the proposed construction activities, and Romoland Elementary School, which is located along Antelope Road approximately 1,400 feet south of the BPSs site.

LSA

Project Location
Noise Monitoring Location
Pipeline
Proposed BPS Site
Existing Romoland BPS
Jack and Bore Pit

0 250 500
FEET

SOURCE: Maxar

I:\2025\20252406\GIS\Pro\Matthews Booster Pump Station and Transmission Line Project.aprx (Fig 4.13.1 - Noise Monitoring Locations)
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FIGURE 4.13-1

Menifee and Watson Road II Booster Pump Station and Matthews Transmission Pipeline Project

Noise Monitoring Locations

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Table 4.13.C: Existing Noise Level Measurements

Location	Date	Daytime Noise Levels[1] (dBA L_{eq})	Nighttime Noise Levels[2] (dBA L_{eq})
LT-1: 27930 Watson Road. On the western edge of the project site, on a tree. Approximately 150 feet from the Watson Road centerline.	11/12/25 to 11/13/25	50.8–56.6	47.9–57.2
LT-2: Watson Road Booster Station, 29285 Watson Road. On a utility pole near the northwest corner of the property. Approximately 35 feet from the Watson Road centerline.	11/12/25 to 11/13/25	60.9–69.0	49.6–67.8
LT-3: Near the corner of Jackson Avenue and Case Road. On a utility pole along Jackson Avenue, approximately 300 feet from SR-74.	11/12/25 to 11/13/25	59.9–66.5	55.9–64.8
ST-1[3]: Located west of a single-family home on 32859 Peak Street, near a utility pole along Washington Street, approximately 60 feet from the Washington Street centerline.	11/12/25	47.3–53.1	44.4–53.7

Source: Compiled by LSA (2025).
[1] Daytime noise levels were measured from 7:00 a.m. to 10:00 p.m.
[2] Nighttime noise levels were measured from 10:00 p.m. to 7:00 a.m.
[3] Short-term measurement data were estimated based on corresponding long-term measurement data.
dBA = A-weighted decibels
L_{eq} = the average noise level during a specific hour
LT = long-term measurement
SR = State Route
ST = Short-term measurement

a. Would the project result in 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?

The potential for the project to generate a substantial temporary or permanent increase in ambient noise levels is described below.

Construction Noise Impacts. Construction-related noise levels would be higher than existing ambient noise levels in the project area established but would no longer occur once construction of the project is completed.

Two types of potential short-term noise impacts could occur during construction of the Proposed Project: (1) noise impacts related to construction crew commutes and the transportation of construction equipment and materials to the site; and (2) noise impacts associated with construction of the Watson Road II BPS and Menifee BPS within a new building on the combined BPS site, decommissioning and removal of the existing Romoland BPS, and pipeline work within City roadways.

Construction crew commutes and the transport of construction equipment and materials to the Project site would incrementally increase noise levels on access roads leading to the site. Although there would be a relatively high single-event noise exposure from heavy trucks, potentially causing intermittent noise nuisance (passing pickup trucks at 50 feet would generate up to a maximum of 75 dBA), the effect on longer-term (hourly or daily) ambient noise levels would be small compared to the existing traffic volumes. Therefore, construction-related impacts associated with worker commutes and equipment transport to the project site would be less than significant.

The second type of potential short-term noise impact is related to noise generated during the construction phases. Construction is completed in discrete steps, each of which has its own mix of equipment and consequently its own noise characteristics. These various sequential phases would change the character of the noise generated on the site and therefore the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

Once the composite reference maximum noise level is calculated for each phase, the usage factor provided in **Table 4.13.D** is utilized to calculate the hourly noise level impact for each piece of equipment based on the following equation:

$$L_{eq}(equip) = E.L. + 10\log(U.F.) - 20\log\left(\frac{D}{50}\right)$$

where: $L_{eq}(equip)$ = L_{eq} at a receiver resulting from the operation of a single piece of equipment over a specified time period

E.L. = noise emission level of the particular piece of equipment at a reference distance of 50 ft

U.F. = usage factor that accounts for the fraction of time that the equipment is in use over the specified period of time

D = distance from the receiver to the piece of equipment

Each piece of construction equipment operates as an individual point source. Utilizing the following equation, a composite noise level can be calculated when multiple sources of noise operate simultaneously:

$$Leq\ (composite) = 10 * \log_{10}\left(\sum_{1}^{n} 10^{\frac{Ln}{10}}\right)$$

Utilizing the equations from the methodology above and the reference information in **Table 4.13.D**, the composite noise level would be 88 dBA L_{eq} at a distance of 50 feet from the construction area. This noise level would be the same for the loudest phase at each project location. **Table 4.13.E,** below, provides a summary of the reference noise levels during construction by phase.

Table 4.13.D: Typical Maximum Construction Equipment Noise Levels (L_{max})

Type of Equipment	Acoustical Usage Factor	Suggested Maximum Sound Levels for Analysis (dBA L_{max} at 50 feet)
Air Compressor	40	80
Backhoe	40	80
Cement Mixer	40	85
Concrete/Industrial Saw	20	90
Crane	16	85
Excavator	40	85
Generator	50	82
Grader	40	85
Loader	40	80
Paver	50	85
Roller	20	85
Rubber Tire Dozer	40	85
Scraper	40	85
Tractor	40	84
Truck	40	84
Welder	40	73

Source: Roadway Construction Noise Model (FHWA 2006).
dBA = A-weighted decibels
FHWA = Federal Highway Administration
L_{max} = maximum noise level

Table 4.13.E: Noise Levels By Construction Phase

Phase	Composite Reference Level at 50 Feet	
	dBA L_{max}	dBA L_{eq}
Decommissioning	91	88
Site Preparation	87	85
Grading	87	86
Building Construction	87	83
Paving	88	85
Architectural Coating	78	74
Trenching/Utilities	86	87
Linear, Grading and Excavation	91	90
Linear, Drainage, Utilities and Sub-Grade	91	90
Linear, Paving	89	87

Source: Compiled by LSA (2025).
dBA = A-weighted decibels
L_{eq} = average noise level
L_{max} = maximum noise level

The nearest sensitive receptor to the BPSs site would be the single-family homes located within approximately 170 feet from the center of the proposed BPSs construction activities. It is expected that noise levels during construction at the nearest residences would approach 75 dBA L_{eq}. Construction noise levels at other sensitive receptors (such as the school) along the proposed pipeline

alignment during construction activities would exceed 90 dBA L_{eq} when construction is occurring within 50 feet. Due to the linear nature of the pipeline installation activities, elevated noise levels potentially exceeding the construction noise standard would likely occur for only a few days; therefore, potential impacts with these activities would be considered less than significant.

While construction-related, short-term construction noise levels have the potential to be higher than existing ambient noise levels, which range from 47.3 to 69.0 dBA L_{eq} during daytime hours in the vicinity of the Proposed Project, noise impacts would no longer occur once project construction is completed.

Consistent with the City's General Plan Policies and Noise Ordinance construction hours would be generally be limited to between the hours of 6:00 p.m. and 6:00 a.m. during the months of June through September and between the hours of 6:00 p.m. and 7:00 a.m. during the months of October through May. As identified in Section 2.3.3, construction of the Matthews pipelines may require a maximum of 2 nights of nighttime construction for the pipeline connection at the existing Watson BPS, just east of Watson Road and Cumming Avenue. Construction activities occurring during off-hours are permitted with approval from the City of Menifee Community Development Director. Compliance with the City's General Plan Policies and Noise Ordinance would ensure that construction noise does not disturb residential uses or other sensitive receptors. In addition, contract specifications would include BMPs (e.g., proper muffling of equipment) to reduce construction-related noise, to the extent feasible, which would further reduce construction-related noise. Therefore, construction-related noise impacts would be considered less than significant.

Operational Noise Impacts. The Proposed Project would consist of the construction of the Watson Road II BPS and Menifee BPS within a new building on the combined BPS site, decommissioning and demolition of the existing Romoland BPS, and pipeline work within City roadways. Operation of the Proposed Project would be conducted remotely, and there would be no full-time dedicated staff at the site. EMWD staff may visit the site occasionally for routine maintenance activities, which would have a negligible noise impact compared to ambient noise caused by existing traffic volumes. Furthermore, daily trips to the proposed BPS site would replace existing trips to the Romoland BPS, and no new vehicle trips are anticipated. Thus, no operational noise would be associated with the new pipeline.

As described above, implementation of the Proposed Project would not result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Proposed Project in excess of standards established in the local general plan or noise ordinance, or any other applicable standards. Therefore, this impact would be **less than significant,** and no mitigation is required.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Construction of the Proposed Project could result in the generation of groundborne vibration. This construction vibration impact analysis assesses the potential for building damages using vibration levels in inches per second (in/sec) PPV. The FTA Manual guidelines indicate that a vibration level up to 0.2 in/sec PPV is considered safe for non-engineered timber and masonry buildings.

Table 4.13.F shows the PPV values at 25 feet from a construction vibration source. As shown in **Table 4.13.F**, bulldozers and other heavy-tracked construction equipment (except for vibratory rollers) generate approximately 0.089 in/sec PPV of groundborne vibration when measured at 25 feet.

Table 4.13.F: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV (in/sec) at 25 Feet
Vibratory Roller	0.210
Hoe Ram	0.089
Large Bulldozer	0.089
Caisson Drilling	0.089
Loaded Trucks	0.076
Jackhammer	0.035
Small Bulldozer	0.003

Sources: *Transit Noise and Vibration Impact Assessment* (FTA 2018).
FTA = Federal Transit Administration PPV = peak particle velocity
in/sec = inches per second

Construction vibration, similar to vibration from other sources, would not have any significant effects on outdoor activities (e.g., those outside of residential buildings in the project vicinity). The Proposed Project is expected to include the use of heavy equipment similar to a large bulldozer. The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project disturbance areas because vibration impacts occur normally within the buildings. The formula for vibration transmission is provided below.

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

As identified above, residential structures are located 50 feet from the proposed trenching activities and would experience vibration levels approaching 0.031 in/sec PPV. Although the proposed construction activities are located 50 feet from existing structures based on preliminary plans, construction vibration levels at these structures could exceed the FTA threshold of 0.2 in/sec PPV for non-engineered timber and masonry building damage if heavy equipment were to operate within 15 feet of the structures. For example, vibration levels at a distance of 14 feet would be 0.212 in/sec PPV. Therefore, construction that would occur within 15 feet of existing homes would exceed the FTA vibration damage thresholds resulting in a potentially significant impact. Implementation of **Mitigation Measure NOI-1** would be required to maintain a minimum distance of 15 feet between the heavy construction equipment and the adjacent structures. Implementation of **Mitigation Measure NOI-1** would ensure that construction vibration level would be below the FTA threshold of

0.2 in/sec PPV for building damage, reducing potential vibration impacts to less than significant. In addition, due to the linear nature of the project, construction activities at any one receptor location would occur for a limited duration. Construction vibration associated with the project would be less than significant with implementation of **Mitigation Measure NOI-1**.

Mitigation Measures: The following mitigation measure applies to the Proposed Project:

Mitigation Measure NOI-1 **Construction Vibration.** The use of heavy construction equipment, such as large bulldozers or excavators, within 15 feet of existing structures shall be prohibited.

Significance Determination: Less Than Significant with Mitigation Incorporated

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The Proposed Project is not located within 2 miles of a public or public use airport. The closest airport is Perris Valley Airport, located approximately 3 miles west of the Project site. Aircraft noise is occasionally audible at the project site; however, no portion of the project site lies within the 60 dBA CNEL noise contours of any public airport nor does any portion of the project site lie within 2 miles of any private airfield or heliport. Therefore, the Proposed Project would not result in the exposure of people residing or working in the project area to excessive noise levels. **No impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

4.14 POPULATION AND HOUSING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

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

The Proposed Project is located in an area characterized by light industrial land uses, residential development and public facilities (e.g., school and park). Light industrial land uses are located west and south of the existing Romoland BPS site and southeast of the Antelope/Watson Road intersection. Rural and single-family residential uses are scattered about the project vicinity west of Antelope Road, and north and south of Watson Road. In addition, some commercial retail businesses are located to the east and west of Antelope Road along SR-74 and Romoland Elementary School and Eller Park are located to the east of Antelope Road, south of Watson Road. A public utility corridor also runs through Watson Road from the north between Menifee Road and Junipero Road.

Construction of the Proposed Project would provide short-term jobs over an approximately 14- to 24-month period, starting in mid- to late 2026. Many of the construction jobs would be temporary or seasonal and would be specific to the variety of construction activities. The workforce would include a variety of craftspeople (e.g., cement finishers, ironworkers, welders, carpenters, electricians, painters, and laborers). Generally, construction workers are only at a job site for the time frame in which their specific skills are needed to complete that phase of construction. Although the Proposed Project would generate employees at the project site during construction activities, it is expected that local and regional construction workers would be available to serve the Proposed Project's construction needs. Project-related construction workers would not be expected to relocate their household's place of residence as a consequence of working on the Proposed Project; therefore, project construction would not be expected to increase the population of the city or surrounding communities.

When operational, the Proposed Project would serve two separate pressure zones, improving water supply reliability and distribution as buildout of the EMWD service area occurs. In addition, the proposed Menifee BPS is intended to replace the existing Romoland BPS to enhance the pumping capacity between the Perris Valley North PZ and South PZ and to provide greater operability as the existing Romoland BPS is nearing the end of its useful life.

The Proposed Project would not provide additional major infrastructure or increase the capacity of the existing water system so as to encourage population growth or new development, nor would the project extend or expand infrastructure or services to existing undeveloped areas in the vicinity of the project site. The Proposed Project is intended to improve system reliability and distribution to accommodate existing and anticipated development that has been identified in the City's General Plan and the EMWD's Water Facilities Master Plan Update. In addition, the Proposed Project would not include any new housing or commercial or industrial space. Therefore, the project would not directly or indirectly induce substantial population growth, and **no impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The proposed BPS site is currently undeveloped, and the proposed pipeline would be constructed within the existing Antelope Road and Watson Road rights-of-way. Therefore, construction of these elements would not displace any people or housing, necessitating construction of replacement housing elsewhere. Although the Proposed Project also includes the demolition of the existing Romoland BPS, none of the structures at the existing Romoland BPS are residential in nature. Although existing residents are located adjacent to the project boundaries at various locations, no housing or people would be displaced as a result of implementation of the Proposed Project. Therefore, implementation of the Proposed Project would not result in an impact related to the displacement of substantial numbers of existing housing or people, thereby necessitating the construction of replacement housing elsewhere. **No impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

4.15 PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

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

i. Fire protection?

ii. Police protection?

iii. Schools?

iv. Parks?

v. Other public facilities?

The project site is located in a developed urban area served by existing public services, as described below.

- **Fire Protection:** Fire protection and emergency response services in the City are provided by Riverside County Fire Department (RCFD). RCFD serves all of Riverside County and many neighboring cities. The closest fire station to the project site is Station 54 at 25730 Sultanas Road, approximately 2.6 miles east of the project site.[85]

- **Police Protection:** Prior to July 2020, the Riverside County Sheriff's Department provided police protection to the city of Menifee. As of July 2020, the City established the Menifee Police

[85] Riverside County Fire Department (RCFD). 2021. Riverside County Fire Station. Website: https://www.rvcfire.org/resources/fire-stations (accessed December 29, 2023).

Department, consisting of a patrol division, SWAT division, traffic division, and K9 division. The Menifee Police Department operates out of a facility located at 29714 Haun Road, approximately 3.6 miles south of the project site.

- **Schools:** The project site is located within the Romoland Elementary School District and the Perris Union High School District. The Romoland Elementary School District currently serves over 4,500 students and consists of four TK–5 schools, one 6–8 middle school and one TK–8 alternative school of choice that offers a virtual learning program, a homeschool program, and a middle school academy program.[86] The Perris Union High School District had a 2024–2025 enrollment of 11,832 students across 10 schools, including 6 high schools, 2 adult schools, an online learning Academy, and the California Military Institute.[87] Schools in the project area include Romoland Elementary School (located on the proposed Matthews pipeline alignment), Harvest Valley Elementary School (located approximately 0.6 mile east of the project site), and Heritage High School (located approximately 0.7 mile southeast of the project site.

- **Parks:** Refer to Section 4.16, Recreation, for a discussion about parks.

As discussed in Section 2.0, Project Description, construction of the proposed BPSs and demolition of the existing BPS would require temporary lane closures on Ethanac Road, Jackson Avenue, Antelope Road, and Watson Road, which could temporarily impact fire and police protection service responses. However, traffic control measures would be identified and implemented as agreed to by the City of Menifee through its encroachment permit process (see Environmental Commitments [Traffic Control Plan]). Implementation of a Traffic Control Plan would ensure that construction activities that may temporarily restrict vehicular traffic, including fire and police vehicles, would implement adequate and appropriate measures to facilitate the passage of persons and vehicles through/around any required road closures. Therefore, construction of the Proposed Project would not result in temporary impacts on fire and police protection services during construction.

Operation of the Proposed Project is intended to improve system reliability and distribution to accommodate existing and anticipated development that has been identified in the City's General Plan and EMWD's Water Facilities Master Plan Update. The Proposed Project does not include the construction of structures that would increase the population in the area or that would generate a higher demand for fire or police protection, schools, parks, or other public services. Therefore, the demand for public services to serve the Proposed Project would be the same as under existing conditions. Overall, **no impact** on public services would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

[86] Romoland School District. n.d. *About the District.* Website: https://www.romoland.net/domain/19 (accessed November 14, 2025).

[87] California Department of Education. n.d. Data Quest, 2024-2025 Enrollment Multi-Year Summary by Grade, Perris Union High. Website: https://dq.cde.ca.gov/dataquest/dqcensus/EnrGrdYears.aspx?cds= 3367207&agglevel=district&year=2024-25 (accessed November 14, 2025).

4.16 RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

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?

Parks in Menifee are owned, operated, and maintained by either the City or the Valley Wide Recreation District (VWRD). The City of Menifee currently operates 23 parks within the city, totaling approximately 109.02 acres, and the VWRD currently operates 24 parks within the city, totaling 140.93 acres.[88] As such, the City of Menifee currently has an inventory of parks totaling 298.47 acres.

As discussed in Section 4.14, Population and Housing, and Section 4.15, Public Services, development of the Proposed Project is intended to improve system reliability and distribution to accommodate existing and anticipated development that has been identified in the City's General Plan and EMWD's Water Facilities Master Plan Update. No housing would be constructed as part of the Proposed Project, and the Proposed Project would not change the number of employees on site or increase the number of residents in the city or surrounding communities. Therefore, implementation of the Proposed Project would not increase the use of existing neighborhood or regional parks in the project vicinity. Implementation of the Proposed Project would not have an adverse effect on existing park facilities and would not generate a demand for additional recreational facilities. **No impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

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?

Refer to Threshold 4.16.a, above. The Proposed Project does not include recreational facilities and would not change the number of employees on site or increase the number of residents in the city or the surrounding communities. Therefore, the Proposed Project would not require the construction or

[88] City of Menifee. n.d.-g. *City Parks.* Website: https://www.cityofmenifee.us/285/City-Parks (accessed November 14, 2025).

expansion of recreational facilities, which might have an adverse physical effect on the environment. **No impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

4.17 TRANSPORTATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

a. Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Regional access to the project site is provided by SR-74 and I-215. SR-74 travels east to west until it intersects with Antelope Road just north of the proposed Watson Road II and Menifee BPS site and turns northwest. I-215 travels north to south and is located west of the project site.

Upon completion of construction, negligible additional daily or peak-hour trips are anticipated to be attracted to or generated by the project site. Operation of the Proposed Project would be conducted remotely, and there would be no full-time dedicated staff at the site. EMWD staff may visit the site occasionally for facility inspections. It is anticipated that any daily visit by staff would last no more than 2 hours, depending on the maintenance required. Because daily trips to the proposed BPS site would replace existing trips to the Romoland BPS, no new vehicle trips are anticipated.

As outlined in Section 2.0, Project Description, construction of the proposed BPSs is anticipated to start in mid to late 2026 and last approximately 18 to 24 months. Construction of the Matthews Transmission Pipeline is anticipated to begin in October 2026 and last approximately 18 months. As these construction periods would overlap, this analysis considers that construction activities would occur concurrently.

Access to the project site for construction would likely be via SR-74 and I-215 to Antelope Road. Construction activities would typically occur from 8:00 a.m. to 5:00 p.m., Monday through Friday. No nighttime work for construction of the proposed BPS is currently anticipated; however, minimal nighttime and/or weekend work may be needed to connect the new Menifee BPS to the existing pipelines along Ethanac and Antelope roads. In addition, construction of the Matthews pipeline may require a maximum of 2 nights of nighttime construction for the pipeline connection at the existing Watson BPS, just east of Watson Road and Cumming Avenue. Any extended hours would need to be approved by the City of Menifee as construction progresses.

The contractor would employ the use of heavy construction machinery, likely including the following: an excavator and/or backhoe, bobtail, or larger truck to off-haul spoils; dump trucks; pick-up trucks; a crane, air compressor/generator; a wheel-mounted/track-mounted drill rig; a horizontal drilling machine; and a roller compactor. The equipment would likely be delivered when the construction begins and removed when it ends.

Project construction would require the export of an estimated 900 cubic yards of soil for grading at the BPS site. Export of material would generate approximately 60 truck round trips. Over the 18- to 24-month construction period, this would be fewer than one truck round trip per day.

Construction of the transmission pipelines would require approximately 16,280 cubic yards of cut material and 7,250 cubic yards of reused native soils fill. Net soils exported from the site would equal approximately 9,030 cubic yards. Export of material would generate approximately 600 truck round trips leaving the project site during the construction period. Over the 14-month construction period, this would be approximately two truck round trips per day.

As outlined in Section 2.0, an estimated 6 construction workers per day are required for the BPS site and 5 construction workers per day are required for the transmission pipelines, for a total of 11 construction workers per day for the Proposed Project during periods when both sites would be under construction. When export of materials would be occurring at both sites, the Proposed Project would have a combined three truck round trips per day.

Based on the anticipated construction needs, the following travel patterns are possible:

- Eleven inbound passenger vehicle trips during the a.m. peak hour
- Twenty-two passenger vehicle trips occurring midday
- Eleven outbound passenger vehicle trips during the p.m. peak hour
- Six daily truck trips (for approximately one trip each during a.m. and p.m. peak hours)

The anticipated worker trips in the a.m. peak hour and 11 outbound worker trips in the p.m. peak hour would equate to 44 daily passenger vehicle trips. Heavy-duty trucks could have a passenger car equivalent (PCE) of 3.0 so the 1 a.m. peak-hour and 1 p.m. peak-hour truck trips could result in an additional 3 PCE trips. This level of traffic volume (14 PCEs total) is less than the 50 or more peak-hour trips necessary to be included in the study area according to thresholds provided in the County of Riverside *Transportation Analysis Guidelines for Level of Service Vehicle Miles Traveled* (County Guidelines).[89] This 50-peak-hour trip threshold is also identified in the City of Menifee *LOS Traffic Study Guidelines*.[90] Therefore, the Proposed Project is not anticipated to contribute to any level of service (LOS) or operational deficiencies to the surrounding circulation system based on its low number of trips for a temporary duration.

[89] County of Riverside. 2020. *Transportation Analysis Guidelines for Level of Service Vehicle Miles Traveled.* December 15. Website: https://trans.rctlma.org/sites/g/files/aldnop401/files/migrated/Portals-7-2020-12-15-20--20Transportation-20Analysis-20Guidelines.pdf (accessed November 2025).

[90] City of Menifee. 2020. *LOS Traffic Study Guidelines.* October. Website: https://www.cityofmenifee.us/DocumentCenter/View/12099/LOS-Traffic-Study-Guidelines-October-2020 (accessed November 2024).

In addition, although construction of the proposed BPSs and demolition of the existing BPS would require temporary lane closures on Ethanac Road, Jackson Avenue, Antelope Road, and Watson Road, which could temporarily impact traffic flow during construction, traffic control measures would be identified and implemented as agreed to by the City of Menifee through its encroachment permit process (see Environmental Commitments [Traffic Control Plan]). Implementation of a Traffic Control Plan would ensure that construction activities that may temporarily restrict vehicular traffic would implement adequate and appropriate measures to facilitate the passage of persons and vehicles through/around any required road closures. Therefore, construction of the Proposed Project would not result in temporary transportation impacts during construction.

Over the course of the entire day, 44 passenger vehicle trips could occur and 18 PCE trips could be generated each day of material net export (6 truck trips x 3 PCE per truck = 18 PCE), for a total of 62 PCE trips. Although the Proposed Project would generate construction (temporary) vehicles/trucks, it would not preclude alternative modes of transportation or facilities (e.g., transit, bicycle, or pedestrian). The Riverside Transit Agency (RTA) provides fixed route and Dial-a-Ride bus service within the city of Menifee. RTA Routes 28, 61 and 74 serve the city of Menifee; however, no transit service is currently provided along any of the roadways within the project site.

According to the City of Menifee General Plan,[91] Class II bicycle lanes are proposed along the entire length of Antelope and Watson roads within the project alignment. As described in Section 2.6, Environmental Commitments, a TCP would be approved for all construction work within public roadways. The TCP would be prepared in accordance with the USDOT Manual of Uniform Traffic Control Devices (MUTCD), the Caltrans MUTCD, and permit requirements by the authority having jurisdiction. Any temporary closure of bicycle lanes within the project area would be addressed in the TCP.

The Proposed Project is consistent with the City of Menifee General Plan Circulation Element.[92] The Proposed Project would not make any permanent changes to the public right-of-way in the project vicinity and would not conflict with existing or planned transit, roadway, bicycle, or pedestrian facilities. Therefore, the Proposed Project would not conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. This impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

[91] City of Menifee. 2013b. *City of Menifee General Plan EIR, Exhibit C-4 Proposed Bikeway and Community Pedestrian Network.* July 26. Website: https://www.cityofmenifee.us/DocumentCenter/View/1021/C-4-Bikeways_HD0913?bidId= (accessed November 2025).

[92] City of Menifee. n.d.-f. *City of Menifee General Plan, Circulation Element.* Website: https://cityofmenifee.us/863/Circulation-Element (accessed November 2025).

b. Would the project conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?

State CEQA Guidelines Section 15064.3, subdivision (b), states that transportation impacts for land use projects are to be measured by evaluating the project's VMT as outlined in the following:

> Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high-quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.

VMT is the amount and distance of automobile travel attributable to a project. According to the OPR *Technical Advisory on Evaluating Transportation Impacts in CEQA,*[93] "automobile" refers to "on-road passenger vehicles, specifically cars and light trucks." Thus, construction trucks do not need to be included in the project VMT assessment.

Additionally, the OPR technical advisory recommends VMT screening thresholds for smaller projects. The footnote on page 12 of the OPR technical advisory states the following:

> **Screening Thresholds for Small Projects**
>
> Many local agencies have developed screening thresholds to indicate when detailed analysis is needed. Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact.

The OPR technical advisory recommends that projects generating fewer than 110 trips would be assumed to cause a less than significant transportation impact. Additionally, the recommendation of a small project screening threshold is included in the County of Riverside Transportation Analysis Guidelines[94] as well as those of the City of Menifee and the City of Perris.

Over the course of the entire day, 44 passenger vehicle trips could occur and 18 PCE trips could be generated each day of material net export, for a total of 62 PCE trips. The Proposed Project is estimated to generate nominal average daily traffic (ADT) and peak-hour trips on a temporary basis for construction, and it would generate negligible new vehicle trips during day-to-day operations since the project is addressing infrastructure needs and would not require any on-site staff. As such, it is considered a small project and is assumed to have a less than significant impact on transportation.

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93 Office of Planning and Research (OPR). 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA.* December. Website: http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf (accessed November 2025).

94 County of Riverside. 2020. *Transportation Analysis Guidelines for Level of Service Vehicle Miles Traveled.* December 15. Website: https://trans.rctlma.org/sites/g/files/aldnop401/files/migrated/Portals-7-2020-12-15-20--20Transportation-20Analysis-20Guidelines.pdf (accessed November 2025).

Therefore, the Proposed Project is not subject to a VMT analysis. Potential impacts would be **less than significant.**

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

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

The Proposed Project would not change the existing roadway design. Temporary contractor laydown areas would be identified prior to construction activities. As described above in Section 2.5.1.1, the contractor may stage at the existing Watson BPS site, the proposed BPS site off Watson Road, or the existing EMWD property at the corner of Ethanac Road and Antelope Road. Temporary laydown/staging areas for equipment and materials would also likely occur in the paved roadway or along roadway right-of-way. Access to the project site would likely be via SR-74 and I-215. Once construction activities are complete, staging areas would be returned to existing conditions.

Construction of the Proposed Project would require temporary lane closures. One lane would be kept open with flaggers directing traffic in either direction. Temporary lane closures would be minimized to the active construction areas and move with construction activities. Use of conventional traffic control measures, such as cones, K-rails, signs, and message boards, is anticipated. Additional traffic control around Romoland Elementary School may be required; however, at least one driveway to the school would remain open at all times.

As described in Section 2.6, Environmental Commitments, a TCP would be approved for all construction work within public roadways. The TCP would be prepared in accordance with the USDOT MUTCD, the Caltrans MUTCD, and permit requirements by the authority having jurisdiction. Implementation of the TCP would facilitate safe passage of both construction vehicles and private vehicles. As a result, the Proposed Project would not substantially increase hazards for vehicles due to a design feature or incompatible uses. This impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

d. Would the project result in inadequate emergency access?

Effects of the Proposed Project on emergency access would be largely limited to construction and would be temporary in nature. As described above in Section 4.17.c, traffic control measures would be set up in phases as the work occurs along and across roadways. In general, two-way traffic would be maintained through the use of flagging during working hours and, if needed, modifications to the existing traffic signal.

Ingress to the proposed combined BPS would be via Watson Road. The design, construction, and maintenance of the BPS access location would be in compliance with the City of Menifee Municipal Code and would meet all emergency access standards.

Therefore, the Proposed Project would not result in inadequate emergency access. Impacts associated with emergency access would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

4.18 TRIBAL CULTURAL RESOURCES

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

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

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or

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

Enacted in 2014, Assembly Bill (AB) 52 amended CEQA to require tribal cultural resources to be considered potentially significant cultural resources under the CEQA environmental review process. The procedures under AB 52 offer tribes an opportunity to take an active role in the CEQA process in order to protect tribal cultural resources. Per AB 52, EMWD initiated consultation with Native American tribes that are traditionally and culturally affiliated with the geographic area of the Proposed Project to identify resources of cultural or spiritual value to affected tribes. On October 28, 2025, EMWD sent consultation notification letters via certified mail to Native American tribal representatives on EMWD's Master List pursuant to the requirements of AB 52 pertaining to

government-to-government consultation. The tribes that were notified included the Agua Caliente Band of Cahuilla Indians, the Morongo Band of Mission Indians, the Pechanga Band of Indians (Pechanga), the Rincon Band of Luiseño Indians, the Soboba Band of Luiseño Indians (Soboba), and the Yuhaaviatam of San Manuel Nation (YSMN). To date, EMWD has received three responses: Pechanga and Soboba requested tribal consultation under AB 52, while YSMN declined consultation.

EMWD conducted consultation with Pechanga on December 11, 2025. Prior to the consultation meeting, EMWD forwarded the tribe the following deliverables for review: preliminary designs for the Menifee and Watson II BPSs and the Matthews Transmission pipelines, the draft biological resources assessment, and the draft cultural study. During the consultation meeting, Pechanga discussed the presence of a Tribal Cultural Place (TCP) in close proximity to the project site. Pechanga shared that this area is rich with tribal cultural resources, as there are a variety of recorded resources surrounding the project site.

EMWD conducted consultation with Soboba on December 29, 2025. Prior to the consultation meeting, EMWD forwarded the tribe the following deliverables for review: preliminary designs for the Menifee and Watson II BPSs and the Matthews Transmission pipelines, the draft biological resources assessment, and the draft cultural study. Soboba shared information about a TCP and Tribal Cultural Landscape (TCL) that are both located in the vicinity of the project site. Soboba also stated that there are recorded tribal cultural resources in close proximity to all sides of the project site, highlighting the significance of this area to Soboba.

There are no tribal cultural resources listed or eligible for listing that would be impacted by implementation of the Project. Additionally, no specific tribal cultural resources were identified within the Project footprint during the tribal consultation process.

Both the Pechanga and Soboba tribes expressed concerns with the potential unearthing of unknown tribal cultural artifacts during the excavation for the BPS site and associated pipelines due to the area's tribal cultural significance and the ground-disturbing activities associated with the Project. The potential impacts to these resources are considered significant. Therefore, the Proposed Project would be required to implement **Mitigation Measures TRI-1 through TRI-4** as outlined in Section 4.5, Cultural Resources, which require Native American tribal monitoring, worker environmental awareness training, and evaluation and proper disposition of any discovered resources. In addition, the Proposed Project would be required to implement **Mitigation Measures TRI-5 and TRI-6,** as outlined in Section 4.5, which require EMWD to avoid impacts to Native American human remains in the case that they are discovered. With implementation of **Mitigation Measures TRI-1 through TRI-6**, potential impacts to tribal cultural resources would be **less than significant with mitigation incorporated**.

Mitigation Measures: Implement Mitigation Measure TRI-1 through TRI-6, as outlined in Section 4.5, Cultural Resources.

Significance Determination: Less Than Significant with Mitigation Incorporated

4.19 UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c. Result in a determination by the wastewater treatment provider 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 statutes and regulations related to solid waste?	☐	☐	☒	☐

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

A variety of local and regional purveyors in this area provide and maintain utility and service system facilities associated with electricity, water, stormwater, wastewater, solid waste, communications, and natural gas. Several of these utilities run parallel to the pipeline route in the form of sewer pipes, storm drains, power lines, gas mains, and telephone lines.

Water Supply. The EMWD has jurisdiction over the water service lines within a 558-square-mile service area in western Riverside County.[95] The EMWD has four sources of water supply: imported water from MWD, local groundwater, desalinated groundwater, and recycled water. Potable imported water is treated and delivered to EMWD directly from MWD's two large filtration plants: the Henry J. Mills Water Treatment Plant and the Robert F. Skinner Water Treatment Plant. EMWD owns and operates two microfiltration plants that filter raw imported water delivered through MWD, removing particulate contaminants to achieve potable water standards. The two treatment plants (i.e., the Perris Water Filtration Plant and Hemet Water Filtration Plant) are located in Perris and Hemet, respectively.

[95] Eastern Municipal Water District (EMWD). n.d.-a. Who We Are. Website: https://www.emwd.org/who-we-are (accessed November 14, 2025).

EMWD also produces potable and brackish groundwater from the San Jacinto Groundwater Basin, which underlies the EMWD service area. EMWD's groundwater wells pump primarily from the eastern portion of the EMWD, with the largest amount of production taking place around the cities of Hemet and San Jacinto. EMWD owns and operates two desalination plants in Sun City (i.e., the Menifee Desalter and the Perris I Desalter), which treat brackish groundwater through reverse osmosis to achieve potable water standards. In addition to the potable water system, EMWD maintains a regional recycled water system that provides tertiary-treated recycled water to customers for agricultural, landscape irrigation, environmental, and industrial use. EMWD's recycled water system consists of four regional water reclamation facilities (RWRFs) that treat municipal sewage and produce water for recycling. The four RWRFs (i.e., the San Jacinto Valley RWRF, Moreno Valley RWRF, Temecula Valley RWRF, and Perris Valley RWRF) are spread throughout the EMWD service area. A network of pipelines connects the four RWRFs, as well as several distribution storage ponds, to manage the delivery of recycled water.[96]

The project would not result in the construction of new water treatment facilities or the expansion of such facilities. The Proposed Project includes: (1) construction of the Watson Road II BPS and Menifee BPS within a new building on the combined BPS site, (2) decommissioning and removal of the existing Romoland BPS, and (3) pipeline work within City roadways. Development of the Proposed Project would improve hydraulic reliability of the regional water distribution system and enhance transmission capabilities to and from the existing Watson BPS. Although the Proposed Project itself includes the construction of a new water pipeline and associated water infrastructure, measures (e.g., BMPs, Best Available Control Technologies) have been incorporated into the project design along with conformance with appropriate guidelines and policies to reduce possible environmental impacts to the extent practicable. Additionally, as described in Section 2.5.2, Project Operation, operation and maintenance activities associated with the Proposed Project would be similar to existing EMWD operations and maintenance for other water pipelines and BPSs within its jurisdiction. Further, overall water demands would remain similar to existing conditions, and any increase in water demand during project construction or operation would be minimal and incidental to the overall EMWD system. Therefore, a **less than significant impact** would occur.

Wastewater.EMWD provides wastewater services to approximately 268,000 customers within its service area and currently treats approximately 49 million gallons per day of wastewater at its four active regional water reclamation facilities through 1,813 miles of sewer pipelines.[97]

Implementation of the project would not require or result in the relocation or construction of new or expanded wastewater treatment facilities. The project entails construction of a combined BPS facility, demolition of the existing Romoland BPS, and installation of new pipelines to improve reliability and distribution within the project area. Project construction could result in the discharge of potable and non-potable water. While no groundwater dewatering is anticipated, potable pipeline dewatering may be needed in order to connect the new 36-inch-diameter pipeline to the existing Perris Valley South

[96] Eastern Municipal Water District (EMWD). 2021b. *2020 Urban Water Management Plan*. July 1. Website: https://www.emwd.org/sites/main/files/file-attachments/urbanwatermanagementplan_0.pdf?1625160721 (accessed August 2023).

[97] Eastern Municipal Water District (EMWD). n.d.-b. Wastewater Service. Website: https://www.emwd.org/wastewater-service (accessed August 2023).

Pressure Zone located within the intersection of Antelope Road and Ethanac Road. Discharge from potable pipeline dewatering would go into the EMWD sewer system consistent with capacity, with remaining water directed to the County storm drain. In addition, pipeline installation would require pressure testing and disinfection prior to operation. This process involves filling the new pipeline with chlorinated water for disinfection while using a metering pump to verify the pipeline pressure. Chlorinated water would be dechlorinated prior to discharge. Discharge of potable and non-potable water would be in compliance with NPDES Municipal Regional Permit requirements and would not require or result in the relocation of construction of new or expanded wastewater treatment facilities. Therefore, this impact would be **less than significant**.

Stormwater. As described in Section 4.10, Hydrology and Water Quality, under existing conditions, stormwater at the proposed BPS site and the existing Romoland BPS site either infiltrates on site or sheet flows into existing stormwater infrastructure in the surrounding roadways. Stormwater from the area planned for the new Matthews transmission main within Antelope Road and Watson Road is collected by existing stormwater infrastructure in Antelope Road and Watson Road.

Development of the Proposed Project would result in approximately 40,000 square feet of new impervious surface area at the combined BPS site, which could decrease on-site infiltration and increase the amount of stormwater entering the surrounding stormwater drainage system As described in Section 2.3.1, the Project would include installation of a drywell and/or gravel patches throughout the site to capture and filter stormwater runoff prior to discharge to the municipal storm drain system. The existing Romoland BPS would be decommissioned and removed, thereby reducing impervious surfaces at the Romoland BPS site.

Therefore, the Proposed Project would not result in an exceedance of planned or existing stormwater drainage systems, and impacts would be **less than significant**. No mitigation would be required.

Gas, Electricity, and Telecommunications. SCE provides electricity in Menifee. SoCalGas provides natural gas service. Traditional telephone service is provided by AT&T and its various precursor companies. A variety of cellular and wireless service companies operate within the city.

The proposed pipeline would be underground, and no new gas, electricity, or telecommunications facilities would be required to serve the pipeline. Further, the proposed pipeline alignment has been designed to avoid impacts to other utilities located within the existing right-of-way, including gas and electric lines.

The combined BPS facility would include a dedicated SCE service area facing Watson Road, which would include a 2,500-kilovolt-ampere (kVA) transformer (480-volt, three-phase), a fused switch, a pad-mounted capacitor, and an additional switch per SCE's design requirements. A service entrance switchboard would be installed with a meter and main circuit breaker, and underground feeders leading to the electrical room inside the BPS. In addition, a 1,500 kW standby emergency diesel generator set (genset) would be installed to provide backup power to the pump station.

Although the Proposed Project itself includes the installation of new electric service, measures (e.g., BMPs, Best Available Control Technologies) have been incorporated into the project design along with conformance with appropriate guidelines and policies to reduce possible environmental

impacts to the extent practicable. Additionally, proposed electric utility facilities would be constructed in accordance with SCE's requirements and would require approval from SCE prior to construction. Therefore, a **less than significant impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

The Proposed Project would not result in an increase in the amount of water that currently is distributed to the site. New or expanded water supply entitlements would not be required to serve the Proposed Project. Water used during construction activities would be provided via a water truck. In addition, pipeline installation would require pressure testing and disinfection prior to operation, which requires the pipeline to be filled with chlorinated water. As outlined in Section 2.5.1.2, chlorinated water would be dechlorinated prior to discharge. The amount of water required would be approximately 55,000 cubic feet (411,500 gallons) and would only be needed during the construction period. Therefore, the Proposed Project would result in a **less than significant impact** related to water supplies.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Refer to Threshold 4.19.a, above. Implementation of the project would not result in a change in the wastewater treatment needed. Impacts related to wastewater treatment would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

d. Would the project 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?

Implementation of the Proposed Project would generate solid waste associated with construction activities, including construction materials, general refuse, and other materials associated with demolition of the existing Romoland BPS. As outlined in Section 2.0, Project Description, construction of the proposed BPS building would require approximately 2,100 cubic yards of cut material and approximately 1,100 cubic yards of fill material. Approximately 1,000 cubic yards of material would be exported off the project site for disposal at the nearest landfill or appropriate disposal site.

Trenching for new piping would require approximately 2,900 cubic yards of cut material and approximately 2,200 cubic yards of fill material, for a total of approximately 700 cubic yards of material exported off the project site. Demolition of the existing Romoland BPS would require approximately 200 cubic yards of cut material and approximately 240 cubic yards of fill material. As such, approximately 240 cubic yards of fill material would need to be imported to the project site. Construction of the transmission pipeline would require approximately 16,280 cubic yards of cut material and 7,250 cubic yards of reused native soils fill. Net soils exported from the site would equal approximately 9,030 cubic yards. In addition, demolition of the existing Romoland BPS is anticipated to generate approximately 160 tons of debris.

Solid waste generated by the Proposed Project would off-hauled to the nearest landfill, which is the Lamb Canyon Landfill, located at 16411 Lamb Canyon Road, Beaumont, California. The Lamb Canyon Landfill operates Monday through Saturday, from 6:00 a.m. to 4:30 p.m., and accepts the following types of waste: agricultural, asbestos, ash, construction/demolition, contaminated soil, dead animals, green materials, industrial waste, inert waste, liquid waste, metals, mixed municipal, sludge (biosolids), tires, and wood waste. As of 2020, the landfill had a permitted capacity of 39,681,513 cubic yards and a remaining capacity of 14,540,000 cubic yards. The Lamb Canyon Landfill has a daily maximum input of 5,000 tons per day and an estimated close date of April 1, 2032.[98]

The quantity of solid waste materials associated with construction would be limited to the construction period and would not pose a significant impact upon existing landfills. No additional solid waste would be generated by long-term operations of the Proposed Project. Impacts related to solid waste disposal are considered **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

As described in Threshold 4.19.d, above, implementation of the Proposed Project would generate solid waste associated with construction and demolition activities. To the extent possible, solid waste would either be recycled on site or transported to a local disposal center for recycling. Solid waste generation would be limited to the construction period; no solid waste would be generated from long-term operation of the Proposed Project. The Proposed Project would comply with federal, State, and local statutes and regulations related to solid waste. This impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

[98] California Department of Resources Recycling and Recovery (CalRecycle). n.d. SWIS Facility/Site Activity Details, Lamb Canyon Sanitary Landfill (33-AA-0007). Website: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/2246?siteID=2368 (accessed November 14, 2025).

4.20 WILDFIRE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

a. Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

The Fire and Resource Assessment Program of CAL FIRE designates the project site as being in a Local Responsibility Area (LRA). The project site is also not located within a VHFHSZ.[99] As discussed in Threshold 4.9.f, above, operation of the Proposed Project would be the same or similar to the operations and maintenance of existing facilities and would not impair or physically interfere with emergency response or evacuation plans. The Proposed Project would be required to comply with all applicable codes and ordinances for emergency vehicle access, which would ensure adequate access to, from, and on site for emergency vehicles. Adherence to these codes and ordinances would ensure that construction and operation of the Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, the Proposed Project would not inhibit an emergency response plan or an emergency evacuation plan during construction. Therefore, this impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

[99] California Department of Forestry and Fire Protection (CAL FIRE). n.d. Fire Hazard Safety Viewer. Website: https://egis.fire.ca.gov/FHSZ/ (accessed November 14, 2025).

b. Would the project, 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?

The Proposed Project, as described above, would not be located within a VHFHSZ. In its existing condition, the proposed BPS site is undeveloped, flat, and devoid of vegetation. Implementation of the Proposed Project would not significantly change the degree of exposure to wildfires because no new housing would be constructed, and people would not regularly access the project site. In addition, the proposed BPS facility would be designed to comply with City of Menifee Municipal Code Chapter 8.20 Fire Code and the following fire-related goals and policies identified in the Menifee General Plan:

- **Goal S-4: Fire Hazards –** A community that has effective fire mitigation and response measures in place, and as a result is minimally impacted by wildland and structure fires.
    - **Policy S-4.1:** Require fire-resistant building construction materials, the use of vegetation control methods, and other construction and fire prevention features to reduce the hazard of wildland fire.
    - **Policy S-4.2:** Ensure, to the maximum extent possible, that fire services, such as firefighting equipment and personnel, infrastructure, and response times, are adequate for all sections of the City.
    - **Policy S-4.3:** Use technology to identify flood-prone areas and to notify residents and motorists of impending flood hazards and evacuation procedures.
    - **Policy S-4.4:** Review development proposals for impacts to fire facilities and compatibility with fire areas or mitigate.

Prior to final plan check approval, the City of Menifee, in coordination with the Riverside County Fire Department and CAL FIRE, would review the project-specific plans to ensure adequate design features are implemented to reduce the potential impacts from wildfires.

In addition, the construction contractor would implement fire hazard reduction measures (e.g., having fire extinguishers located on site, using spark arrestors on equipment, and using a spotter during welding activities) during construction activities and all construction work would require the contractor to implement standard fire prevention methods.

Installation of the proposed pipelines would also not change the degree of exposure to wildfires because no new aboveground structures or housing would be constructed, and people would not regularly access the project site. Overall, the Proposed Project, due to slope, prevailing winds, and other factors, would not expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Impacts would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

c. Would the project 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?

The Proposed Project includes: (1) construction of the Watson Road II BPS and Menifee BPS within a new building on the combined BPS site, (2) decommissioning and removal of the existing Romoland BPS, and (3) pipeline work within City roadways. The Proposed Project is located within an urban area. No off-site roads, fuel breaks or emergency water sources would be developed as part of the Proposed Project, nor would they be required to serve the Proposed Project. Overall, the Proposed Project would not require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. **No impact** would occur.

Mitigation Measures: No mitigation is required.

Significance Determination: No Impact

d. Would the project 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?

According to the FEMA FIRM Panel 06065C2060H, the majority of the project site is located within an area of 1 percent annual chance of flood (Zone X).[100,101] However, a small portion of the existing EMWD property proposed for construction staging is within a special flood hazard area (Zone A).[102] As this area is proposed only for temporary construction staging, the Proposed Project would not expose people or structures to significant risks associated with downstream flooding.

The proposed BPS site currently consists of a flat terrain. Parcels around the project area are also relatively flat. As described in Threshold 4.10.d, BMPs would be implemented during construction to ensure that pollutants would be retained on site and would be prevented from reaching downstream receiving waters during a rain event. During operation, the Proposed Project would not place any improvements within a floodplain or generate any pollutants. In addition, the project site is not located within a landslide zone.[103] Therefore, downslope flooding as a result of runoff, post-fire slope instability, or drainage changes is unlikely to occur at the site. Furthermore, due to the developed nature of the project site, risks associated with wildfires are considered less than significant. The

[100] Federal Emergency Management Agency (FEMA). 2014. National Flood Insurance Program (FIRM). Flood Insurance Rate Map, Riverside County, California. Panel Number 06065C1445H. August 18. Website: https://msc.fema.gov/portal/search?AddressQuery=25890%20Antelope%20Road%2C%20menifee%2C%20ca (accessed November 14, 2025).

[101] Ibid.

[102] Ibid.

[103] City of Menifee. n.d. *City of Menifee General Plan, Safety Element, Exhibit S-3: Liquefaction and Landslides*. Website: https://www.cityofmenifee.us/DocumentCenter/View/18261/FINAL_Safety-Element-6723_complete_reduced-size-for-webpage?bidId= (accessed November 14, 2025).

Proposed Project would not 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. Impacts would be **less than significant**.

Mitigation Measures: No mitigation is required.

Significance Determination: Less Than Significant Impact

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐

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?

The Proposed Project includes: (1) construction of the Watson Road II BPS and Menifee BPS within a new building on the combined BPS site, (2) decommissioning and demolition of the existing Romoland BPS, and (3) pipeline work within City roadways. The new BPSs would include an approximately 12,600-square-foot block wall building, piping, an electrical/power system, a transformer, security lighting, and a perimeter block wall. The existing Romoland BPS would remain in operation until the new BPSs are constructed, after which it would be decommissioned and removed. The Proposed Project also includes installation of approximately 1.85 miles of 30-inch and 36-inch-diameter transmission pipelines within Antelope Road north from the existing Romoland BPS to Watson Road, and within Watson Road from the new BPS to the existing Watson BPS approximately one-third of a mile east of the Watson Road and Menifee Road intersection.

As described in Section 4.4, Biological Resources; Section 4.5, Cultural Resources; and Section 4.18, Tribal Cultural Resources, with the incorporation of the identified mitigation measures and the environmental commitments identified in Section 2.6, implementation of the Proposed Project: (1) would not degrade the quality of the environment; (2) would not substantially reduce the habitats of fish or wildlife species; (3) would not cause a fish or wildlife population to drop below self-sustaining levels; (4) would not threaten to eliminate a plant or animal; and (5) would not eliminate important examples of major periods of California history or prehistory. With respect to the quality

of the environment, the project would not preclude the ability to achieve long-term environmental goals. This impact would be **less than significant with mitigation incorporated**.

Mitigation Measures: Implement Mitigation Measures BIO-1 through BIO-3, and TRI-1 through TRI-6.

Significance Determination: Less Than Significant with Mitigation Incorporated

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)?

The *State CEQA Guidelines* require a discussion of significant environmental impacts that would result from project-related actions in combination with "closely related past, present, and probably future projects located in the immediate vicinity" (*State CEQA Guidelines* Section 15130[b][1][A]). Cumulative environmental impacts are those impacts that by themselves are not significant, but when considered with impacts occurring from other projects in the vicinity would result in a cumulative impact. Related projects considered to have the potential of creating cumulative impacts in association with the Proposed Project consist of projects that are reasonably foreseeable and that would be constructed or operated during the life of the Proposed Project. According to a review of the City of Menifee Capital Improvement Project (CIP)/Land Development Dashboard,[104] there are several pending or approved projects in proximity to the project site that, when combined with the Proposed Project, could result in cumulative impacts. These projects are:

- Romoland Elementary School Active Transportation Plan (ATP), CIP Project No. 24-04, would construct pedestrian improvements within the vicinity of Romoland Elementary School. The proposed improvements would enhance safety along the major access routes to Romoland Elementary School in alignment with the City's ATP. Proposed improvements would include curb extensions, rectangular rapid flashing beacons, high-visibility crosswalks, and truncated domes on roadways north of SR-74, west of Antelope Road and south of Watson Road.[105] Proposed improvements are currently in design, with some currently under construction.

- The Menifee West Coast Self-Storage Facility Project proposes development of seven single-story, self-storage buildings totaling 71,637 square feet of building area on 4.06 acres west of Antelope Road, east of 3rd Street, north of Jackson Avenue and south of SR-74, adjacent to the existing Romoland BPS site. This project was approved in October 2024.

- Menifee North Specific Plan Amendment No. 5, Tentative Tract Map No. 38132, proposes development of a 169-unit residential development on the east side of Palomar Road,

[104] City of Menifee. n.d.-d. City of Menifee CIP/Land Development Dashboard Website: https://experience.arcgis.com/experience/1b85100befaf4a78b3be107b458b5656 (accessed November 17, 2025).

[105] City of Menifee. 2020. *Active Transportation Plan.* December. Website: https://www.cityofmenifee.us/DocumentCenter/View/12390/Menifee-ATP-Final-Report---December-2020---High-Res (accessed November 17, 2025).

approximately 350 feet south of the Watson Road and Palomar Road intersection. The proposed Tentative Tract Map was approved in April 2024.

The Proposed Project's impacts would be individually limited and not cumulatively considerable. The potentially significant impacts that can be reduced to a less than significant level with implementation of recommended mitigation measures include the topics of biological resources, cultural resources, geology and soils, and noise. These impacts would primarily be related to construction-period activities, would be temporary in nature, would be confined to the project area, and would not substantially contribute to any potential cumulative impacts associated with these topics. For the topic of biological resources, implementation of **Mitigation Measures BIO-1 through BIO-3** would ensure that impacts to special-status species, including burrowing owl and nesting birds, jurisdictional waters, and wildlife movement corridors, are reduced to a less than significant level. For the topic of cultural resources, potentially significant impacts to archaeological and cultural resources would be reduced to a less than significant level with implementation of **Mitigation Measures TRI-1 through TRI-6.** For the topic of geology and soils, implementation of **Mitigation Measures GEO-1 through GEO-3** would ensure that impacts related to paleontological resources are reduced to a less than significant level. For the topic of noise, implementation of **Mitigation Measures NOI-1** would ensure that impacts related to construction vibration are reduced to a less than significant level. For the topic of tribal cultural resources, implementation of **Mitigation Measures TRI-1 through TRI-6** would satisfy the agreement between EMWD and tribal representatives under AB 52 and reduce potential impacts from the Proposed Project to a less than significant level.

For the topics of aesthetics, agricultural and forestry resources, air quality, energy, GHG emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, population and housing, public services, recreation, transportation, utilities and service systems, and wildfire, the project would have either no impacts or less than significant impacts; therefore, the Proposed Project would not substantially contribute to any potential cumulative impacts for these topics. All environmental impacts that could occur as a result of the Proposed Project would be reduced to a less than significant level through implementation of the mitigation measures recommended in this document.

Implementation of these measures would ensure that the impacts of the project would be below established thresholds of significance and that these impacts would not combine with the impacts of other cumulative projects to result in a cumulatively considerable impact on the environment as a result of project development. Therefore, this impact would be **less than significant with mitigation incorporated.**

Mitigation Measures: Implement Mitigation Measures BIO-1 through BIO-3, GEO-1 through GEO-3, NOI-1, and TRI-1 through TRI-6.

Significance Determination: Less Than Significant with Mitigation Incorporated

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Based on the analysis in Section 4.0, CEQA Environmental Checklist, development of the Proposed Project would not cause substantial adverse effects to human beings because all impacts would be less than significant or, as described in Section 4.13, Noise, could be mitigated to a less than significant level. This impact would be **less than significant with mitigation incorporated**.

Mitigation Measures: Implement Mitigation Measure NOI-1.

Significance Determination: Less Than Significant with Mitigation Incorporated

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5.0 LIST OF PREPARERS

5.1 EASTERN MUNICIPAL WATER DISTRICT

Anthony Budicin, Environmental Regulatory Compliance Director
Joseph Broadhead, Principal Water Resource Specialist, CEQA/NEPA
Martha Vilchis, Water Resources Specialist Assistant I
David Hull, P.E., Associate Civil Engineer II
Sam V. Valdez, P.E., Senior Engineer
Jesus Quezada, Environmental Intern

5.2 LSA ASSOCIATES, INC.

Theresa Wallace, AICP, Principal in Charge
Shanna Guiler, AICP, Associate/Project Manager
Lauren Peachey, Environmental Planner
Amy Fischer, Principal/Air Quality Specialist
Jessica Coria, Director – Air Quality
Briette Shea, Senior Air Quality Specialist
Bianca Martinez, Air Quality Specialist
Ryan Villaneuva, Associate/Biologist
Carla Cervantes, Assistant Biologist
Matt Behrend, Associate/Senior Cultural Resources Manager
Kendra Kolar, M.A., RPA, Archaeologist
Kelly Vreeland, Associate/Paleontological Resources Manager
JT Stephens, Principal/Noise Specialist
Moe Abushanab, Noise Engineer
Corey Knips, Noise Specialist
Arthur Black, Principal/Transportation

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6.0 REFERENCES

California Air Resources Board (CARB). 2022. *2022 Scoping Plan Update*. May 10. Website: https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp.pdf (accessed November 2025).

California Department of Conservation (DOC). 2015. Fault Activity Map of California. Website: https://maps.conservation.ca.gov/cgs/fam/ (accessed November 13, 2025).

_____. n.d.-a. *California Important Farmland Mapper.* Website: https://maps.conservation.ca.gov/DLRP/CIFF/ (accessed November 13, 2025).

_____. n.d.-b. *California Earthquake Hazards Zone Application ("EQ Zapp").* Website: https://maps.conservation.ca.gov/cgs/EQZApp/app/ (accessed November 13, 2025).

California Department of Education. n.d. Data Quest, 2024-2025 Enrollment Multi-Year Summary by Grade, Perris Union High. Website: https://dq.cde.ca.gov/dataquest/dqcensus/EnrGrdYears.aspx?cds=3367207&agglevel=district&year=2024-25 (accessed November 14, 2025).

California Department of Forestry and Fire Protection (CAL FIRE). n.d. Fire Hazard Safety Viewer. Website: https://egis.fire.ca.gov/FHSZ/ (accessed November 14, 2025).

California Department of Resources Recycling and Recovery (CalRecycle). n.d. SWIS Facility/Site Activity Details, Lamb Canyon Sanitary Landfill (33-AA-0007). Website: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/2246?siteID=2368 (accessed November 14, 2025).

California Department of Toxic Substances Control (DTSC). n.d. *Hazardous Waste and Substances Site List (Cortese)*. Website: https://www.envirostor.dtsc.ca.gov/public/search?cmd=search&reporttype=CORTESE&site_type=CSITES,FUDS&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+%28CORTESE%29 (accessed November 14, 2025).California Department of Transportation (Caltrans). 2013. *Caltrans Transportation and Construction Vibration Guidance Manual.* September.

_____. n.d. *California State Scenic Highway System Map.* Website: https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa (accessed November 12, 2025).

California Department of Water Resources (DWR). n.d. Groundwater Basin Boundary Assessment Tool. Website: https://gis.water.ca.gov/app/bbat/ (accessed April 23, 2024).

California Department of Water Resources (DWR), Division of Safety of Dams. n.d. *California Dam Breach Inundation Map.* Website: https://fmds.water.ca.gov/maps/damim/ (accessed February 2, 2024).

California Energy Commission (CEC). 2024. *2024 Integrated Energy Policy Report*. California Energy Commission. Docket Number: 24-IEPR-01.

_____. 2024a. Electricity Consumption. Website: https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/california-energy-consumption-dashboards-0 (accessed November 2025).

_____. 2024b. Natural Gas Consumption. Website: https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/california-energy-consumption-dashboards-1 (accessed November 2025).

California Environmental Protection Agency (CalEPA). n.d. *Cortese List Data Resources.* Website: https://calepa.ca.gov/sitecleanup/corteselist/ (accessed November 14, 2025).

California Geological Survey (CGS). 2021. Earthquake Zones of Required Investigation. Website: https://maps.conservation.ca.gov/cgs/EQZApp/app/ (accessed November 13, 2025).

City of Menifee. 2008. *City of Menifee General Plan, Open Space and Conservation Element, Exhibit OSC-3: Mineral Resource Zones.* Website: https://www.cityofmenifee.us/DocumentCenter/View/1084/ExhibitOSC-3_Mineral_Resource_Zones_HD0913?bidId= (accessed November 14, 2025).

_____. 2013a. *City of Menifee General Plan, Community Design Element, Exhibit CD-2: Enhanced Landscape Corridors and Scenic Corridors.* Website: https://www.cityofmenifee.us/DocumentCenter/View/1061/Exhibit_CD-2_Corridors_HD0913?bidId= (accessed November 12, 2025).

_____. 2013b. *City of Menifee General Plan EIR, Exhibit C-4 Proposed Bikeway and Community Pedestrian Network.* July 26. Website: https://www.cityofmenifee.us/DocumentCenter/View/1021/C-4-Bikeways_HD0913?bidId= (accessed November 2024)

_____. 2020. *LOS Traffic Study Guidelines.* October. Website: https://www.cityofmenifee.us/DocumentCenter/View/12099/LOS-Traffic-Study-Guidelines-October-2020 (accessed November 2024).

_____. 2021a. *City of Menifee General Plan, Safety Element, Exhibit S-1: Fault Map.* Website: https://www.cityofmenifee.us/DocumentCenter/View/18261/FINAL_Safety-Element-6723_complete_reduced-size-for-webpage?bidId= (accessed November 13, 2025).

_____. 2021b. *City of Menifee General Plan, Safety Element, Exhibit S-3: Liquefaction and Landsides.* Website: https://www.cityofmenifee.us/DocumentCenter/View/18261/FINAL_Safety-Element-6723_complete_reduced-size-for-webpage?bidId= (accessed November 13, 2025).

_____. 2021c. *2021 City of Menifee Emergency Operations Plan.* Website: https://www.cityofmenifee.us/DocumentCenter/View/12396/Emergency-Operations-Plan-EOP?bidId= (accessed November 14, 2025).

_____. 2023a. *General Plan - Land Use Map.* March 23. Website: https://cityofmenifee.us/DocumentCenter/View/11043/General-Plan--Land-Use-Map---March-2023 (accessed November 13, 2025)

_____. 2023b. *Zoning Map*. March 23. Website: https://www.cityofmenifee.us/DocumentCenter/View/11042/Zoning-Map---March-2023?bidId= (accessed November 13, 2025).

_____. n.d.-a. *City of Menifee General Plan, Community Design Element.* Website: https://www.cityofmenifee.us/882/Community-Design-Element (accessed November 12, 2025).

_____. n.d.-b. *City of Menifee Municipal Code, Chapter 6.01.040 Requirement for Lamp Source and Shielding*. Website: https://codelibrary.amlegal.com/codes/menifee/latest/menifee_ca/0-0-0-1688#JD_6.01.020 (accessed December 28, 2023).

_____. n.d.-c. *City of Menifee General Plan, Community Design Element, CD-6: Community Design Features*. Website: https://www.cityofmenifee.us/246/CD-6-Community-Design-Features (accessed December 28, 2023).

_____.n.d.-d. *City of Menifee General Plan, Safety Element, Exhibit S-6: High Fire Hazard Areas* Website: https://www.cityofmenifee.us/DocumentCenter/View/18261/FINAL_Safety-Element-6723_complete_reduced-size-for-webpage?bidId= (accessed November 14, 2025).

_____. n.d.-e. *City of Menifee General Plan, Open Space and Conservation Element, Open Space and Conservation Background Document and Definitions.* Website: https://www.cityofmenifee.us/DocumentCenter/View/1081/3_OSC_Background-Document_HD_0913?bidId= (accessed November 14, 2025)

_____. n.d.-f. *City of Menifee General Plan, Circulation Element*. Website: https://cityofmenifee.us/863/Circulation-Element (accessed November 2025).

_____. n.d.-g. *City Parks.* Website: https://www.cityofmenifee.us/285/City-Parks. (accessed November 14, 2025).

_____. n.d.-h. *Emergency Management.* Website: https://www.cityofmenifee.us/525/Emergency-Management (accessed November 14, 2025).

Converse Consultants. 2018. *Asbestos and Lead-Based Paint Survey Report.* March 7.

_____. 2025. *Supplemental Asbestos & Lead-Based Paint Survey Report.* June 6.

County of Riverside. 2020. *Transportation Analysis Guidelines for Level of Service Vehicle Miles Traveled.* December 15. Website: https://trans.rctlma.org/sites/g/files/aldnop401/files/migrated/Portals-7-2020-12-15-20--20Transportation-20Analysis-20Guidelines.pdf (accessed November 2025).

Eastern Municipal Water District (EMWD). 2021a. *Groundwater Sustainability Plan for the San Jacinto Groundwater Basin.* September.

_____. 2021b. *2020 Urban Water Management Plan.* July 1.

_____. n.d.-a. Who We Are. Website: https://www.emwd.org/who-we-are (accessed November 14, 2025).

_____. n.d.-b. Wastewater Service. Website: https://www.emwd.org/wastewater-service (accessed August 2023).

Federal Emergency Management Agency (FEMA). 2014a. National Flood Insurance Program (FIRM). Flood Insurance Rate Map, Riverside County, California. Panel Number 06065C1445H. August 18. Website: https://msc.fema.gov/portal/search?AddressQuery=25890%20Antelope%20Road%2C%20menifee%2C%20ca (accessed November 14, 2025).

_____. 2014b. National Flood Insurance Program (FIRM). Flood Insurance Rate Map, Riverside County, California. Panel Number 06065C2060H. August 18. Website: https://msc.fema.gov/portal/search?AddressQuery=25890%20Antelope%20Road%2C%20menifee%2C%20ca (accessed November 14, 2025).

Federal Transit Administration (FTA). 2018. *Transit Noise and Vibration Impact Assessment Manual*. September.

Leighton Consulting, Inc. 2021. *Geotechnical Exploration, Matthews Booster Pump Station and Pipeline Project, Eastern Municipal Water District (EMW), Menifee, Riverside County, California.* September 27.

LSA Associates, Inc. 2025a. *Biological Resources Assessment for the Menifee and Watson Road II Booster Pump Station (BPS) and Pipeline Project, City of Menifee, Riverside County, California.* (LSA Project No. 20252406). November.

_____. 2025b. *Cultural Resource Study for the Menifee and Watson Road II Booster Pump Station and Pipeline Project, Menifee, Riverside County, California (LSA Project No. 20252406)*. November 14.

_____. 2025c. *Paleontological Analysis of the Menifee and Watson Road II Booster Pump Station and Pipeline Project, Menifee, Riverside County, California.* December 8.

Office of Planning and Research (OPR). 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA. December. Website: http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf (accessed November 2025).

Public Works Standards, Inc. 2021. *"Greenbook" Standard Specifications for Public Works Construction.* Published by BNI Building News.

Riverside County Flood Control and Water Conservation District. 2011. *Design Handbook for Low Impact Development Best Management Practices.* September.

Romoland School District. n.d. About the District. Website: https://www.romoland.net/domain/19 (accessed November 14, 2025).

South Coast Air Quality Management District (SCAQMD). 1993. *CEQA Air Quality Handbook*. Website: http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/ceqa-air-quality-handbook-(1993) (accessed November 2025).

_____. 2008a. *Final Localized Significance Threshold Methodology*. July. Website: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf (accessed November 2025).

_____. 2008b. *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans*. Website: http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgattachmente.pdf (accessed November 2025).

_____. 2022. *Final 2022 Air Quality Management Plan*. December 2.

Southern California Association of Governments (SCAG). 2024. *Connect SoCal: The 2024–2050 Regional Transportation Plan/Sustainable Communities Strategy of the Southern California Association of Governments*. Website: https://scag.ca.gov/connect-socal (accessed November 2025).

_____. 2025. *California Air Resource Board Accepts SCAG's Sustainable Communities Strategy*. Website: https://scag.ca.gov/news/california-air-resource-board-accepts-scags-sustainable-communities-strategy (accessed November 2025).

Southern California Association of Governments (SCAG). n.d. *California Air Resource Board Accepts SCAG's Sustainable Communities Strategy*. Website: https://scag.ca.gov/news/california-air-resource-board-accepts-scags-sustainable-communities-strategy (accessed November 2025).

Southern California Edison (SCE). n.d. Fact Sheets. Website: https://download.newsroom.edison.com/create_memory_file/?f_id=5cc32d492cfac24d21aecf4c&content_verified=True (accessed November 2025).

Southern California Gas Company (SoCalGas). 2025. About Us. Website: https://www.socalgas.com/about-us (accessed November 2025).

Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. California Essential Habitat Connectivity Project*. California Essential Habitat Connectivity: A Strategy for Conserving a Connected California.* February. Website: consbio.org/wp-content/uploads/2022/05/CEHC_Plan_MASTER_030210_31_2.pdf (accessed October 30, 2025)

State Water Resources Control Board (SWRCB). 2021. Geotracker Website Application. Website: https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=27900+Watson+Road%2C+Menifee%2C+CA%2C+USA (accessed November 14, 2025).

State Water Resources Control Board (SWRCB), Division of Water Rights. 2006. *San Jacinto Groundwater Basin Bulletin 118*. January 20.

United States Energy Information Administration. 2023. California State Profile and Energy Estimates, Data. Website: https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_use_pa.html&sid=US&sid=CA (accessed September 2025).

United States Fish and Wildlife Service (USFWS). n.d. National Wetlands Inventory Surface Waters and Wetlands. Website: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/ (accessed December 1, 2025).

United States Geological Survey. 2018. The Modified Mercalli Intensity Scale. Website: www.usgs.gov/natural-hazards/earthquake-hazards/science/modified-mercalli-intensity-scale?qt-science_center_objects=0#qt-science_center_objects (accessed November 13, 2025).

Verdantas. 2025. *Geotechnical Update, Eastern Municipal Water District (EMWD), Matthews/ Romoland Booster Pump Station, City of Menifee, Riverside County, California.* June.

Western Riverside County Regional Conservation Authority. 2022. Western Riverside County MSHCP Biological Monitoring Program. *Burrowing Owl Monitoring Protocol, 2022.* Western Riverside County MSHCP. Website: wrc-rca.org/wp-content/uploads/2023/11/BUOW-monitoring-protocol-2022_final_NRP.pdf (accessed October 30, 2025).

APPENDIX A

CALEEMOD OUTPUT SHEETS

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Romoland BPS Custom Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Romoland BPS
Construction Start Date	6/1/2026
Operational Year	2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50000
Precipitation (days)	0.20000
Location	33.751004642550484, -117.17280561099423
County	Riverside-South Coast
City	Menifee
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5513
EDFZ	11
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.43

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
Road Widening	1.85000	Mile	1.96000	0.00000	—	—	—	—

Unrefrigerated Warehouse-No Rail	12.6000	1000sqft	0.00000	0.00000	0.00000	—	—	—

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.	5.70398	4.78412	40.4240	51.8975	0.09701	1.63799	3.51917	4.33438	1.50773	1.50137	2.25322	—	10,882.5	10,882.5	0.43165	0.22385	3.25893	10,949.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.19582	5.30627	45.0469	56.5843	0.10244	1.85622	2.41641	4.27264	1.70871	0.38196	2.09067	—	11,825.4	11,825.4	0.44937	0.21334	0.09811	11,900.3
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.98725	1.66878	14.0814	17.7839	0.03286	0.57569	0.77654	1.35223	0.52992	0.13378	0.66371	—	3,706.86	3,706.86	0.14164	0.06378	0.46426	3,729.88
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.36267	0.30455	2.56986	3.24557	0.00600	0.10506	0.14172	0.24678	0.09671	0.02442	0.12113	—	613.713	613.713	0.02345	0.01056	0.07686	617.523

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	5.70398	4.78412	40.4240	51.8975	0.09701	1.63799	3.51917	4.33438	1.50773	1.50137	2.25322	—	10,882.5	10,882.5	0.43165	0.22385	3.25893	10,949.5
2027	2.30209	1.93448	16.2965	23.8911	0.04309	0.59141	0.97984	1.57126	0.54410	0.15124	0.69534	—	4,844.53	4,844.53	0.18566	0.04932	1.15641	4,865.02
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	6.19582	5.30627	45.0469	56.5843	0.10244	1.85622	2.41641	4.27264	1.70871	0.38196	2.09067	—	11,825.4	11,825.4	0.44937	0.21334	0.09811	11,900.3
2027	4.29235	3.60447	29.7862	40.9919	0.07758	1.21744	2.10626	3.32370	1.12082	0.31677	1.43759	—	9,018.03	9,018.03	0.34227	0.16103	0.06874	9,074.65
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.98725	1.66878	14.0814	17.7839	0.03286	0.57569	0.77654	1.35223	0.52992	0.13378	0.66371	—	3,706.86	3,706.86	0.14164	0.06378	0.46426	3,729.88
2027	1.36678	1.14844	9.65426	13.9714	0.02488	0.36797	0.58754	0.95551	0.33863	0.09235	0.43098	—	2,850.34	2,850.34	0.10905	0.03809	0.33776	2,864.76
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.36267	0.30455	2.56986	3.24557	0.00600	0.10506	0.14172	0.24678	0.09671	0.02442	0.12113	—	613.713	613.713	0.02345	0.01056	0.07686	617.523
2027	0.24944	0.20959	1.76190	2.54979	0.00454	0.06716	0.10723	0.17438	0.06180	0.01685	0.07865	—	471.907	471.907	0.01805	0.00631	0.05592	474.294

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	5.49419	4.60648	39.7150	48.8882	0.09355	1.62833	2.97188	3.76382	1.49806	1.35841	2.08699	—	9,828.83	9,828.83	0.39870	0.07974	0.00000	9,862.57
2027	2.17811	1.82413	16.2011	22.0644	0.04309	0.59141	0.62039	1.21180	0.54410	0.06699	0.61109	—	4,472.29	4,472.29	0.18142	0.03628	0.00000	4,487.64
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	5.93383	5.08911	44.0875	53.5485	0.09806	1.84391	1.55930	3.40321	1.69640	0.17322	1.86962	—	10,521.8	10,521.8	0.42681	0.08536	0.00000	10,557.9

2027	4.10000	3.44514	29.0691	38.8468	0.07413	1.20777	1.44873	2.65650	1.11115	0.15648	1.26763	—	8,027.54	8,027.54	0.32563	0.06513	0.00000	8,055.09
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.91340	1.60705	13.7991	16.8899	0.03160	0.57214	0.53371	1.10586	0.52637	0.07461	0.60098	—	3,332.79	3,332.79	0.13519	0.02704	0.00000	3,344.23
2027	1.29666	1.08775	9.51557	13.1252	0.02445	0.36676	0.36501	0.73178	0.33742	0.03942	0.37684	—	2,590.30	2,590.30	0.10507	0.02101	0.00000	2,599.19
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.34919	0.29329	2.51833	3.08240	0.00577	0.10442	0.09740	0.20182	0.09606	0.01362	0.10968	—	551.781	551.781	0.02238	0.00448	0.00000	553.675
2027	0.23664	0.19851	1.73659	2.39535	0.00446	0.06693	0.06662	0.13355	0.06158	0.00719	0.06877	—	428.854	428.854	0.01740	0.00348	0.00000	430.326

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.20978	0.17764	1.38171	3.00937	0.00815	0.02328	0.65753	0.66720	0.02328	0.16029	0.16996	—	1,433.08	1,433.08	0.03295	0.19881	3.25893	1,496.41
2027	0.12398	0.11034	0.09549	1.82670	0.00000	0.00000	0.35945	0.35945	0.00000	0.08425	0.08425	—	372.234	372.234	0.00424	0.01303	1.15641	377.380
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.26198	0.21919	0.95931	3.03577	0.00438	0.01231	0.85711	0.86943	0.01231	0.20874	0.22105	—	1,303.54	1,303.54	0.02256	0.12798	0.09811	1,342.34
2027	0.19235	0.15932	0.71718	2.14515	0.00345	0.00967	0.65753	0.66720	0.00967	0.16029	0.16996	—	990.494	990.494	0.01664	0.09591	0.06874	1,019.56
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.07385	0.06173	0.28239	0.89407	0.00126	0.00355	0.24283	0.24637	0.00355	0.05918	0.06272	—	374.073	374.073	0.00644	0.03675	0.46426	385.648
2027	0.07012	0.06069	0.13869	0.84624	0.00043	0.00121	0.22252	0.22373	0.00121	0.05293	0.05414	—	260.040	260.040	0.00398	0.01708	0.33776	265.566
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.01348	0.01127	0.05154	0.16317	0.00023	0.00065	0.04432	0.04496	0.00065	0.01080	0.01145	—	61.9320	61.9320	0.00107	0.00608	0.07686	63.8485
2027	0.01280	0.01108	0.02531	0.15444	0.00008	0.00022	0.04061	0.04083	0.00022	0.00966	0.00988	—	43.0525	43.0525	0.00066	0.00283	0.05592	43.9674

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.	7.21252	6.56339	29.3550	16.7375	0.03154	0.96562	0.00000	0.96562	0.96562	0.00000	0.96562	11.9666	3,386.97	3,398.93	1.34712	0.04013	0.00000	3,444.57
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.21252	6.56339	29.3550	16.7375	0.03154	0.96562	0.00000	0.96562	0.96562	0.00000	0.96562	11.9666	3,386.97	3,398.93	1.34712	0.04013	0.00000	3,444.57
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.97603	1.79819	8.04246	4.58562	0.00864	0.26455	0.00000	0.26455	0.26455	0.00000	0.26455	11.9666	948.925	960.891	1.24923	0.02103	0.00000	998.388
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.36063	0.32817	1.46775	0.83687	0.00158	0.04828	0.00000	0.04828	0.04828	0.00000	0.04828	1.98121	157.105	159.086	0.20682	0.00348	0.00000	165.295

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	—	—	—	—	—	—	—	—	—	—	—	5.58343	28.9090	34.4925	0.57431	0.01382	—	52.9686
Waste	—	—	—	—	—	—	—	—	—	—	—	6.38319	0.00000	6.38319	0.63798	0.00000	—	22.3326

Stationary	7.21252	6.56339	29.3550	16.7375	0.03154	0.96562	0.00000	0.96562	0.96562	0.00000	0.96562	0.00000	3,358.06	3,358.06	0.13483	0.02631	0.00000	3,369.27
Total	7.21252	6.56339	29.3550	16.7375	0.03154	0.96562	0.00000	0.96562	0.96562	0.00000	0.96562	11.9666	3,386.97	3,398.93	1.34712	0.04013	0.00000	3,444.57
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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	—	—	—	—	—	—	—	—	—	—	5.58343	28.9090	34.4925	0.57431	0.01382	—	52.9686
Waste	—	—	—	—	—	—	—	—	—	—	—	6.38319	0.00000	6.38319	0.63798	0.00000	—	22.3326
Stationary	7.21252	6.56339	29.3550	16.7375	0.03154	0.96562	0.00000	0.96562	0.96562	0.00000	0.96562	0.00000	3,358.06	3,358.06	0.13483	0.02631	0.00000	3,369.27
Total	7.21252	6.56339	29.3550	16.7375	0.03154	0.96562	0.00000	0.96562	0.96562	0.00000	0.96562	11.9666	3,386.97	3,398.93	1.34712	0.04013	0.00000	3,444.57
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	—	—	—	—	—	—	—	—	—	—	5.58343	28.9090	34.4925	0.57431	0.01382	—	52.9686
Waste	—	—	—	—	—	—	—	—	—	—	—	6.38319	0.00000	6.38319	0.63798	0.00000	—	22.3326
Stationary	1.97603	1.79819	8.04246	4.58562	0.00864	0.26455	0.00000	0.26455	0.26455	0.00000	0.26455	0.00000	920.015	920.015	0.03694	0.00721	0.00000	923.087
Total	1.97603	1.79819	8.04246	4.58562	0.00864	0.26455	0.00000	0.26455	0.26455	0.00000	0.26455	11.9666	948.925	960.891	1.24923	0.02103	0.00000	998.388
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	—	—	—	—	—	—	—	—	—	—	0.92440	4.78622	5.71062	0.09508	0.00229	—	8.76956
Waste	—	—	—	—	—	—	—	—	—	—	—	1.05681	0.00000	1.05681	0.10562	0.00000	—	3.69742

Stationary	0.36063	0.32817	1.46775	0.83687	0.00158	0.04828	0.00000	0.04828	0.04828	0.00000	0.04828	0.00000	152.319	152.319	0.00612	0.00119	0.00000	152.828
Total	0.36063	0.32817	1.46775	0.83687	0.00158	0.04828	0.00000	0.04828	0.04828	0.00000	0.04828	1.98121	157.105	159.086	0.20682	0.00348	0.00000	165.295

3. Construction Emissions Details

3.1. Decommissioning (2026)

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	1.65937	1.39140	12.9413	14.6164	0.02393	0.50831	—	0.50831	0.46764	—	0.46764	—	2,493.95	2,493.95	0.10117	0.02023	—	2,502.51
Demolition	—	—	—	—	—	—	0.11057	0.11057	—	0.01674	0.01674	—	—	—	—	—	—	—
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	0.09092	0.07624	0.70911	0.80090	0.00131	0.02785	—	0.02785	0.02562	—	0.02562	—	136.655	136.655	0.00554	0.00111	—	137.124
Demolition	—	—	—	—	—	—	0.00606	0.00606	—	0.00092	0.00092	—	—	—	—	—	—	—

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	0.01659	0.01391	0.12941	0.14616	0.00024	0.00508	—	0.00508	0.00468	—	0.00468	—	22.6247	22.6247	0.00092	0.00018	—	22.7024
Demolition	—	—	—	—	—	—	0.00111	0.00111	—	0.00017	0.00017	—	—	—	—	—	—	—
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	0.05608	0.04988	0.05470	0.68068	0.00000	0.00000	0.16339	0.16339	0.00000	0.03830	0.03830	—	158.516	158.516	0.00248	0.00620	0.01516	160.441
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	0.00560	0.00203	0.15521	0.03717	0.00093	0.00265	0.03620	0.03884	0.00265	0.01015	0.01280	—	135.499	135.499	0.00256	0.02169	0.00720	142.034
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00306	0.00272	0.00328	0.03902	0.00000	0.00000	0.00895	0.00895	0.00000	0.00210	0.00210	—	8.79594	8.79594	0.00014	0.00034	0.01382	8.91440
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	0.00031	0.00012	0.00855	0.00201	0.00005	0.00014	0.00198	0.00213	0.00014	0.00056	0.00070	—	7.42223	7.42223	0.00014	0.00119	0.00656	7.78652
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00056	0.00050	0.00060	0.00712	0.00000	0.00000	0.00163	0.00163	0.00000	0.00038	0.00038	—	1.45627	1.45627	0.00002	0.00006	0.00229	1.47588
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	0.00006	0.00002	0.00156	0.00037	0.00001	0.00003	0.00036	0.00039	0.00003	0.00010	0.00013	—	1.22883	1.22883	0.00002	0.00020	0.00109	1.28915

3.2. Site Preparation (2026)

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	1.46980	1.23504	11.0389	11.7202	0.01906	0.50687	—	0.50687	0.46633	—	0.46633	—	2,064.92	2,064.92	0.08376	0.01675	—	2,072.01
Dust From Material Movement	—	—	—	—	—	—	2.44278	2.44278	—	1.17148	1.17148	—	—	—	—	—	—	—
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	0.00403	0.00338	0.03024	0.03211	0.00005	0.00139	—	0.00139	0.00128	—	0.00128	—	5.65732	5.65732	0.00023	0.00005	—	5.67674
Dust From Material Movement	—	—	—	—	—	—	0.00669	0.00669	—	0.00321	0.00321	—	—	—	—	—	—	—
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	0.00073	0.00062	0.00552	0.00586	0.00001	0.00025	—	0.00025	0.00023	—	0.00023	—	0.93663	0.93663	0.00004	0.00001	—	0.93985
Dust From Material Movement	—	—	—	—	—	—	0.00122	0.00122	—	0.00059	0.00059	—	—	—	—	—	—	—
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	0.03530	0.03175	0.02943	0.53853	0.00000	0.00000	0.09803	0.09803	0.00000	0.02298	0.02298	—	103.434	103.434	0.00438	0.00355	0.35038	104.953
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00009	0.00008	0.00010	0.00117	0.00000	0.00000	0.00027	0.00027	0.00000	0.00006	0.00006	—	0.26388	0.26388	< 0.000005	0.00001	0.00041	0.26743
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	0.00002	0.00001	0.00002	0.00021	0.00000	0.00000	0.00005	0.00005	0.00000	0.00001	0.00001	—	0.04369	0.04369	< 0.000005	< 0.000005	0.00007	0.04428

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

3.3. Grading (2026)

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	1.69573	1.42488	12.8567	14.0337	0.02266	0.57894	—	0.57894	0.53263	—	0.53263	—	2,455.05	2,455.05	0.09959	0.01992	—	2,463.47
Dust From Material Movement	—	—	—	—	—	—	2.76509	2.76509	—	1.33608	1.33608	—	—	—	—	—	—	—
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	0.02323	0.01952	0.17612	0.19224	0.00031	0.00793	—	0.00793	0.00730	—	0.00730	—	33.6308	33.6308	0.00136	0.00027	—	33.7462
Dust From Material Movement	—	—	—	—	—	—	0.03788	0.03788	—	0.01830	0.01830	—	—	—	—	—	—	—

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	0.00424	0.00356	0.03214	0.03508	0.00006	0.00145	—	0.00145	0.00133	—	0.00133	—	5.56796	5.56796	0.00023	0.00005	—	5.58707
Dust From Material Movement	—	—	—	—	—	—	0.00691	0.00691	—	0.00334	0.00334	—	—	—	—	—	—	—
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	0.04707	0.04233	0.03924	0.71805	0.00000	0.00000	0.13071	0.13071	0.00000	0.03064	0.03064	—	137.912	137.912	0.00584	0.00474	0.46717	139.938
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	0.05083	0.01940	1.31304	0.32128	0.00815	0.02328	0.31854	0.34182	0.02328	0.08934	0.11262	—	1,191.74	1,191.74	0.02250	0.19051	2.44138	1,251.51
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00061	0.00054	0.00066	0.00780	0.00000	0.00000	0.00179	0.00179	0.00000	0.00042	0.00042	—	1.75919	1.75919	0.00003	0.00007	0.00276	1.78288
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	0.00069	0.00026	0.01881	0.00443	0.00011	0.00032	0.00436	0.00468	0.00032	0.00122	0.00154	—	16.3289	16.3289	0.00031	0.00262	0.01444	17.1304
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00011	0.00010	0.00012	0.00142	0.00000	0.00000	0.00033	0.00033	0.00000	0.00008	0.00008	—	0.29125	0.29125	< 0.000005	0.00001	0.00046	0.29518
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	0.00013	0.00005	0.00343	0.00081	0.00002	0.00006	0.00080	0.00085	0.00006	0.00022	0.00028	—	2.70344	2.70344	0.00005	0.00043	0.00239	2.83613

3.4. Building Construction (2026)

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	1.21973	1.01475	8.56875	9.95599	0.01942	0.29272	—	0.29272	0.26930	—	0.26930	—	1,800.96	1,800.96	0.07305	0.01461	—	1,807.14
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	1.21973	1.01475	8.56875	9.95599	0.01942	0.29272	—	0.29272	0.26930	—	0.26930	—	1,800.96	1,800.96	0.07305	0.01461	—	1,807.14
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	0.33417	0.27801	2.34760	2.72767	0.00532	0.08020	—	0.08020	0.07378	—	0.07378	—	493.414	493.414	0.02002	0.00400	—	495.107

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	0.06099	0.05074	0.42844	0.49780	0.00097	0.01464	—	0.01464	0.01347	—	0.01347	—	81.6903	81.6903	0.00331	0.00066	—	81.9706
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	0.00000	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
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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
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	0.00000	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
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	0.00000	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

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. Paving (2026)

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56056	0.47034	4.41420	6.48016	0.00940	0.18282	—	0.18282	0.16820	—	0.16820	—	991.321	991.321	0.04021	0.00804	—	994.723
Paving	1.02704	1.02704	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.00768	0.00644	0.06047	0.08877	0.00013	0.00250	—	0.00250	0.00230	—	0.00230	—	13.5797	13.5797	0.00055	0.00011	—	13.6263
Paving	0.01407	0.01407	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.00140	0.00118	0.01104	0.01620	0.00002	0.00046	—	0.00046	0.00042	—	0.00042	—	2.24828	2.24828	0.00009	0.00002	—	2.25600
Paving	0.00257	0.00257	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05608	0.04988	0.05470	0.68068	0.00000	0.00000	0.16339	0.16339	0.00000	0.03830	0.03830	—	158.516	158.516	0.00248	0.00620	0.01516	160.441
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	0.00076	0.00068	0.00082	0.00975	0.00000	0.00000	0.00224	0.00224	0.00000	0.00052	0.00052	—	2.19898	2.19898	0.00003	0.00008	0.00346	2.22860
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	0.00014	0.00012	0.00015	0.00178	0.00000	0.00000	0.00041	0.00041	0.00000	0.00010	0.00010	—	0.36407	0.36407	0.00001	0.00001	0.00057	0.36897
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

3.6. Architectural Coating (2026)

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14557	0.12031	0.85645	1.13283	0.00173	0.02315	—	0.02315	0.02130	—	0.02130	—	133.504	133.504	0.00542	0.00108	—	133.963
Architectural Coatings	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	0.00199	0.00165	0.01173	0.01552	0.00002	0.00032	—	0.00032	0.00029	—	0.00029	—	1.82883	1.82883	0.00007	0.00001	—	1.83510
Architectural Coatings	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	0.00036	0.00030	0.00214	0.00283	< 0.000005	0.00006	—	0.00006	0.00005	—	0.00005	—	0.30278	0.30278	0.00001	< 0.000005	—	0.30382

Architect Coatings	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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
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	0.00000	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
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	0.00000	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
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

3.7. Trenching/Utilities (2026)

3.7.1. 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	0.65751	0.55249	4.34998	5.78154	0.00782	0.15800	—	0.15800	0.14536	—	0.14536	—	846.885	846.885	0.03435	0.00687	—	849.792
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	0.01801	0.01514	0.11918	0.15840	0.00021	0.00433	—	0.00433	0.00398	—	0.00398	—	23.2023	23.2023	0.00094	0.00019	—	23.2820
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	0.00329	0.00276	0.02175	0.02891	0.00004	0.00079	—	0.00079	0.00073	—	0.00073	—	3.84141	3.84141	0.00016	0.00003	—	3.85459
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

3.7.2. 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	0.04707	0.04233	0.03924	0.71805	0.00000	0.00000	0.13071	0.13071	0.00000	0.03064	0.03064	—	137.912	137.912	0.00584	0.00474	0.46717	139.938
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00122	0.00109	0.00131	0.01561	0.00000	0.00000	0.00358	0.00358	0.00000	0.00084	0.00084	—	3.51838	3.51838	0.00005	0.00014	0.00553	3.56576
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	0.00022	0.00020	0.00024	0.00285	0.00000	0.00000	0.00065	0.00065	0.00000	0.00015	0.00015	—	0.58251	0.58251	0.00001	0.00002	0.00092	0.59035
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

3.8. Linear, Grubbing & Land Clearing (2026)

3.8.1. 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	0.55053	0.46260	4.03974	4.49422	0.00583	0.21299	—	0.21299	0.19595	—	0.19595	—	632.058	632.058	0.02564	0.00513	—	634.227
Dust From Material Movement	—	—	—	—	—	—	0.20680	0.20680	—	0.02233	0.02233	—	—	—	—	—	—	—

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	0.05581	0.04689	0.40951	0.45558	0.00059	0.02159	—	0.02159	0.01986	—	0.01986	—	64.0717	64.0717	0.00260	0.00052	—	64.2916
Dust From Material Movement	—	—	—	—	—	—	0.02096	0.02096	—	0.00226	0.00226	—	—	—	—	—	—	—
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	0.01018	0.00856	0.07474	0.08314	0.00011	0.00394	—	0.00394	0.00363	—	0.00363	—	10.6078	10.6078	0.00043	0.00009	—	10.6442
Dust From Material Movement	—	—	—	—	—	—	0.00383	0.00383	—	0.00041	0.00041	—	—	—	—	—	—	—
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

3.8.2. 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	0.03530	0.03175	0.02943	0.53853	0.00000	0.00000	0.09803	0.09803	0.00000	0.02298	0.02298	—	103.434	103.434	0.00438	0.00355	0.35038	104.953

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00339	0.00302	0.00364	0.04331	0.00000	0.00000	0.00994	0.00994	0.00000	0.00233	0.00233	—	9.76349	9.76349	0.00015	0.00038	0.01534	9.89499
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	0.00062	0.00055	0.00066	0.00790	0.00000	0.00000	0.00181	0.00181	0.00000	0.00043	0.00043	—	1.61646	1.61646	0.00002	0.00006	0.00254	1.63823
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

3.9. Linear, Grading & Excavation (2026)

3.9.1. 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	4.27446	3.59173	31.1462	38.9322	0.07413	1.33561	—	1.33561	1.22876	—	1.22876	—	8,027.88	8,027.88	0.32565	0.06513	—	8,055.42
Dust From Material Movement	—	—	—	—	—	—	1.44873	1.44873	—	0.15648	0.15648	—	—	—	—	—	—	—
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	4.27446	3.59173	31.1462	38.9322	0.07413	1.33561	—	1.33561	1.22876	—	1.22876	—	8,027.88	8,027.88	0.32565	0.06513	—	8,055.42
Dust From Material Movement	—	—	—	—	—	—	1.44873	1.44873	—	0.15648	0.15648	—	—	—	—	—	—	—
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	1.36348	1.14570	9.93509	12.4187	0.02365	0.42603	—	0.42603	0.39195	—	0.39195	—	2,560.75	2,560.75	0.10388	0.02078	—	2,569.54
Dust From Material Movement	—	—	—	—	—	—	0.46212	0.46212	—	0.04991	0.04991	—	—	—	—	—	—	—
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	0.24883	0.20909	1.81315	2.26641	0.00432	0.07775	—	0.07775	0.07153	—	0.07153	—	423.962	423.962	0.01720	0.00344	—	425.416
Dust From Material Movement	—	—	—	—	—	—	0.08434	0.08434	—	0.00911	0.00911	—	—	—	—	—	—	—
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

3.9.2. 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	0.18827	0.16932	0.15697	2.87218	0.00000	0.00000	0.52284	0.52284	0.00000	0.12255	0.12255	—	551.648	551.648	0.02337	0.01896	1.86868	559.751
Vendor	0.00138	0.00064	0.03214	0.00997	0.00022	0.00045	0.00856	0.00901	0.00045	0.00236	0.00281	—	30.1019	30.1019	0.00067	0.00465	0.08232	31.5872
Hauling	0.02013	0.00768	0.51993	0.12722	0.00323	0.00922	0.12613	0.13535	0.00922	0.03537	0.04459	—	471.896	471.896	0.00891	0.07544	0.96672	495.567
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17946	0.15961	0.17505	2.17817	0.00000	0.00000	0.52284	0.52284	0.00000	0.12255	0.12255	—	507.251	507.251	0.00794	0.01984	0.04852	513.410
Vendor	0.00134	0.00060	0.03353	0.01023	0.00022	0.00045	0.00856	0.00901	0.00045	0.00236	0.00281	—	30.1239	30.1239	0.00067	0.00465	0.00213	31.5290
Hauling	0.01951	0.00707	0.54082	0.12952	0.00323	0.00922	0.12613	0.13535	0.00922	0.03537	0.04459	—	472.154	472.154	0.00891	0.07559	0.02509	494.928
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05696	0.05063	0.06104	0.72686	0.00000	0.00000	0.16675	0.16675	0.00000	0.03909	0.03909	—	163.856	163.856	0.00253	0.00633	0.25748	166.063
Vendor	0.00043	0.00019	0.01075	0.00322	0.00007	0.00014	0.00273	0.00287	0.00014	0.00075	0.00090	—	9.60494	9.60494	0.00021	0.00148	0.01128	10.0637
Hauling	0.00632	0.00240	0.17344	0.04087	0.00103	0.00294	0.04023	0.04317	0.00294	0.01128	0.01422	—	150.561	150.561	0.00284	0.02411	0.13316	157.951
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01040	0.00924	0.01114	0.13265	0.00000	0.00000	0.03043	0.03043	0.00000	0.00713	0.00713	—	27.1282	27.1282	0.00042	0.00105	0.04263	27.4936
Vendor	0.00008	0.00003	0.00196	0.00059	0.00001	0.00003	0.00050	0.00052	0.00003	0.00014	0.00016	—	1.59021	1.59021	0.00004	0.00025	0.00187	1.66617
Hauling	0.00115	0.00044	0.03165	0.00746	0.00019	0.00054	0.00734	0.00788	0.00054	0.00206	0.00260	—	24.9271	24.9271	0.00047	0.00399	0.02205	26.1506

3.10. Linear, Grading & Excavation (2027)

3.10.1. 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	4.10000	3.44514	29.0691	38.8468	0.07413	1.20777	—	1.20777	1.11115	—	1.11115	—	8,027.54	8,027.54	0.32563	0.06513	—	8,055.09
Dust From Material Movement	—	—	—	—	—	—	1.44873	1.44873	—	0.15648	0.15648	—	—	—	—	—	—	—
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	0.51350	0.43149	3.64074	4.86535	0.00928	0.15127	—	0.15127	0.13917	—	0.13917	—	1,005.41	1,005.41	0.04078	0.00816	—	1,008.86
Dust From Material Movement	—	—	—	—	—	—	0.18145	0.18145	—	0.01960	0.01960	—	—	—	—	—	—	—
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	0.09371	0.07875	0.66444	0.88793	0.00169	0.02761	—	0.02761	0.02540	—	0.02540	—	166.456	166.456	0.00675	0.00135	—	167.028
Dust From Material Movement	—	—	—	—	—	—	0.03311	0.03311	—	0.00358	0.00358	—	—	—	—	—	—	—

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

3.10.2. 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	0.17152	0.15168	0.15697	2.00841	0.00000	0.00000	0.52284	0.52284	0.00000	0.12255	0.12255	—	497.956	497.956	0.00705	0.01896	0.04363	503.826
Vendor	0.00131	0.00058	0.03229	0.00999	0.00022	0.00045	0.00856	0.00901	0.00045	0.00236	0.00281	—	29.5739	29.5739	0.00067	0.00443	0.00196	30.9118
Hauling	0.01951	0.00707	0.52792	0.12676	0.00323	0.00922	0.12613	0.13535	0.00922	0.03537	0.04459	—	462.964	462.964	0.00891	0.07252	0.02316	484.821
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02148	0.01900	0.02170	0.26402	0.00000	0.00000	0.06547	0.06547	0.00000	0.01535	0.01535	—	63.1554	63.1554	0.00088	0.00237	0.09087	63.9760
Vendor	0.00017	0.00008	0.00404	0.00123	0.00003	0.00006	0.00107	0.00113	0.00006	0.00030	0.00035	—	3.70234	3.70234	0.00009	0.00055	0.00407	3.87380
Hauling	0.00248	0.00094	0.06648	0.01570	0.00040	0.00115	0.01580	0.01695	0.00115	0.00443	0.00558	—	57.9649	57.9649	0.00112	0.00906	0.04827	60.7420
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00392	0.00347	0.00396	0.04818	0.00000	0.00000	0.01195	0.01195	0.00000	0.00280	0.00280	—	10.4561	10.4561	0.00015	0.00039	0.01504	10.5920
Vendor	0.00003	0.00001	0.00074	0.00023	0.00001	0.00001	0.00020	0.00021	0.00001	0.00005	0.00006	—	0.61296	0.61296	0.00001	0.00009	0.00067	0.64135
Hauling	0.00045	0.00017	0.01213	0.00287	0.00007	0.00021	0.00288	0.00309	0.00021	0.00081	0.00102	—	9.59676	9.59676	0.00018	0.00150	0.00799	10.0565

3.11. Linear, Drainage, Utilities, & Sub-Grade (2027)

3.11.1. 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	2.17811	1.82413	16.2011	22.0644	0.04309	0.59141	—	0.59141	0.54410	—	0.54410	—	4,472.29	4,472.29	0.18142	0.03628	—	4,487.64
Dust From Material Movement	—	—	—	—	—	—	0.62039	0.62039	—	0.06699	0.06699	—	—	—	—	—	—	—
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	2.17811	1.82413	16.2011	22.0644	0.04309	0.59141	—	0.59141	0.54410	—	0.54410	—	4,472.29	4,472.29	0.18142	0.03628	—	4,487.64
Dust From Material Movement	—	—	—	—	—	—	0.62039	0.62039	—	0.06699	0.06699	—	—	—	—	—	—	—
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	0.64448	0.53974	4.79374	6.52865	0.01275	0.17499	—	0.17499	0.16099	—	0.16099	—	1,323.31	1,323.31	0.05368	0.01074	—	1,327.85
Dust From Material Movement	—	—	—	—	—	—	0.18357	0.18357	—	0.01982	0.01982	—	—	—	—	—	—	—
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	0.11762	0.09850	0.87486	1.19148	0.00233	0.03194	—	0.03194	0.02938	—	0.02938	—	219.089	219.089	0.00889	0.00178	—	219.841
Dust From Material Movement	—	—	—	—	—	—	0.03350	0.03350	—	0.00362	0.00362	—	—	—	—	—	—	—
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

3.11.2. 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	0.12398	0.11034	0.09549	1.82670	0.00000	0.00000	0.35945	0.35945	0.00000	0.08425	0.08425	—	372.234	372.234	0.00424	0.01303	1.15641	377.380
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11792	0.10428	0.10792	1.38078	0.00000	0.00000	0.35945	0.35945	0.00000	0.08425	0.08425	—	342.345	342.345	0.00485	0.01303	0.02999	346.380
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	0.03489	0.03086	0.03525	0.42883	0.00000	0.00000	0.10634	0.10634	0.00000	0.02493	0.02493	—	102.578	102.578	0.00144	0.00386	0.14759	103.911
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	0.00637	0.00563	0.00643	0.07826	0.00000	0.00000	0.01941	0.01941	0.00000	0.00455	0.00455	—	16.9830	16.9830	0.00024	0.00064	0.02444	17.2037
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

3.12. Linear, Paving (2027)

3.12.1. 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	0.93732	0.78761	7.30737	11.7016	0.01633	0.27376	—	0.27376	0.25186	—	0.25186	—	1,768.15	1,768.15	0.07172	0.01434	—	1,774.22
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	0.93732	0.78761	7.30737	11.7016	0.01633	0.27376	—	0.27376	0.25186	—	0.25186	—	1,768.15	1,768.15	0.07172	0.01434	—	1,774.22
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	0.13867	0.11652	1.08109	1.73119	0.00242	0.04050	—	0.04050	0.03726	—	0.03726	—	261.590	261.590	0.01061	0.00212	—	262.487
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	0.02531	0.02127	0.19730	0.31594	0.00044	0.00739	—	0.00739	0.00680	—	0.00680	—	43.3092	43.3092	0.00176	0.00035	—	43.4578
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

3.12.2. 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	0.07890	0.07022	0.06076	1.16244	0.00000	0.00000	0.22874	0.22874	0.00000	0.05362	0.05362	—	236.876	236.876	0.00270	0.00829	0.73589	240.151
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07504	0.06636	0.06867	0.87868	0.00000	0.00000	0.22874	0.22874	0.00000	0.05362	0.05362	—	217.856	217.856	0.00309	0.00829	0.01909	220.424
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	0.01110	0.00982	0.01122	0.13645	0.00000	0.00000	0.03384	0.03384	0.00000	0.00793	0.00793	—	32.6385	32.6385	0.00046	0.00123	0.04696	33.0626
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	0.00203	0.00179	0.00205	0.02490	0.00000	0.00000	0.00618	0.00618	0.00000	0.00145	0.00145	—	5.40368	5.40368	0.00008	0.00020	0.00778	5.47389
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

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrig Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	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 Product	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

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	5.58343	28.9090	34.4925	0.57431	0.01382	—	52.9686
Total	—	—	—	—	—	—	—	—	—	—	—	5.58343	28.9090	34.4925	0.57431	0.01382	—	52.9686
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	5.58343	28.9090	34.4925	0.57431	0.01382	—	52.9686

Total	—	—	—	—	—	—	—	—	—	—	—	5.58343	28.9090	34.4925	0.57431	0.01382	—	52.9686
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.92440	4.78622	5.71062	0.09508	0.00229	—	8.76956
Total	—	—	—	—	—	—	—	—	—	—	—	0.92440	4.78622	5.71062	0.09508	0.00229	—	8.76956

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	6.38319	0.00000	6.38319	0.63798	0.00000	—	22.3326
Total	—	—	—	—	—	—	—	—	—	—	—	6.38319	0.00000	6.38319	0.63798	0.00000	—	22.3326
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	6.38319	0.00000	6.38319	0.63798	0.00000	—	22.3326
Total	—	—	—	—	—	—	—	—	—	—	—	6.38319	0.00000	6.38319	0.63798	0.00000	—	22.3326
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated	—	—	—	—	—	—	—	—	—	—	—	1.05681	0.00000	1.05681	0.10562	0.00000	—	3.69742
Total	—	—	—	—	—	—	—	—	—	—	—	1.05681	0.00000	1.05681	0.10562	0.00000	—	3.69742

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	7.21252	6.56339	29.3550	16.7375	0.03154	0.96562	0.00000	0.96562	0.96562	0.00000	0.96562	0.00000	3,358.06	3,358.06	0.13483	0.02631	0.00000	3,369.27
Total	7.21252	6.56339	29.3550	16.7375	0.03154	0.96562	0.00000	0.96562	0.96562	0.00000	0.96562	0.00000	3,358.06	3,358.06	0.13483	0.02631	0.00000	3,369.27
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	7.21252	6.56339	29.3550	16.7375	0.03154	0.96562	0.00000	0.96562	0.96562	0.00000	0.96562	0.00000	3,358.06	3,358.06	0.13483	0.02631	0.00000	3,369.27
Total	7.21252	6.56339	29.3550	16.7375	0.03154	0.96562	0.00000	0.96562	0.96562	0.00000	0.96562	0.00000	3,358.06	3,358.06	0.13483	0.02631	0.00000	3,369.27
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.36063	0.32817	1.46775	0.83687	0.00158	0.04828	0.00000	0.04828	0.04828	0.00000	0.04828	0.00000	152.319	152.319	0.00612	0.00119	0.00000	152.828

Total	0.36063	0.32817	1.46775	0.83687	0.00158	0.04828	0.00000	0.04828	0.04828	0.00000	0.04828	0.00000	152.319	152.319	0.00612	0.00119	0.00000	152.828

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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
Decommissioning	Demolition	11/24/2026	12/21/2026	5.00000	20.0000	—
Site Preparation	Site Preparation	6/1/2026	6/1/2026	5.00000	1.000000	—
Grading	Grading	6/2/2026	6/8/2026	5.00000	5.00000	—
Building Construction	Building Construction	6/23/2026	11/9/2026	5.00000	100.0000	—
Paving	Paving	11/10/2026	11/16/2026	5.00000	5.00000	—
Architectural Coating	Architectural Coating	11/17/2026	11/23/2026	5.00000	5.00000	—
Trenching/Utilities	Trenching	6/9/2026	6/22/2026	5.00000	10.00000	—
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	6/1/2026	7/21/2026	5.00000	37.0000	—
Linear, Grading & Excavation	Linear, Grading & Excavation	7/22/2026	3/5/2027	5.00000	162.000	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	3/6/2027	8/4/2027	5.00000	108.000	—
Linear, Paving	Linear, Paving	8/5/2027	10/19/2027	5.00000	54.0000	—

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
Decommissioning	Concrete/Industrial Saws	Diesel	Average	1.000000	8.00000	33.0000	0.73000
Decommissioning	Rubber Tired Dozers	Diesel	Average	1.000000	8.00000	367.000	0.40000
Decommissioning	Tractors/Loaders/Backhoes	Diesel	Average	3.00000	8.00000	84.0000	0.37000
Site Preparation	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.000000	8.00000	84.0000	0.37000
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.000000	7.00000	367.000	0.40000
Grading	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000

Grading	Rubber Tired Dozers	Diesel	Average	1.000000	8.00000	367.000	0.40000
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00000	7.00000	84.0000	0.37000
Building Construction	Cranes	Diesel	Average	1.000000	6.00000	367.000	0.29000
Building Construction	Forklifts	Diesel	Average	1.000000	6.00000	82.0000	0.20000
Building Construction	Generator Sets	Diesel	Average	1.000000	8.00000	14.0000	0.74000
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.000000	6.00000	84.0000	0.37000
Building Construction	Welders	Diesel	Average	3.00000	8.00000	46.0000	0.45000
Paving	Cement and Mortar Mixers	Diesel	Average	1.000000	6.00000	10.00000	0.56000
Paving	Pavers	Diesel	Average	1.000000	6.00000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Average	1.000000	8.00000	89.0000	0.36000
Paving	Rollers	Diesel	Average	1.000000	7.00000	36.0000	0.38000
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.000000	8.00000	84.0000	0.37000
Architectural Coating	Air Compressors	Diesel	Average	1.000000	6.00000	37.0000	0.48000
Trenching/Utilities	Excavators	Diesel	Average	1.000000	8.00000	36.0000	0.38000
Trenching/Utilities	Trenchers	Diesel	Average	2.00000	8.00000	40.0000	0.50000
Trenching/Utilities	Tractors/Loaders/Backhoes	Diesel	Average	1.000000	8.00000	84.0000	0.37000
Linear, Grubbing & Land Clearing	Crawler Tractors	Diesel	Average	1.000000	8.00000	87.0000	0.43000
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Linear, Grading & Excavation	Crawler Tractors	Diesel	Average	1.000000	8.00000	87.0000	0.43000
Linear, Grading & Excavation	Excavators	Diesel	Average	3.00000	8.00000	36.0000	0.38000
Linear, Grading & Excavation	Graders	Diesel	Average	2.00000	8.00000	148.000	0.41000

Linear, Grading & Excavation	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	1.000000	8.00000	150.000	0.36000
Linear, Grading & Excavation	Scrapers	Diesel	Average	2.00000	8.00000	423.000	0.48000
Linear, Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Linear, Grading & Excavation	Bore/Drill Rigs	Diesel	Average	1.000000	8.00000	83.0000	0.50000
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	1.000000	8.00000	37.0000	0.48000
Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	1.000000	8.00000	14.0000	0.74000
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	1.000000	8.00000	8.00000	0.43000
Linear, Drainage, Utilities, & Sub-Grade	Pumps	Diesel	Average	1.000000	8.00000	11.0000	0.74000
Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	Diesel	Average	1.000000	8.00000	96.0000	0.40000
Linear, Drainage, Utilities, & Sub-Grade	Scrapers	Diesel	Average	1.000000	8.00000	423.000	0.48000
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Backhoes	Diesel	Average	3.00000	8.00000	84.0000	0.37000
Linear, Drainage, Utilities, & Sub-Grade	Bore/Drill Rigs	Diesel	Average	1.000000	8.00000	83.0000	0.50000
Linear, Paving	Pavers	Diesel	Average	1.000000	8.00000	81.0000	0.42000
Linear, Paving	Paving Equipment	Diesel	Average	1.000000	8.00000	89.0000	0.36000
Linear, Paving	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Linear, Paving	Tractors/Loaders/Backhoes	Diesel	Average	3.00000	8.00000	84.0000	0.37000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Decommissioning	Worker	12.5000	18.5000	LDA,LDT1,LDT2
Decommissioning	Vendor	—	10.2000	HHDT,MHDT
Decommissioning	Hauling	2.00000	20.0000	HHDT
Decommissioning	Onsite truck	—	—	HHDT
Site Preparation	Worker	7.50000	18.5000	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2000	HHDT,MHDT
Site Preparation	Hauling	0.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	Worker	10.00000	18.5000	LDA,LDT1,LDT2
Grading	Vendor	—	10.2000	HHDT,MHDT
Grading	Hauling	17.6000	20.0000	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	Worker	0.00000	18.5000	LDA,LDT1,LDT2
Building Construction	Vendor	0.00000	10.2000	HHDT,MHDT
Building Construction	Hauling	0.00000	20.0000	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	Worker	12.5000	18.5000	LDA,LDT1,LDT2
Paving	Vendor	—	10.2000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	Worker	0.00000	18.5000	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2000	HHDT,MHDT
Architectural Coating	Hauling	0.00000	20.0000	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

Trenching/Utilities	Worker	10.00000	18.5000	LDA,LDT1,LDT2
Trenching/Utilities	Vendor	—	10.2000	HHDT,MHDT
Trenching/Utilities	Hauling	0.00000	20.0000	HHDT
Trenching/Utilities	Onsite truck	—	—	HHDT
Linear, Grubbing & Land Clearing	Worker	7.50000	18.5000	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00000	10.2000	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00000	20.0000	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	Worker	40.0000	18.5000	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	1.000000	10.2000	HHDT,MHDT
Linear, Grading & Excavation	Hauling	6.96914	20.0000	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Worker	27.5000	18.5000	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00000	10.2000	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00000	20.0000	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	Worker	17.5000	18.5000	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00000	10.2000	HHDT,MHDT
Linear, Paving	Hauling	0.00000	20.0000	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00000	0.00000	0.00000	0.00000	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Decommissioning	0.00000	0.00000	0.00000	160.000	0.00000
Site Preparation	—	—	0.93750	0.00000	0.00000
Grading	—	700.000	2.00000	0.00000	0.00000
Paving	0.00000	0.00000	0.00000	0.00000	1.96000
Linear, Grubbing & Land Clearing	—	—	1.96000	0.00000	0.00000
Linear, Grading & Excavation	—	9,030.00	1.96000	0.00000	0.00000
Linear, Drainage, Utilities, & Sub-Grade	—	—	1.96000	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%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	Road Widening	1.96000	100%
Paving	Unrefrigerated Warehouse-No Rail	0.00000	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00000	531.983	0.03300	0.00400
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	0.00000	0.00000	0.00000	0.00000	0.00000

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
Unrefrigerated Warehouse-No Rail	Wood Fireplaces	0	0
Unrefrigerated Warehouse-No Rail	Gas Fireplaces	0	0
Unrefrigerated Warehouse-No Rail	Propane Fireplaces	0	0
Unrefrigerated Warehouse-No Rail	Electric Fireplaces	0	0
Unrefrigerated Warehouse-No Rail	No Fireplaces	0	0
Unrefrigerated Warehouse-No Rail	Conventional Wood Stoves	0	0
Unrefrigerated Warehouse-No Rail	Catalytic Wood Stoves	0	0
Unrefrigerated Warehouse-No Rail	Non-Catalytic Wood Stoves	0	0

Unrefrigerated Warehouse-No Rail	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	250.000

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)
Unrefrigerated Warehouse-No Rail	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)
Unrefrigerated Warehouse-No Rail	2,913,750	0.00000

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Unrefrigerated Warehouse-No Rail	11.8440	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

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	Diesel	1.000000	2.00000	200.000	2,000.00	0.73000

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)

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Construction: Construction Phases	schedule provided
Construction: Off-Road Equipment	equipment added for trenching phase, and added bore/drill rigs to represent jack and bore process
Construction: Dust From Material Movement	soil export volume provided
Operations: Emergency Generators and Fire Pumps	emergency generator

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Site Preparation	Site Preparation	Start Date	6/2/2026	6/1/2026
Site Preparation	Site Preparation	End Date	6/2/2026	6/1/2026
Site Preparation	Site Preparation	Work Days per Phase	0.00000	1.000000
Grading	Grading	Start Date	6/3/2026	6/2/2026

Grading	Grading	End Date	6/3/2026	6/8/2026
Grading	Grading	Work Days per Phase	0.00000	5.00000
Building Construction	Building Construction	Start Date	6/4/2026	6/23/2026
Building Construction	Building Construction	End Date	6/4/2026	11/9/2026
Building Construction	Building Construction	Work Days per Phase	0.00000	100.0000
Paving	Paving	Start Date	6/5/2026	11/10/2026
Paving	Paving	End Date	6/5/2026	11/16/2026
Paving	Paving	Work Days per Phase	0.00000	5.00000
Architectural Coating	Architectural Coating	Start Date	6/6/2026	11/17/2026
Architectural Coating	Architectural Coating	End Date	6/6/2026	11/23/2026
Architectural Coating	Architectural Coating	Work Days per Phase	0.00000	5.00000
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	End Date	7/10/2026	7/21/2026
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	Work Days per Phase	28.0000	37.0000
Linear, Grading & Excavation	Linear, Grading & Excavation	Start Date	7/11/2026	7/22/2026
Linear, Grading & Excavation	Linear, Grading & Excavation	End Date	1/3/2027	3/5/2027
Linear, Grading & Excavation	Linear, Grading & Excavation	Work Days per Phase	126.000	162.000
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	Start Date	1/4/2027	3/6/2027
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	End Date	5/1/2027	8/4/2027
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	Work Days per Phase	84.0000	108.000
Linear, Paving	Linear, Paving	Start Date	5/2/2027	8/5/2027
Linear, Paving	Linear, Paving	End Date	6/29/2027	10/19/2027
Linear, Paving	Linear, Paving	Work Days per Phase	42.0000	54.0000

8.4.4. Dust from Material Movement

Phase Name	Model Parameter	Units	Default Value	New Value
Grading	Material Exported	Cubic Yards	—	700.000

Grading	Total Acres Graded	acres	5.00000	2.00000

8.5. Operations

8.5.8. Stationary Sources

8.5.8.1. Emergency Generators and Fire Pumps

Equipment Type	Model Parameter	Default Value	New Value
Emergency Generator	Hours per Year	100.0000	200.000

APPENDIX B

BIOLOGICAL RESOURCES ASSESSMENT

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BIOLOGICAL RESOURCES ASSESSMENT

MENIFEE AND WATSON ROAD II BOOSTER PUMP STATION (BPS) AND PIPELINE PROJECT

CITY OF MENIFEE

RIVERSIDE COUNTY, CALIFORNIA

LSA

November 2025

BIOLOGICAL RESOURCES ASSESSMENT

MENIFEE AND WATSON ROAD II BOOSTER PUMP STATION (BPS) AND PIPELINE PROJECT

CITY OF MENIFEE

RIVERSIDE COUNTY, CALIFORNIA

Prepared for:

Eastern Municipal Water District
2270 Trumble Road
Perris, California 92572-8300

Prepared by:

LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, California 92507
(951) 781-9310

LSA Project No. 20252406

November 2025

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A: PLANT AND ANIMAL SPECIES OBSERVED
B: SPECIAL-STATUS SPECIES SUMMARY

LIST OF ABBREVIATIONS AND ACRONYMS

APN	Assessor's Parcel Number
BMPs	best management practices
BPS	booster pump station
BSA	biological study area
BUOW	burrowing owl (*Athene cunicularia hypugaea*)
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
City	City of Menifee
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	Riverside County
CWA	Clean Water Act
EMWD	Eastern Municipal Water District
FESA	Federal Endangered Species Act
HCP	Habitat Conservation Plan
IPaC	USFWS's Information for Planning and Consultation
ISA	International Society of Arboriculture
LSA	LSA Associates, Inc.
MBTA	Migratory Bird Treaty Act
MM	Mitigation Measure
MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan
OHWM	ordinary high water mark
project	Menifee and Watson Road II Booster Pump Station (BPS) and Pipeline Project
PSE	Participating Special Entity
RCHCA	Riverside County Habitat Conservation Agency
RWQCB	Regional Water Quality Control Board
SKR	Stephens' kangaroo rat (*Dipodomys stephensi*)
SKR HCP	Stephens' Kangaroo Rat Habitat Conservation Plan

SR-74	State Route 74
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 EXECUTIVE SUMMARY

LSA Associates, Inc. (LSA) was retained by the Eastern Municipal Water District (EMWD) to prepare a Biological Resources Assessment for the Menifee and Watson Road II Booster Pump Station (BPS) and Pipeline Project. This report has been prepared for compliance with the California Environmental Quality Act (CEQA) and Federal and California Endangered Species Acts.

The biological study area (BSA) lies within the planning boundaries of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) area. The MSHCP is a comprehensive multi-jurisdictional effort that includes western Riverside County and multiple cities. EMWD is the lead agency but is not signatory to the MSHCP. EMWD is not pursuing a Participating Special Entity (PSE) designation for the BSA.

The BSA does not contain suitable habitat for burrowing owls (*Athene cunicularia hypugaea*) and other nesting birds protected by the Migratory Bird Treaty Act (MBTA) and the California Fish and Game Code. However, there are two open fields adjacent to the BSA boundary that may have potential habitat for burrowing owl. There were no observations of burrowing owl during the site visit, but a focused burrowing owl survey will be required to ensure that there are no impacts to this species.

In addition, it is recommended that vegetation removal be conducted between September 1 and February 1 (outside the general bird nesting season) to avoid impacts to nesting birds. If vegetation cannot be removed outside the bird nesting season, a preconstruction nesting bird survey by a qualified biologist is required prior to vegetation removal. Additionally, standard best management practices (BMPs) shall be implemented during construction activities to reduce impacts to wildlife resources in the project vicinity.

A formal jurisdictional delineation was not conducted as part of the biological resources assessment for this project. There are two drainage features identified within the BSA, , which are considered potential jurisdictional waters that may be subject to the regulatory authority of the United States Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the Regional Water Quality Control Board (RWQCB). The previously mentioned features are not expected to be impacted by construction activities; however, if construction activities change and pose an impact to these features then a formal jurisdictional delineation will need to be conducted.

2.0 INTRODUCTION

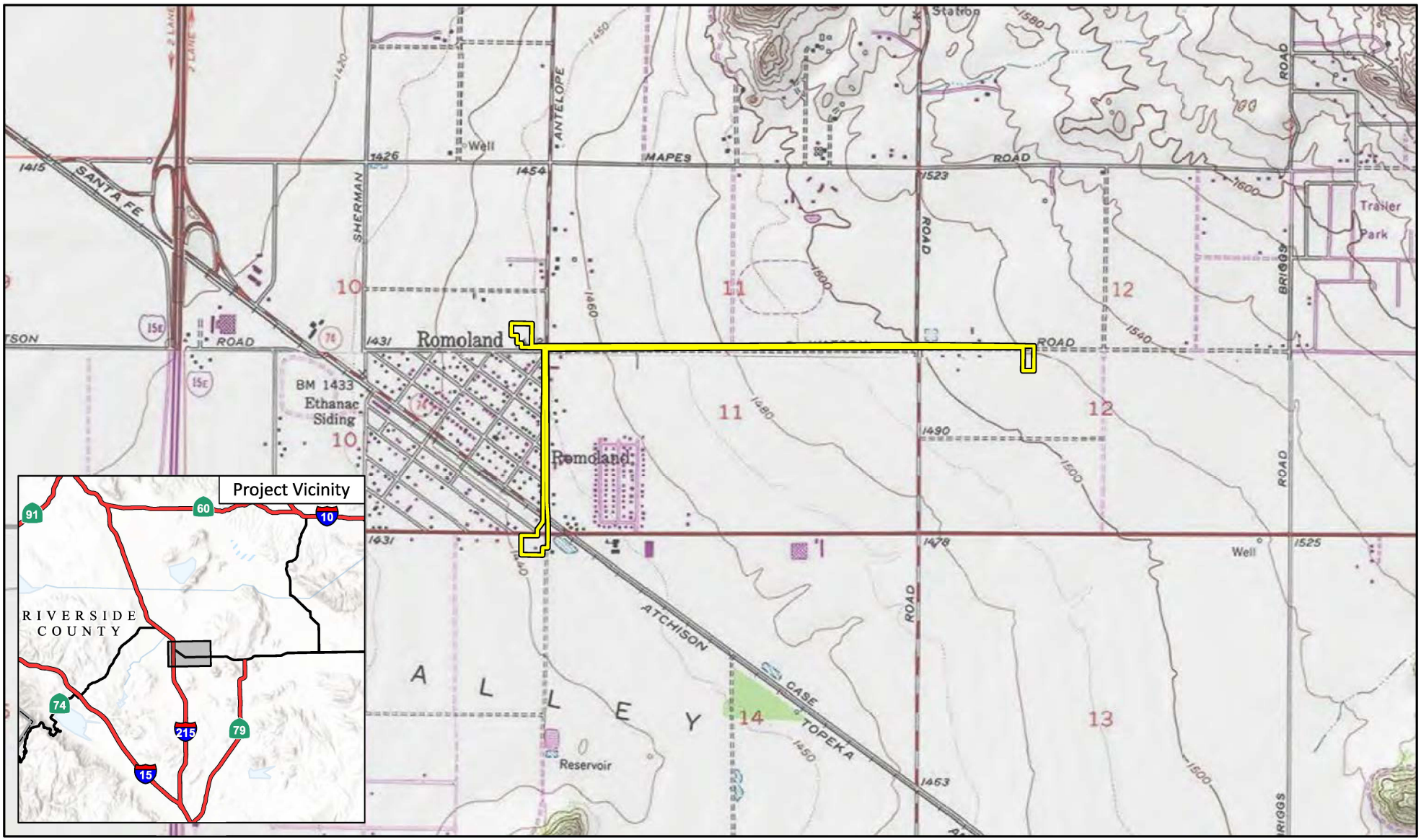
LSA was retained by EMWD to prepare a Biological Resources Assessment. This report evaluates the proposed Menifee and Watson Road II Booster Pump Station (BPS) and Pipeline Project (project). The proposed project consists of construction of two new booster pump stations (BPSs) within one building on one site, "Watson Road II BPS" and "Menifee BPS," decommissioning/removal of the existing Romoland BPS, and construction of approximately 1.85 miles of transmission pipeline. The proposed project site is located within Menifee, Riverside County, California. Specifically, the project is depicted on the United States Geological Survey (USGS) *Perris, Romoland, Winchester, and Lakeview, California* 7.5-minute topographic quadrangles in Sections 10, 11, 12, 14, 15, Township 5 South, Range 3 West (Figure 1, Project Location and Vicinity).

The combined BPS site is located on an approximately 1.96-acre site west of Antelope Road, on the north side of Watson Road (Assessor's Parcel Numbers [APNs] 329-050-049 and 329-050-048). The existing Romoland BPS is located on a 0.17-acre parcel on the west side of Antelope Road between State Route 74 (SR-74) and Case Road (APN 329-141-005).

2.1 PROJECT DESCRIPTION

The proposed project includes construction of the Watson Road II BPS and Menifee BPS, decommissioning and demolition of the existing Romoland BPS, and pipeline work within City of Menifee (City) roadways. The new BPSs would include a 12,600+/- square foot block wall building, piping, electrical/power system, transformer, security lighting, and perimeter block wall.

The proposed project also includes installation of 1.85+/- miles of 30-inch and 36-inch diameter transmission pipelines within Antelope Road north from the existing Romoland BPS to Watson Road, and within Watson Road from the new BPS to the existing Watson BPS approximately one third of a mile east of the Watson Road and Menifee Road intersection. The site plan is depicted in Figure 2, Site Plan.



LSA

Project Site

FIGURE 1

N

0 1000 2000

FEET

SOURCE: USGS 7.5' Quad - *Perris (1979)* and *Romoland (1979)*, CA

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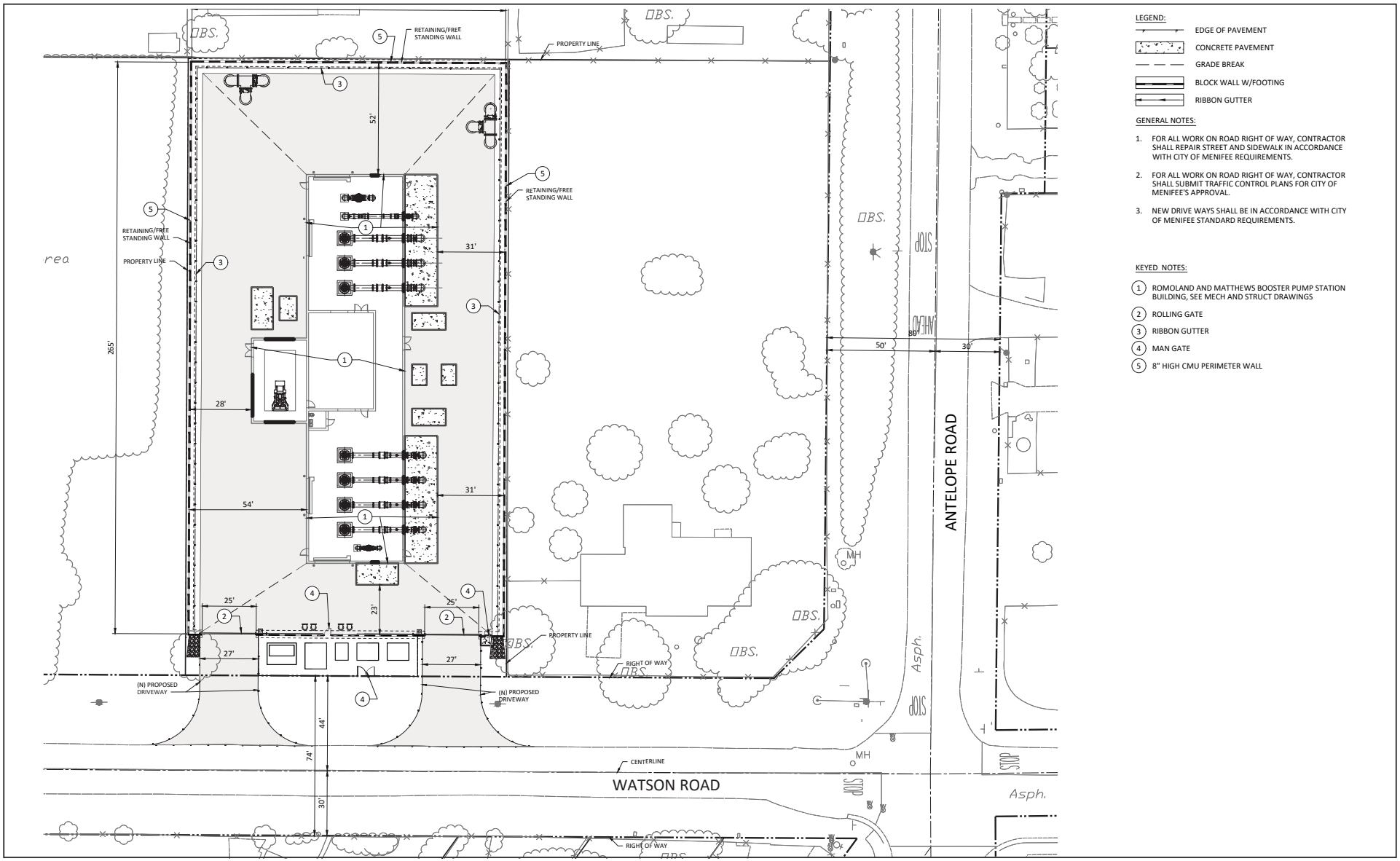
Menifee and Watson Road II Booster Pump Station (BPS) and Pipeline Project
Biological Assessment Report

Project Location and Vicinity



LSA

FIGURE 2

0 30 60

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SOURCE: Lee + Ro

Menifee and Watson Road II Booster Pump Station (BPS) and Pipeline Project
Biological Assessment Report
Site Plan

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3.0 METHODS

3.1 LITERATURE REVIEW

A literature review was conducted to assist in determining the existence or potential occurrence of special-status plant and animal species within the project site and the BSA (200-foot buffer on either side of the alignment). A record search of the CDFW's California Natural Diversity Database (CNDDB) *Rarefind 5* (Version 5.3.0), the United States Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) system, and the California Native Plant Society's (CNPS) *Online Inventory of Rare and Endangered Plants* (CNPS v9.5) for the *Romoland, California* USGS 7.5-minute quadrangle and surrounding quadrangles within a 3-mile radius of the project site were searched in October 2025 and updated in November 2025. Soil types were determined using the WebSoil Survey (available at http://websoilsurvey.sc.egov.usda.gov). Geographic information system software was used to map the project location, habitat types, and land uses, etc.

3.2 FIELD SURVEY

The general biological resources assessment originally included a site visit on January 4, 2022 between 9:00 a.m. and 12:40 p.m. by LSA biologists. Since then, the project limits were revised and constituted another biological resources assessment, which included a site visit on October 13, 2025, by LSA biologists Denise Woodard and Ammon Ursua between 7:00 a.m. and 1:00 p.m. Notes were taken on general site conditions, vegetation, and suitability of habitat for various special-status elements. Weather conditions began with cloudy skies and ended with mostly cloudy conditions. Temperatures ranged from 59 to 67 degrees Fahrenheit and 6 to 15 miles per hour winds during the site visit. The entire BSA was surveyed on foot. Binoculars were used to aid in identification of various species. All plant and animal species observed or otherwise detected during the field survey were noted and are listed in Appendix A. Appendix B summarizes the special-status plant and animal species potentially present within the BSA.

4.0 RESULTS

4.1 EXISTING SITE CONDITIONS

The project site is generally located just south of SR-74 at the intersection of Antelope Road and Watson Road. The BSA runs north and northeast of SR-74 along Antelope Road and east to west along Watson Road. The BSA falls within the boundaries of the MSHCP, as discussed in detail below.

4.1.1 Topography and Soils

The BSA is situated on relatively flat land within elevations ranging from approximately 1,445 feet to 1,525 feet above mean sea level. A variety of soil types occurs within the project site; the soil types are mapped by the *Natural Resources Conservation Service Soil Survey Geographic Database SSURGO metadata and GIS maps* as the following types:

- Exeter sandy loam, 2 to 8 percent slopes, eroded
- Greenfield sandy loam, 2 to 8 percent slopes, eroded
- Pachappa fine sandy loam, 2 to 8 percent slopes, eroded
- Ramona sandy loam, 0 to 2 percent slopes, MLRA 19
- Ramona sandy loam, 2 to 5 percent slopes, eroded
- Ramona sandy loam, 0 to 5 percent slopes, severely eroded

Soils observed in undeveloped portions of the BSA appear to be consistent with these designations (Figure 3, Soils).

LSA

200-ft Buffer

Project Boundary

Soils

Exeter sandy loam, 2 to 8 percent slopes, eroded (EnC2)

Exeter very fine sandy loam, 0 to 5 percent slopes (EwB)

Greenfield sandy loam, 2 to 8 percent slopes, eroded (GyC2)

Monserate sandy loam, 0 to 5 percent slopes (MmB)

Pachappa fine sandy loam, 2 to 8 percent slopes, eroded (PaC2)

Ramona sandy loam, 0 to 2 percent slopes, MLRA 19 (RaA)

Ramona sandy loam, 0 to 5 percent slopes, severely erod ed (RaB3)

Ramona sandy loam, 0 to 5 percent slopes, severely eroded (RaB3)

Ramona sandy loam, 2 to 5 percent slopes, eroded (RaB2)

0 250 500

FEET

SOURCE: Vantor (2024), USDA

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11/25/2025 3:58 PM

FIGURE 3

Menifee and Watson Road II Booster Pump Station (BPS) and Pipeline Project
Biological Assessment Report

Soils

4.1.2 Vegetation

Vegetation within the BSA consists of developed, disturbed and barren ground, non-native grassland, and ornamental landscaping located throughout residential and commercial areas. Dominant species within non-native grassland include mouse barley (*Hordeum murinum*), red brome (*Bromus rubens*), and common Mediterranean grass (*Schismus barbatus*). Other species observed within non-native grassland include Russian thistle (*Salsola tragus*), prickly lettuce (*Lactuca serriola*), and Bermuda grass (*Cynodon dactylon*).

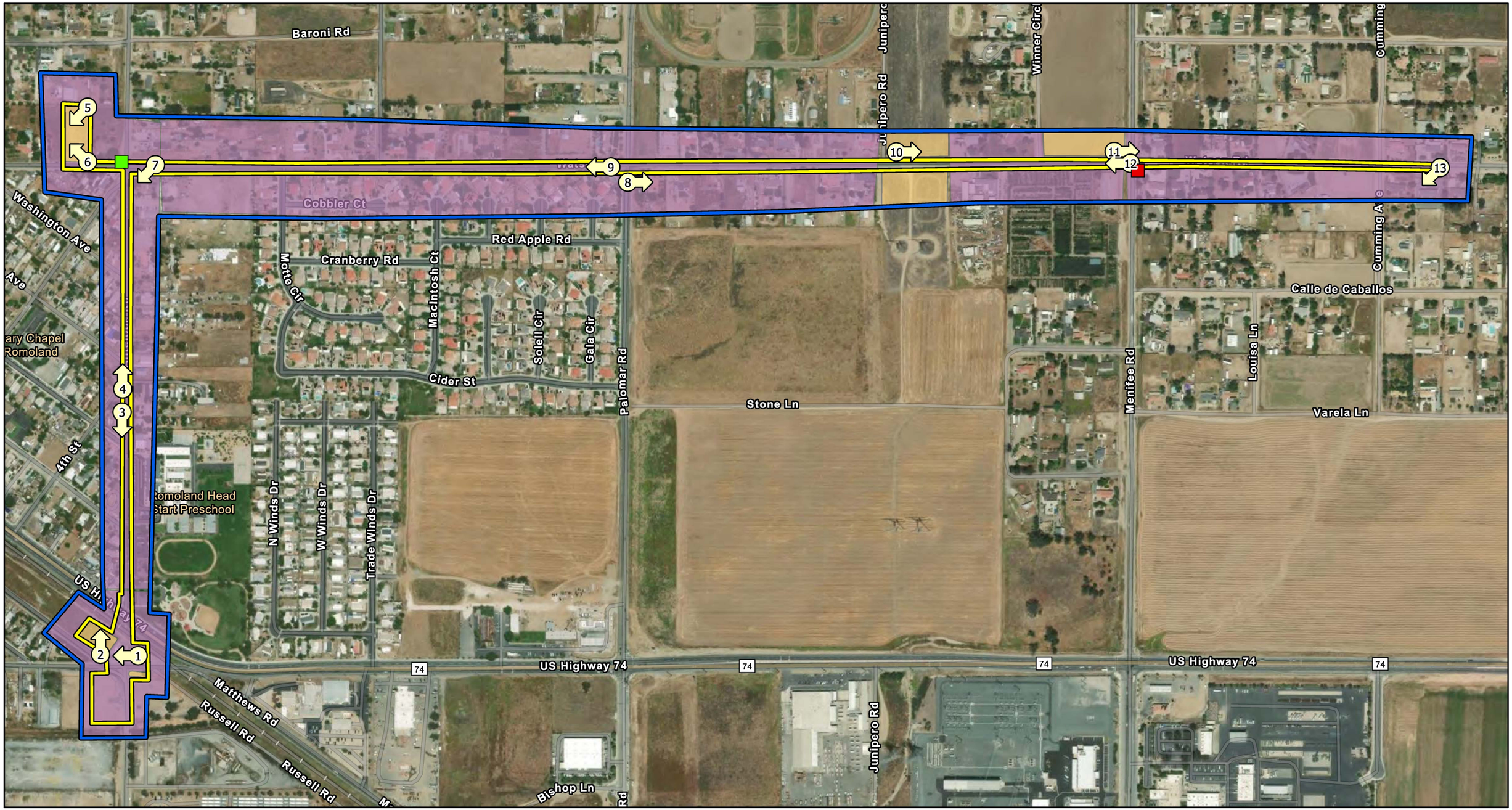
There are no other plant communities on the site. Areas mapped as developed consist of lawn, ornamental landscaping, areas containing man-made structures, and paved roads. Areas mapped as disturbed and barren ground consist of well-traveled dirt roads that do not allow for the establishment of vegetation. A complete list of plant species observed on the site is included in Appendix A. Figure 4, Vegetation, Land Use, and Photo Locations, shows the vegetation and land cover. Site photographs are provided in Figure 5, Site Photographs.

4.1.3 Wildlife

A few wildlife species common to urban and disturbed areas were observed during the field survey. American crow (*Corvus brachyrhynchos*), house finch (*Haemorhous mexicanus*), song sparrow (*Melospiza melodia*), black phoebe (*Sayornis nigricans*), rock pigeon (*Columba livia*), red-tailed hawk (*Buteo jamaicensis*), Say's phoebe (*Sayornis saya*), white-crowned sparrow (*Zonotrichia leucophrys*), yellow-rumped warbler (*Setophaga coronate*), California ground squirrel (*Spermophilus beecheyi*), and Botta's pocket gopher (*Thomomys bottae*) were observed within the BSA. A complete list of wildlife species observed is provided as Appendix A.

4.1.4 Western Riverside County Multiple Species Habitat Conservation Plan

The proposed project occurs within the Western Riverside County MSHCP area. The MSHCP is a comprehensive multi-jurisdictional effort that includes western Riverside County and multiple cities. EMWD is the lead agency but is not signatory to the MSHCP. EMWD is not pursuing a PSE designation for the project site. The MSHCP defines PSE agencies as any regional public facility provider, such as a utility company, or public district, or any other agency that owns land or operates a facility within the MSHCP plan area. The following MSHCP policies and procedures do not apply to this project and are not addressed in this report: Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools (MSHCP Section 6.1.2), Protection of the Narrow Endemic Plant Species (MSHCP Section 6.1.3), Additional Survey Needs and Procedures (MSHCP Section 6.3.2), and Urban/Wildland Interface Guidelines (MSHCP Section 6.1.4). The MSHCP allows participating entities to issue take permits for listed species so that individual applicants need not seek their own permits from the USFWS and/or CDFW. In order to obtain MSHCP coverage as a PSE, the project is required to demonstrate MSHCP compliance through specific habitat assessments, applicable biological surveys, and the provision of an MSHCP consistency analysis. Due to the project not being processed through the MSHCP for covered species, the project is subject to the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA) for threatened, endangered, and/or candidate species.



LSA

200-ft Buffer
Project Boundary
Photo Points

Drainages
Drainage A
Drainage B

Vegetation
Developed
Non-Native Grassland
Ruderal

0 250 500
FEET

SOURCE: Vantor (2024)

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FIGURE 4

Menifee and Watson Road II Booster Pump Station (BPS) and Pipeline Project
Biological Assessment Report

Vegetation, Land Use, and Photo Locations

Photo 1: Photo of Romoland BPS facing west.

Photo 2: Photo of field behind Romoland BPS facing north.

Photo 3: Photo facing south on Antelope Road.

Photo 4: Photo facing north on Antelope Road.

LSA

FIGURE 5

Menifee and Watson Road II Booster Pump Station (BPS) and Pipeline Project
Biological Assessment Report
Site Photographs

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Photo 5: Photo of empty parcel facing south.

Photo 6: Photo of empty parcel facing northwest.

Photo 7: Intersection of Antelope Road and Watson Road facing southwest.

Photo 8: Intersection of Palomar Road and Watson Road facing east.

Photo 9: Intersection of Palomar Road and Watson Road facing west.

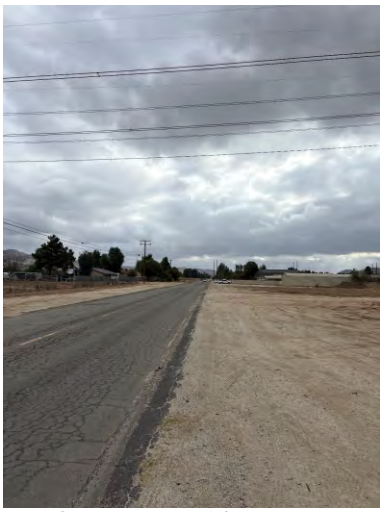

Photo 10: Photo of Watson Road facing east.

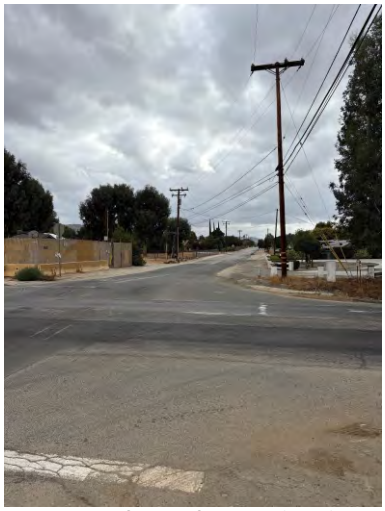

Photo 11: Intersection of Menifee Road and Watson Road facing east.

Photo 12: Intersection of Menifee Road and Watson Road facing west.

Photo 13: Photo of Watson Road BPS facing south.

LSA

FIGURE 5

4.1.5 Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan (HCP)

The MSHCP and the SKR HCP are the principal habitat conservation plans in western Riverside County. Riverside County established a boundary in 1996 for protecting the Stephens' kangaroo rat, a federally and State threatened species. As described in the HCP Implementation Agreement, a Section 10(a) Permit and California Fish and Game Code Section 2081 Management Authorization were issued to the Riverside County Habitat Conservation Agency (RCHCA) for the Long-Term SKR HCP. The Section 10(a) Permit and California Fish and Game Code Section 2081 Management Authorization were approved by the USFWS and CDFW in August 1990. Relevant terms of the SKR HCP have been incorporated into the MSHCP and its Implementation Agreement. The SKR HCP will continue to be implemented as a separate HCP; however, to provide the greatest conservation for the largest number of Covered Species, the Core Reserves established by the SKR HCP are managed as part of the MSHCP Conservation Area consistent with the SKR HCP. Actions shall not be taken as part of the implementation of the SKR HCP that will significantly affect other Covered Species. Take of Stephens' kangaroo rat outside of the boundaries but within the MSHCP area is authorized under the MSHCP and the associated permits.

The proposed project is within the planning area of the SKR HCP; however, as a public agency, EMWD is exempt from the requirements of the SKR HCP.

4.1.6 Special-Status Species

This section discusses special-status species observed or potentially occurring within the adjacent four 7.5-minute quadrangles that surround the project site. Legal protection for special-status species varies widely, from the comprehensive protection extended to listed threatened/ endangered species, to no legal interest at present. The CDFW, USFWS, local agencies, and special-status groups such as the CNPS publish watch lists of declining species. Species on watch lists can be included as part of the special-status species assessment. Species that are candidates for State and/or federal listing and species on watch lists are included in the special-status species list. Inclusion of species described in the special-status species analysis is based on the following criteria:

- Direct observation of the species or its sign in the study area or immediate vicinity during previous biological studies;
- Sighting by other qualified observers;
- Record reported by the CNDDB, published by the CDFW;
- Presence or location information for specific species provided by private groups (e.g., CNPS); and/or
- Study area lies within known distribution of a given species and contains appropriate habitat.

The special-status species analysis revealed 38 special-status species with the potential to occur within the project study area. Appendix B lists these species with a data summary and determination of the likelihood of each species occurring within the BSA.

4.1.5 Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan (HCP)

The MSHCP and the SKR HCP are the principal habitat conservation plans in western Riverside County. Riverside County established a boundary in 1996 for protecting the Stephens' kangaroo rat, a federally and State threatened species. As described in the HCP Implementation Agreement, a Section 10(a) Permit and California Fish and Game Code Section 2081 Management Authorization were issued to the Riverside County Habitat Conservation Agency (RCHCA) for the Long-Term SKR HCP. The Section 10(a) Permit and California Fish and Game Code Section 2081 Management Authorization were approved by the USFWS and CDFW in August 1990. Relevant terms of the SKR HCP have been incorporated into the MSHCP and its Implementation Agreement. The SKR HCP will continue to be implemented as a separate HCP; however, to provide the greatest conservation for the largest number of Covered Species, the Core Reserves established by the SKR HCP are managed as part of the MSHCP Conservation Area consistent with the SKR HCP. Actions shall not be taken as part of the implementation of the SKR HCP that will significantly affect other Covered Species. Take of Stephens' kangaroo rat outside of the boundaries but within the MSHCP area is authorized under the MSHCP and the associated permits.

The proposed project is within the planning area of the SKR HCP; however, as a public agency, EMWD is exempt from the requirements of the SKR HCP.

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- Record reported by the CNDDB, published by the CDFW;
- Presence or location information for specific species provided by private groups (e.g., CNPS); and/or
- Study area lies within known distribution of a given species and contains appropriate habitat.

The special-status species analysis revealed 38 special-status species with the potential to occur within the project study area. Appendix B lists these species with a data summary and determination of the likelihood of each species occurring within the BSA.

4.1.7 Threatened/Endangered Species

There is only one federally/State listed species that was identified as having a moderate potential to occur (Appendix B) in the project vicinity:

- Burrowing owl (*Athene cunicularia hypugaea* [BUOW]); State candidate for listing as endangered/ threatened

4.1.8 Non-Listed Special-Status Species

Of the 24 other non-listed special-status species identified and discussed in Appendix B, 10 species are not expected to occur based on lack of suitable habitat, 11 species are considered to have a low probability of occurrence, 3 species are considered to have a moderate probability of occurrence, and no species are considered present within the project site. The following non-listed special-status species have at least a moderate probability to occur within the BSA:

- Ferruginous hawk (*Buteo regalis* [FEHA]);
- California horned lark (*Eremophila alpestris actia* [HOLA]); and
- Loggerhead shrike (*Lanius ludovicianus* [LOSH])

Nesting bird species, including special-status species identified in Appendix B, with potential to occur are protected by California Fish and Game Code Sections 3503, 3503.5, and 3800, and by the MBTA (16 United States Code 703–711). These laws regulate the take, possession, or destruction of the nest or eggs of any migratory bird or bird of prey. However, the USFWS has recently determined that the MBTA should apply only to "…affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs" and will not be applied to incidental take of migratory birds pursuant to otherwise lawful activities.

4.1.9 Critical Habitat

The BSA does not lie within federally designated critical habitat.

4.1.10 Potential Jurisdictional Waters

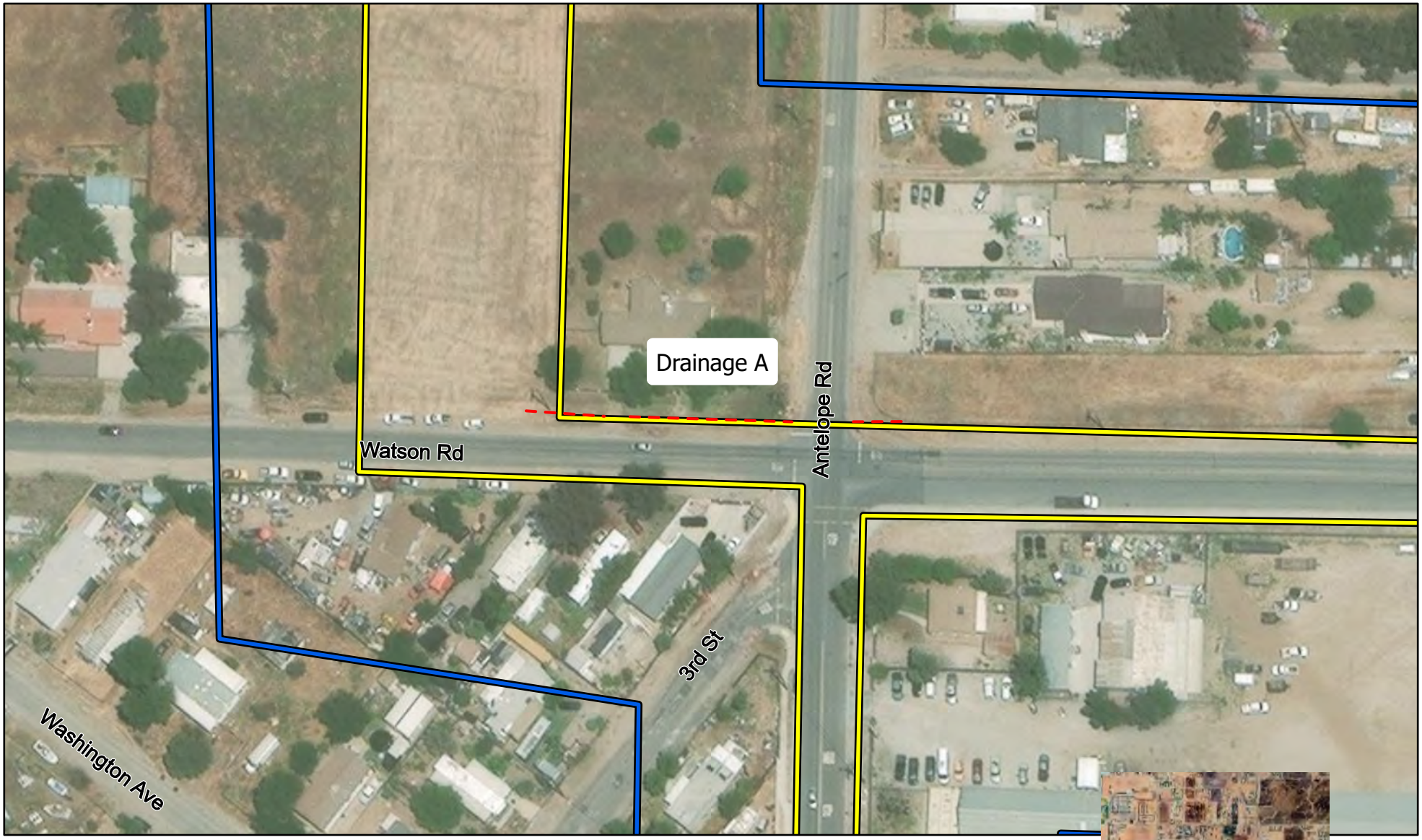
The USACE, under Section 404 of the Federal Clean Water Act (CWA), regulates discharges of dredged or fill material into "waters of the United States." These waters include wetlands and non-wetland bodies of water that meet specific criteria, including a connection to interstate commerce. This connection may be direct (through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce) or it may be indirect (through a connection identified in USACE regulations). The USACE typically regulates as non-wetland waters of the United States any body of water displaying an "ordinary high water mark" (OHWM). In order to be considered a "jurisdictional wetland" under Section 404, an area must possess hydrophytic vegetation, hydric soils, and wetland hydrology. The CDFW, under Sections 1600 et seq. of the California Fish and Game Code, regulates alterations to lakes, rivers, and streams. A stream is defined by the presence of a channel bed and banks and at least an occasional flow of water. The RWQCB is responsible for the administration of Section 401 of the CWA, through water quality certification of any activity that may result in a discharge to jurisdictional waters of the United

States. The RWQCB may also regulate discharges to "waters of the State," including wetlands, under the California Porter-Cologne Water Quality Control Act.

There are two drainage features within the BSA (see Figure 6, Potential Jurisdictional Features), and they are identified as Drainages A and B for purposes of this analysis. Although an official jurisdictional delineation was not conducted as part of the biological resources assessment for this project, the preliminary results of these drainage features are discussed below.

Drainage A is a roadside drainage ditch that runs parallel to Watson Road and underneath Antelope Road. This feature has corrugated metal pipe that creates 2-foot culverts on either side. This feature is 3 feet wide and houses non-native, ruderal vegetation.

Drainage B is a roadside drainage ditch that runs parallel to Menifee Road and runs underneath Watson Road. Drainage B has 3-foot culverts, created with corrugated metal pipe, on either side of Watson Road. This feature is 8 feet in width and features non-native, ruderal vegetation.



LSA

200-ft Buffer

Project Boundary

Potential Jurisdictional Features

0 50 100

FEET

SOURCE: Google Imagery (6/2021)

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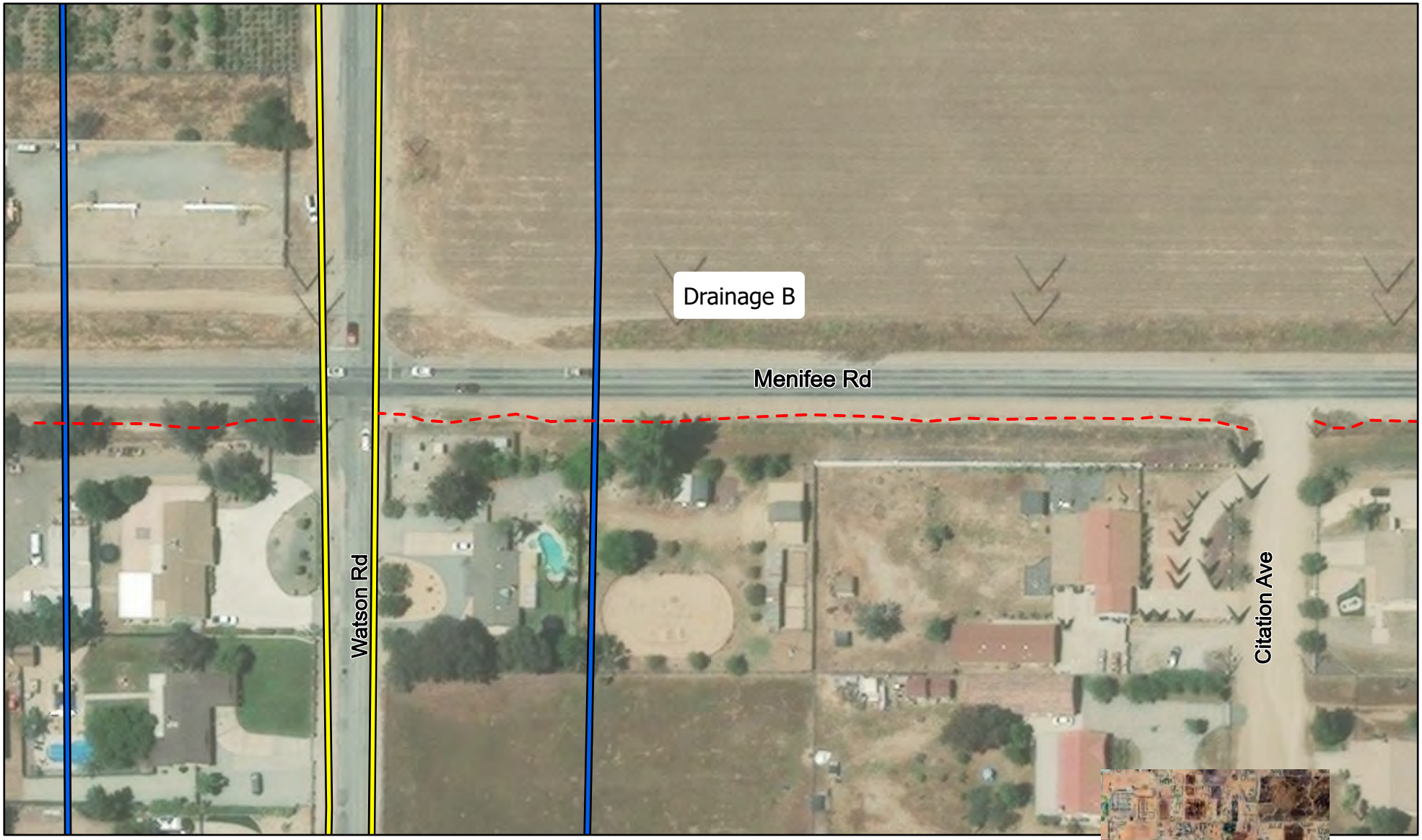
FIGURE 6

Sheet 1 of 2

Menifee and Watson Road II Booster Pump Station (BPS) and Pipeline Project
Biological Assessment Report

Potential Jurisdictional Features



LSA

200-ft Buffer

Project Boundary

Potential Jurisdictional Features

0 50 100

FEET

SOURCE: Google Imagery (6/2021)

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FIGURE 6

Sheet 2 of 2

Menifee and Watson Road II Booster Pump Station (BPS) and Pipeline Project
Biological Assessment Report

Potential Jurisdictional Features

5.0 IMPACTS AND RECOMMENDATIONS

Following is a discussion of potential disturbances and recommendations for avoidance, minimization, and mitigation measures per applicable local, State, and federal policy.

5.1 THREATENED, ENDANGERED, AND CANDIDATE SPECIES

No impacts to threatened, endangered, or Candidate species are expected to occur within the BSA; therefore, no recommendations for avoidance, minimization, and mitigation measures are proposed.

5.1.1 Burrowing Owl

Only paved portions of the BSA are located within an MSHCP Survey Area for burrowing owl. However, suitable habitat for burrowing owl was observed adjacent to the boundaries of the BSA. There are two parcels adjacent to Watson Road between Junipero Road and Menifee Road that may contain suitable habitat for burrowing owl. There are open areas with berms on either side. California ground squirrels were observed in this area and may provide suitable burrows for the owls to occupy; however, no owls were observed during either site visit.

In order to avoid impacts to the possible burrowing owls, focused burrowing owl breeding season surveys (February 1–August 31) are required in accordance with County of Riverside (County) survey instructions (Western Riverside County Regional Conservation Authority 2022). Survey visits should be a week or more apart and spaced so that they are not all at the beginning or end of the survey season, when owls may not be present. A preconstruction survey for burrowing owl will also be required within 30 days prior to any ground-disturbing activities. The focused and preconstruction surveys would be required in the vacant lots, using an accepted protocol.

During the surveys a qualified biologist will survey the project area including a 500-foot buffer, or to the edge of the property if less than 500 feet, for burrows that could be used by burrowing owl. If a burrow is located, the biologist will determine whether an owl is present in the burrow. If the burrow is determined to be occupied, the burrow will be flagged and a 160-foot buffer during the non-breeding season or a 250-foot buffer during the breeding season or a buffer to the edge of the property boundary if less than 500 feet will be established around the burrow. The buffer area will be staked and flagged. No development activities will be permitted within the buffer until the young are no longer dependent on the burrow.

5.1.2 Critical Habitat

No federally designated critical habitat is present within the study area; thus, there will be no project-related effects to critical habitat.

5.2 NON-LISTED SPECIAL-STATUS SPECIES

The 24 non-listed special-status species identified in Appendix B as having a low to moderate probability of occurrence in the project study area have limited population distribution in Southern California, and development is further reducing their ranges and numbers. These species have no

official State or federal protection status, but they merit consideration under CEQA. Due to the disturbed nature of the site and surrounding development, impacts from the project are not anticipated to have a significant effect on these non-listed special-status species.

5.3 NESTING BIRDS

To avoid impacts to nesting birds, during the nesting season (February 1 through August 15), prior to the start of construction activities, surveys will be conducted by a qualified biologist on the project site and within 500 feet of the project boundary, or to the property boundary if less than 500 feet. If nesting birds are found, a 500-foot non-disturbance buffer, or to the property boundary if less than 500 feet, will be established around the nest site. The buffer area will be staked and flagged. No construction will be permitted within the buffer during the breeding season of January 15 through June 15 or until the young birds have fledged or the nest acquires an inactive status.

5.4 JURISDICTIONAL WATERS

Potential jurisdictional waters of the United States regulated by the USACE or RWQCB, or CDFW jurisdictional lakes, rivers, or streams are present within the proposed project site. This includes two drainage features. Both of these drainage features occur within the project footprint; the project has been designed to avoid impacts to each of these features. This will be accomplished by going around the potential jurisdictional waters or by going under them through trenchless methods such as horizontal directional drilling. Thus, there will be no project-related effects to jurisdictional waters. If the project proposes impacts to these aquatic resources, Mitigation Measure (MM) BIO-3 shall be implemented, which requires a formal jurisdictional delineation to determine impacts.

5.5 HABITAT FRAGMENTATION AND WILDLIFE MOVEMENT

Wildlife movement and habitat fragmentation are important issues in assessing effects to wildlife. Habitat fragmentation occurs when a proposed action results in a single, unified habitat area being divided into two or more areas such that the division isolates the two new areas from each other. Isolation of habitat occurs when wildlife cannot move freely from one portion of the habitat to another or from one habitat type to another. An example is the fragmentation of habitats within and around “checkerboard” residential development. Habitat fragmentation can also occur when a portion of one or more habitats is converted into another habitat, as when scrub habitats are converted into annual grassland habitat because of frequent burning.

The project site does not correspond to any natural landscape blocks, small natural areas, interstate connections, essential connectivity areas, or potential riparian connections, as documented in the California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California report (Spencer et al. 2010). Wildlife movement of species such as coyote (*Canis latrans*) is expected within most of the project site given the project’s proximity to vacant undeveloped lands such as the two fields adjacent to Watson Road and an undeveloped section adjacent to the northwest intersection of Watson Road and Menifee Road. Undeveloped lands within the study area are bordered by existing paved roads that already restrict wildlife movement in the project vicinity. Due to the project occurring within an urban environment, wildlife movement within the project site is anticipated to be limited to wildlife present on site or present on the undeveloped land to the east of the project site.

The wildlife species that occur in the vicinity of the project site are likely adapted to the urban-wildland interface, and the project would not introduce new effects to the area. Potential noise, vibration, light, dust, or human disturbance associated with project activities would only temporarily deter wildlife from using areas in the immediate vicinity. These indirect effects could temporarily alter migration behaviors, territories, or foraging habitats in select areas. However, because these are temporary effects and the project vicinity is partially developed, it is likely that wildlife already living and moving close to the project site would alter their normal functions for the duration of land use changes and development and then re-establish these functions once all temporary effects have been removed. Project activities would not place any permanent barriers within any known wildlife movement corridors or interfere with habitat connectivity. Therefore, the proposed project would not substantially limit wildlife movement.

5.6 LOCAL POLICIES AND ORDINANCES

The City and Riverside County General Plans and development ordinances may include regulations or policies governing biological resources. For example, policies may include tree preservation, locally designated species survey areas, local species of interest, and significant ecological areas. Pursuant to California Code Section 53090 Section D and Section E, EMWD is exempt from local land use policies, plans, and zoning ordinances.

5.6.1 City of Menifee Municipal Code

Menifee Landscape Standards (Section 9.2 of the City of Menifee Municipal Code) consists of Section 9.205.030 of the City Municipal Code, which establishes Tree Preservation Regulations that are described below.

5.6.1.1 Section 9.205.030 (Tree Preservation Regulations)

This section serves to outline its purpose to protecting mature trees that are in good health, do not pose safety threats, are not nuisance trees, and those categorized as heritage trees. Application of a tree removal permit is required despite the status of existing trees.

Project impacts to protected trees shall follow this guideline: Existing healthy trees with a 6-inch or larger trunk diameter measured at 4 feet from the surrounding grade shall be replaced at a three-to-one ratio if removed, in addition to any other new tree installation required. Existing healthy trees, with a 6-inch or larger trunk diameter measured at 4 feet from the surrounding grade, which are retained on site shall be credited toward the tree installation requirements of this chapter at a one-to-two ratio (one tree saved equals a two-tree credit toward the installation of new trees required).

In the event that a heritage tree is removed, replacement is required with the largest nursery-grown tree(s) available as determined by the approval authority. To determine adequate replacement values for heritage trees, the applicant may be required to submit an independent appraisal prepared by a horticulturist, International Society of Arboriculture (ISA)-certified arborist, or licensed landscape architect to determine the replacement value of the tree(s) to be removed.

The proposed project anticipates no significant impacts to trees within the BSA. There are no measures required to protect the trees within the BSA.

5.6.2 Western Riverside Multiple Species Habitat Conservation Plan

The BSA lies within the planning area of the MSHCP; however, EMWD is not pursuing a PSE designation for the project site and is not seeking to obtain MSHCP coverage. Therefore, the proposed project is not subject to the requirements of the MSHCP (e.g., development fees and MSHCP consistency analysis).

5.6.3 Stephens' Kangaroo Rat Habitat Conservation Plan

The BSA lies within the planning area of the SKR HCP; however, as a water utility agency, EMWD is exempt from the requirements of the SKR HCP (e.g., development fees).

6.0 MITIGATION MEASURES

MM BIO-1 **Focused Burrowing Owl Survey.** Focused burrowing owl breeding season surveys (March 1–August 31) are required in accordance with County of Riverside survey instructions (Western Riverside County Regional Conservation Authority 2022). Survey visits should be a week or more apart and spaced so that they are not all at the beginning or end of the survey season, when owls may not be present. A preconstruction survey for burrowing owl will also be required within 30 days prior to any ground-disturbing activities. The focused and preconstruction surveys would be required in the vacant lots, using an accepted protocol.

During the surveys a qualified biologist will survey the project area including a 500-foot buffer, or to the edge of the property if less than 500 feet, for burrows that could be used by burrowing owl. If a burrow is located, the biologist will determine whether an owl is present in the burrow. If the burrow is determined to be occupied, the burrow will be flagged and a 160-foot buffer during the non-breeding season or a 250-foot buffer during the breeding season or a buffer to the edge of the property boundary if less than 500 feet will be established around the burrow. The buffer area will be staked and flagged. No development activities will be permitted within the buffer until the young are no longer dependent on the burrow.

MM BIO-2 **Preconstruction Nesting Bird Survey.** To ensure compliance with the California Fish and Game Code and the Migratory Bird Treaty Act and to avoid potential impacts to nesting birds, vegetation removal activities shall be conducted outside the general bird nesting season (January 15 through August 31). Any vegetation removal and/or construction activities that occur during the nesting season will require that all suitable habitats be thoroughly surveyed for the presence of nesting birds by a qualified biologist. Prior to commencement of clearing within each project segment, a qualified biologist shall conduct a preconstruction survey within 3 days prior to ground-disturbing activities. This may warrant various preconstruction surveys to ensure that each survey aligns with the start of each segment of the project. Should nesting birds be found, an exclusionary buffer will be established by the qualified biologist. The buffer may be up to 500 feet in diameter, depending on the species of nesting bird found. This buffer will be clearly marked in the field by construction personnel under guidance of the qualified biologist, and construction or clearing will not be conducted within this zone until the qualified biologist determines that the young have fledged or the nest is no longer active. The buffer may be modified and/or other recommendations proposed as determined appropriate by the biologist to minimize impacts. Nesting bird habitat within the project site will be resurveyed during the bird breeding season if there is a lapse in construction activities longer than 7 days.

MM BIO-3 **Jurisdictional Delineation.** Prior to commencing construction activities, a jurisdictional delineation shall be conducted if impacts to any aquatic resources within the project site are expected. A three parameter delineation shall be

conducted according to the California Department of Fish and Wildlife's (CDFW) *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Regional Supplement) and the 1987 Corps Wetland Delineation Manual, and to delineate the jurisdictional limit of non- wetland waters of the United States following the procedures set forth in 33 Code of Federal Regulations 328.3(e). If impacts to identified aquatic resources are expected to occur, appropriate permits will need to be acquired from the appropriate agencies. This includes the issuance of a Streambed Alteration Agreement as issued by CDFW under Section 1602 of the Fish and Game Code and Waste Discharge Requirements as issued by the Regional Water Quality Control Board under the Porter-Cologne Water Quality Control Act. A verification, in the form of a jurisdictional determination, will also need to be requested from the United States Army Corps of Engineers (USACE) on the regulatory conclusions made in the jurisdictional delineation for USACE jurisdiction. Should the USACE determine aquatic resources under its jurisdiction are present within the project site and are proposed for impacts, a Section 404 permit will need to be acquired from the USACE.

7.0 CUMULATIVE IMPACTS

According to Section 15130 of the *State CEQA Guidelines*, "cumulative impacts" refers to incremental effects of an individual project when viewed in connection with the effects of past projects, current projects, and probable future projects. Due to the relatively disturbed nature of the project study area and its proximity to residential development, impacts are not considered to be cumulatively significant.

8.0 REFERENCES

Biogeographic Information and Observation System (BIOS). n.d. Website: https://apps.wildlife.ca.gov/bios6/ (accessed October 2025).

California Code, Government Code - GOV § 53091. n.d. FindLaw, Thomson Reuters. Website: codes.findlaw.com/ca/government-code/gov-sect-53091 (accessed March 2024).

California Department of Fish and Wildlife. n.d. California Natural Diversity Database (CNDDB) — RareFind 5. California Department of Fish and Wildlife. Website: https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx (accessed October 26, 2025).

California Department of Fish and Wildlife. n.d. CNDDB Maps & Data. California Department of Fish and Wildlife. Website: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data (accessed October 26, 2025).

California Native Plant Society. n.d. Rare Plant Inventory (online edition, v9.5.1). California Native Plant Society. Website: https://rareplants.cnps.org/Search/Advanced (accessed October 22, 2025).

California Native Plant Society. n.d. Rare Plant Inventory (online edition, v9.5.1) – Help & Advanced Searching. California Native Plant Society. Website: https://rareplants.cnps.org/Home/Help/ (accessed October 22, 2025).

City of Menifee Comprehensive Development Code. n.d. Website: https://online.encodeplus.com/regs/menifee-ca/doc-viewer.aspx?tocid=003.005.008#secid-1527 (accessed February 2024).

Google Earth. 2025. Aerial photographs of the project site and surrounding areas (accessed October–November 2025).

Riverside County Habitat Conservation Agency (RCHCA). n.d. Stephens' Kangaroo Rat Mitigation Fee. Website: https://www.rchca.us/185/Stephens-Kangaroo-Rat-Mitigation-Fee (accessed March 2024).

Riverside County Transportation and Land Management Agency. n.d. Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), Appendix C: Standard Best Management Practices. Website: https://rctlma.org/multiple-species-habitat-conservation-plan-mshcp-volume-1-appendix-c (accessed March 2024).

Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. California Essential Habitat Connectivity Project. California Essential Habitat Connectivity: A Strategy for Conserving a Connected California. February. Website: consbio.org/wp-content/uploads/2022/05/CEHC_Plan_MASTER_030210_31_2.pdf (accessed October 30, 2025).

United States Department of Agriculture, Natural Resources Conservation Service. n.d. Web Soil Survey. USDA NRCS. Website: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm (accessed October 23, 2025).

United States Fish and Wildlife Service. Critical Habitat Report (ECOS). n.d. U.S. Department of the Interior. Website: https://ecos.fws.gov/ecp/report/table/critical-habitat.html (accessed October 23, 2025).

United States Fish and Wildlife Service. n.d. National Wetlands Inventory – Wetlands Mapper. U.S. Department of the Interior. Website: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/ (accessed October 26, 2025).

Western Riverside County Regional Conservation Authority. 2022. Western Riverside County MSHCP Biological Monitoring Program. Burrowing Owl Monitoring Protocol, 2022. Western Riverside County MSHCP. Website: wrc-rca.org/wp-content/uploads/2023/11/BUOW-monitoring-protocol-2022_final_NRP.pdf (accessed October 30, 2025).

APPENDIX A

PLANT AND ANIMAL SPECIES OBSERVED

Plant Species Observed

Scientific Name	Common Name
CONIFERS	
Cupressaceae	**Cypress family**
*Cupressus sempervirens**	Italian cypress
EUDICOT FLOWERING PLANTS	
Asteraceae	**Sunflower family**
Ambrosia acanthicarpa	Annual bur-sage
Heterotheca grandiflora	Telegraph weed
Helianthus annuus	Common sunflower
Lactuca serriola	Prickly lettuce
Amaranthaceae	**Pigweed family**
Amaranthus palmeri	Palmer's pigweed
Brassicaceae	**Mustard family**
*Hirschfeldia incana**	Shortpod mustard
Chenopodiaceae	**Saltbush family**
*Salsola tragus**	Russian thistle
Fabacae	**Pea family**
Parkinsonia aculeata	Jerusalem thorn
Myrtaceae	**Myrtle family**
Eucalyptus sp.*	Eucalyptus
Simaroubaceae	**Quassia family**
Ailanthus altissima	Tree of Heaven
Solanaceae	**Nightshade family**
*Nicotiana glauca**	Tree tobacco
MONOCOT FLOWERING PLANTS	
Arecaceae	**Palm family**
Washingtonia filifera	California fan palm
*Washingtonia robusta**	Mexican fan palm
Poaceae	**Grass family**
Bromus sp.*	Brome grass
*Cynodon dactylon**	Bermuda grass
*Hordeum murinum**	Mouse barley
*Schismus barbatus**	Common Mediterranean grass

* = non-native species

Wildlife Species Observed

Scientific Name	Common Name
BIRDS	
Charadriidae	**Plovers and Lapwings**
Charadrius vociferus	Killdeer
Columbidae	**Pigeons and Doves**
*Columba livia**	Rock pigeon
Accipitridae	**Kites, Hawks, and Eagles**
Buteo jamaicensis	Red-tailed hawk
Tyrannidae	**Tyrant Flycatchers**
Sayornis nigricans	Black phoebe
Sayornis saya	Say's phoebe
Tyrannus vociferans	Cassin's kingbird
Corvidae	**Crows and Ravens**
Corvus brachyrhynchos	American crow
Fringillidae	**Finches**
Haemorhous mexicanus	House finch
Spinus psaltria	Lesser goldfinch
Passerellidae	**New World Sparrows**
Melospiza melodia	Song sparrow
Zonotrichia leucophrys	White-crowned sparrow
Passeridae	**Old World Sparrows**
Passer domesticus	House sparrow
Parulidae	**Wood Warblers**
Setophaga coronata	Yellow-rumped warbler
Sturnidae	**Starlings**
Sturnus vulgaris *	European starling
MAMMALS	
Sciuridae	**Squirrels**
Spermophilus beecheyi	California ground squirrel
Geomyidae	**Pocket Gophers**
Thomomys bottae	Botta's pocket gopher

* = non-native species

APPENDIX B

SPECIAL-STATUS SPECIES SUMMARY

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Plants				
Allium munzii **Munz's onion**	US: FE CA: ST	Seasonally moist sites on clay soils (generally) or within rocky outcrops (pyroxenite) on rocky-sandy loams (such as Cajalco, Las Posas, and Vallecitos) with clay subsoils, in openings within coastal sage scrub, pinyon juniper woodland, and grassland, at 300 to 1,070 meters (1,000 to 3,500 feet) in elevation. Known only from western Riverside County in the greater Perris Basin (Temescal Canyon-Gavilan Hills/Plateau, Murrieta-Hot Springs areas) and within the Elsinore Peak (Santa Ana Mountains) and Domenigoni Hills regions.	Blooms April through May (perennial bulbiferous herb)	**Not expected:** No suitable habitat (clay soils or within rocky outcrops on rocky-sandy loams) is present within the BSA.
Atriplex coronata var. *notatior* **San Jacinto Valley crownscale**	US: FE CA: –	Alkaline flats in playas, chenopod scrub, valley and foothill grasslands, vernal pools at 365 to 520 meters (1,200 to 1,700 feet) in elevation. Endemic to the San Jacinto River Valley area of western Riverside County.	Blooms April through May (annual herb)	**Not expected:** No suitable habitat (alkaline flats in playas, chenopod scrub, valley and foothill grasslands, vernal pools at 365 to 520 meters) is present within the BSA.
Atriplex parishii **Parish's brittlescale**	US: – CA: 1B.1	Alkali soils in meadows, vernal pools, chenopod scrub, and playas. Usually on drying alkali flats with fine soils. In California, known from Riverside and San Diego Counties. Also occurs in Mexico. Believed extirpated from Los Angeles, Orange, and San Bernardino Counties.	Blooms June through October	**Not expected:** No suitable habitat (alkali soils in meadows, vernal pools, chenopod scrub, and playas) is present within the BSA.
Brodiaea filifolia **Thread-leaved brodiaea**	US: FT CA: SE	Usually on clay or associated with vernal pools or alkaline flats; occasionally in vernally moist sites in fine soils (clay loam, silt loam, fine sandy loam, loam, loamy fine sand). Typically associated with needlegrass or alkali grassland or vernal pools. Occurs from 25 to 1,120 meters (80 to	Blooms March through June (perennial herb)	**Not expected:** No suitable habitat (clay or associated with vernal pools or alkaline flats) is present within the BSA.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
		3,700 feet) in elevation. Known only from Los Angeles, Orange, Riverside, San Bernardino, San Diego, and San Luis Obispo Counties, California.		
Caulanthus simulans **Payson's jewel-flower**	US: – CA: 4.2	Recently burned areas or disturbed sites such as streambeds in chaparral, coastal sage scrub, riparian areas, and grassland at 60 to 2,200 meters (200 to 7,200 feet) in elevation. Known from San Diego County (collections in western Riverside County misidentified, are *C. heterophyllus* var. *pseudosimulans*).	Blooms (Feb) March through May (June) (annual herb)	**Not expected:** No suitable habitat (recently burned areas or disturbed sites such as streambeds in chaparral, coastal sage scrub, riparian areas, and grassland at 60 to 2,200 meters) is present within the BSA.
Centromadia pungens ssp. *laevis* **Smooth tarplant**	US: – CA: 1B.1	Generally alkaline areas in chenopod scrub, meadows, playas, riparian woodland, valley and foothill grassland below 480 meters (1,600 feet) in elevation. Known from Riverside and San Bernardino Counties, extirpated from San Diego County.	Blooms April through November (annual herb)	**Not expected:** No suitable habitat (generally alkaline areas in chenopod scrub, meadows, playas, riparian woodland, valley and foothill grassland) is present within the BSA.
Chorizanthe parryi var. *parryi* **Parry's spineflower**	US: – CA:1B.1	Sandy or rocky soils in chaparral, coastal scrub, oak woodlands, and grassland at 40 to 1,705 meters (100 to 5,600 feet) in elevation. Known only from Los Angeles, Riverside, and San Bernardino Counties.	Blooms April through June	**Low:** Marginally suitable habitat (non-native grassland) is present within the BSA.
Harpagonella palmeri **Palmer's grapplinghook**	US: – CA: 4.2	Clay soils in openings in coastal sage scrub, juniper woodland, and grassland below 830 meters (2,700 feet) in elevation. In California, known only from Orange, Riverside, and San Diego Counties and the Channel Islands. Also occurs in Arizona and Mexico.	Blooms March through May	**Not expected:** No suitable habitat (clay soils) is present within the BSA.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Hordeum intercedens **Vernal barley**	US: – CA: 3.2	Vernal pools and saline flats and depressions below 1,000 meters (3,300 feet) in elevation. Known from many California counties. Also occurs in Mexico.	Blooms March through June	**Not expected:** No suitable habitat (vernal pools and saline flats and depressions) is present within the BSA.
Lasthenia glabrata ssp. *coulteri* **Coulter's goldfields**	US: – CA: 1B.1	Vernal pools and alkaline soils in marshes, playas, and similar habitats below 1,220 meters (4,000 feet) in elevation. Known from Colusa, Merced, Tulare, Orange, Riverside, Santa Barbara, San Diego, San Luis Obispo, Tehama, Ventura, and Yolo Counties. Believed extirpated from Kern, Los Angeles, and San Bernardino Counties, and possibly also from Tulare County. Also occurs in Mexico.	Blooms February through June	**Not expected:** No suitable habitat (vernal pools and alkaline soils in marshes, playas, and similar habitat) is present within the BSA.
Lepidium virginicum var. *robinsonii* **Robinson's pepper-grass**	US: – CA: 4.3	Dry soils in coastal sage scrub and chaparral below 885 meters (2,900 feet) in elevation. In California, known only from Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, and San Diego Counties, and Santa Cruz Island. Also occurs in Mexico.	Blooms January through July	**Not expected:** No suitable habitat (in coastal sage scrub and chaparral) is present within the BSA.
Navarretia fossalis **Spreading navarretia**	US: FT CA: –	In vernal pools, playas, shallow freshwater marshes, and similar sites at 15 to 820 meters (50 to 2,700 feet) in elevation. In California, known only from Los Angeles, San Luis Obispo, Riverside, and San Diego Counties. Also occurs in Mexico.	Blooms April through June (annual herb)	**Not expected:** No suitable habitat (vernal pools, playas, shallow freshwater marshes) is present within the BSA.
Tortula californica **California screw moss**	US: – CA: 1B.2	Rock outcrops, vertical rock walls and soil banks with appropriate moisture conditions, at 10 to 1,460 meters (30 to 4,800 feet) in elevation. Known only from Modoc, Kern, Los Angeles, Modoc, Monterey, Riverside, San Diego, Santa Barbara, and Ventura Counties, California.	N/A	**Not expected:** No suitable habitat (rock outcrops, vertical rock walls and soil banks with appropriate moisture conditions) is present within the BSA.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Invertebrates				
Bombus crotchii **Crotch's bumble bee**	US: – CA: SCE	Inhabits scrub (including chaparral) and grassland with high floral diversity from coastal California to the crest of Sierra-Cascade and in desert edge areas, south into Mexico. Suitable bumble bee habitat requires the continuous availability of flowers suitable for foraging and in quantities sufficient to sustain the colony throughout its duration (spring through summer), as well as sites suitable for colony nesting and for overwintering of the new queens. Preferred foraging plants include milkweeds (*Asclepias* spp.), phacelias (*Phacelia* spp.), sages (*Salvia* spp.), vetches (*Vicia* spp.), deerweed (*Acmispon glaber*), lupines (*Lupinus* spp.), and poppies (*Eschscholzia* spp.) (Robert Thorpe et al., 1983, Bumble Bees and Cuckoo Bumble Bees of California). Usually nests underground in abandoned rodent burrows but may also nest in similar environments such as cavities in fallen logs, thatched grasses, or rock piles (California Department of Fish and Wildlife, Survey Considerations for California Endangered Species Act [CESA] Candidate Bumble Bee Species). Overwintering habitat is poorly understood and therefore CDFW does not recommend surveys for it. Sloping areas insulated with moss or leaf litter under trees have been found to support overwintering gynes (ibid.).	Spring and summer	**Not expected**. The BSA does not contain ideal foraging habitat in the form of scrub or grasslands with high floral diversity.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Branchinecta lynchi **Vernal pool fairy shrimp**	US: FT CA: SA	Vernal pools and similar features in unplowed grassland areas. Pools must contain water continuously for at least 18 days in all but the driest years to allow for reproduction. Known from the Central Valley and adjacent foothill areas, the central coast and south coast ranges, from the transverse ranges near Santa Clarita, from the Santa Rosa Plateau, Skunk Hollow, and the Stowe Road vernal pool west of Hemet in Riverside County, and from northwest San Diego County. Occurs at up to about 700 meters (2,300 feet) in elevation in areas north of Kern County and at up to 1,700 meters (5,600 feet) in elevation in areas to the south.	Seasonally following rains; typically, January through April	**Not expected:** No suitable habitat (vernal pools) is present within the BSA.
Amphibians				
Spea hammondii **Western spadefoot**	US: FPT CA: SSC	Grasslands and occasionally hardwood woodlands; largely terrestrial but requires rain pools or other ponded water persisting at least 3 weeks for breeding; burrows in loose soils during dry season. Occurs in the Central Valley and adjacent foothills, the non-desert areas of southern California, and Baja California.	Primarily October through April (following onset of winter rains)	**Not expected:** No suitable habitat (ponded water persisting at least 3 weeks) is present within the BSA.
Reptiles				
Actinemys pallida **Southwestern pond turtle**	US: FPT CA: SSC	Inhabits permanent or nearly permanent water from central California to northwestern Baja California. Absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries. Requires basking sites such as partially submerged logs, rocks, or open mud banks.	Year-round with reduced activity November through March	**Not expected:** No suitable habitat (permanent water) is present within the BSA.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Anniella stebbinsi **Southern California legless lizard**	US: – CA: SSC	Inhabits sandy or loose loamy soils with high moisture content under sparse vegetation. Found primarily in cismontane southern California from Santa Barbara County to northwestern Baja California, with a few outlying populations in the deserts of southern California.	Nearly year-round, at least in southern areas	**Not expected:** No suitable habitat (loose loamy soils with high moisture content under sparse vegetation or cismontane habitat) is present within the BSA.
Arizona elegans occidentalis **California glossy snake**	US: – CA: SSC	Scrub and grassland habitats, often with loose or sandy soils. Patchily distributed from the eastern portion of San Francisco Bay area to southern San Joaquin Valley and in non-desert areas of southern California. Also occurs in Baja California.	Most active March through June (nocturnal)	**Low:** Marginally suitable habitat (grassland habitat with sandy soils) is present within the BSA.
Aspidoscelis hyperythra **Orange-throated whiptail**	US: - CA: SA	Prefers washes and other sandy areas with patches of brush and rocks, in chaparral, coastal sage scrub, juniper woodland, and oak woodland from sea level to 915 meters (3,000 feet) in elevation. Perennial plants required. Occurs in Riverside, Orange, and San Diego Counties west of the crest of the Peninsular Ranges, in extreme southern San Bernardino County near Colton, and in Baja California.	March through July with reduced activity August through October	**Low:** Marginally suitable habitat (sandy areas) is present within the BSA.
Crotalus ruber **Red-diamond rattlesnake**	US: - CA: SSC	Desert scrub, thornscrub, open chaparral and woodland; occasional in grassland and cultivated areas. Prefers rocky areas and dense vegetation. Morongo Valley in San Bernardino and Riverside Counties to the west and south into Baja California.	Primarily mid-spring through mid-fall	**Low:** Marginally suitable habitat (non-native grassland) is present within the BSA.
Phrynosoma blainvillii **Coast horned lizard**	US: – CA: SSC	Primarily in sandy soil in open areas, especially washes and floodplains, in many plant communities. Requires open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants or other insects.	Primarily April through July with reduced activity August through October	**Low:** Marginally suitable habitat (sandy soil) is present within the BSA.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
		Occurs west of the deserts from northern Baja California north to Shasta County below 2,400 meters (8,000 feet) in elevation.		
Birds				
Aimophila ruficeps canescens **Southern California rufous-crowned sparrow**	US: – CA: SA	Dry, open, rocky hillsides with scattered shrubs.	Year-round	**Low:** Marginally suitable habitat (dry open habitat) is present within the BSA.
Aquila chrysaetos (nesting & wintering) **Golden eagle**	US: – CA: SFP	Generally open country of the Temperate Zone worldwide. Nesting primarily in rugged mountainous country. Uncommon resident in southern California.	Year-round	**Not expected:** No suitable nesting habitat (rugged mountainous area) is present within the BSA.
Artemisiospiza belli belli **Bell's sparrow**	US: – CA: SA	Occupies chaparral and coastal sage scrub from west central California to northwestern Baja California.	Year-round	**Not expected:** No suitable nesting habitat (chaparral and coastal sage scrub) is present within the BSA.
Athene cunicularia hypugaea (burrow sites & some wintering sites) **Burrowing owl**	US: - CA: SSC/SPE	Open, treeless areas with low, sparse vegetation, usually on flat or gently sloping terrain, including grasslands, sparse scrub (cover less than 30 percent), farmland, airfields, airports, road embankments, cemeteries, urban vacant lots, desert areas, and other open habitat. They usually occupy ground squirrel burrows but may also utilize man-made structures such as culverts or debris piles, usually temporarily.	Year-round	**Moderate**: Suitable habitat (open, treeless areas with low, sparse vegetation) is present within the BSA.
Buteo regalis (wintering) **Ferruginous hawk**	US: – CA: SA	Forages in open fields, grasslands and agricultural areas, sagebrush flats, desert scrub, fringes of pinyon-juniper habitats, and other open country in western North America. Breeds in south-central Canada and the interior of the western United States. Winters primarily in the southwestern quadrant of	Mid-September through mid-April	**Moderate**: Suitable foraging habitat (open fields, grasslands and agricultural areas) is present within the BSA.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
		the United States south to central Mexico.		
Eremophila alpestris actia **California horned lark**	US: – CA: SA	Open grasslands and fields, agricultural area, open montane grasslands. This subspecies is resident from northern Baja California northward throughout non-desert areas to Humboldt County, including the San Joaquin Valley and the western foothills of the Sierra Nevada (north to Calaveras County). Prefers bare ground such as plowed or fall-planted fields for nesting, but may also nest in marshy soil. During the breeding season, this is the only subspecies of horned lark in non-desert southern California; however, from September through April or early May, other subspecies visit the area.	Year-round interior (inland areas)	**Moderate**: Suitable habitat (grasslands and fields, agricultural area) is present within the BSA.
Lanius ludovicianus (nesting) **Loggerhead shrike**	US: – CA: SSC (breeding)	Prefers open habitats with scattered small trees and with fences, utility lines, or other perches. Inhabits open country with short vegetation, pastures, old orchards, cemeteries, golf courses, riparian areas, and open woodlands. Highest density occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Occurs only rarely in heavily urbanized areas, but often found in open cropland. Found in open country in much of North America.	Year-round	**Moderate**: Suitable habitat (open habitats with scattered small trees and with fences, utility lines, or other perches) is present within the BSA.
Polioptila californica californica **Coastal California gnatcatcher**	US: FT CA: SSC	Inhabits coastal sage scrub in low-lying foothills and valleys up to about 500 meters (1,640 feet) in elevation in cismontane southwestern	Year-round	**Not expected:** No suitable nesting habitat (coastal sage scrub in low-lying foothills and valleys)

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
		California and northwestern Baja California.		is present within the BSA.
Vireo bellii pusillus **Least Bell's vireo**	US: FE CA: SE	Riparian forests and willow thickets. The most critical structural component of least Bell's vireo habitat in California is a dense shrub layer 2 to 10 feet (0.6–3.0 meters) above ground. Willows usually dominant. Nests from central California to northern Baja California Sur. Winters primarily in Baja California Sur.	March through September	**Not expected:** No suitable nesting habitat (riparian forests and willow thickets) is present within the BSA.
Mammals				
Chaetodipus californicus femoralis **Dulzura pocket mouse**	US: – CA: SA	Found in a variety of habitats including coastal sage scrub, chaparral and grassland in northern Baja California, San Diego and extreme southwestern and western Riverside Counties. Limit of range to northwest (at interface with C. c. dispar) unclear.	Year-round	**Low:** Marginally suitable habitat (non-native grassland) is present within the BSA.
Dipodomys merriami parvus **San Bernardino kangaroo rat**	US: FE CA: SE	Gravelly and sandy soils of alluvial fans, braided river channels, active channels and terraces; San Bernardino Valley (San Bernardino County) and San Jacinto Valley (Riverside County). In San Bernardino County, this species occurs primarily in the Santa Ana River and its tributaries north of Interstate 10, with small remnant populations in the Etiwanda alluvial fan, the northern portion of the Jurupa Mountains in the south Bloomington area, and in Reche Canyon. In Riverside County, this species occurs along the San Jacinto River east of approximately Sanderson Avenue, and along Bautista Creek. Remnant populations may also occur within Riverside County in	Nocturnal; active year-round	**Not expected:** The BSA is out of the species known range.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
		Reche Canyon, San Timoteo Canyon, Laborde Canyon, the Jurupa Mountains, and the Santa Ana River Wash north of State Route 60.		
Dipodomys stephensi **Stephens' kangaroo rat**	US: FT CA: ST	Found in plant communities transitional between grassland and coastal sage scrub, with perennial vegetation cover of less than 50%. Most commonly associated with *Artemisia tridentata*, *Eriogonum fasciculatum*, and *Erodium*. Requires well-drained soils with compaction characteristics suitable for burrow construction (neither sandy nor too hard). Not found in soils that are highly rocky or sandy, less than 20 inches deep, or heavily alkaline or clay, or in areas exceeding 25 percent slope. Occurs only in western Riverside County, northern San Diego County, and extreme southern San Bernardino County, below 915 meters (3,000 feet) in elevation. In northwestern Riverside County, known only from east of I-15. Reaches its northwest limit in south Norco, southeast Riverside, and in the Reche Canyon area of Riverside County and extreme southern San Bernardino County.	Year-round; nocturnal	**Not expected:** No suitable nesting habitat (communities transitional between grassland and coastal sage scrub) is present within the BSA.
Eumops perotis californicus **Western mastiff bat**	US: – CA: SSC	In California, most records are from rocky areas at low elevations and from buildings. Occurs in many open, semiarid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in vertical cliff faces, high buildings, trees, and tunnels throughout	Year-round; nocturnal	**Low**. Suitable foraging habitat (non-native grassland) is present within the BSA.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
		southwestern California. May roost in tall bridges. Has been documented in palms. This species regularly forages approximately 100–200 feet above the ground and has been estimated to forage at altitudes as high as 2,000 feet above the substrate. Likely forages considerable distances from roosting sites. The diet consists primarily of moths (Lepidoptera), but also includes beetles, crickets, and katydids. Nonmigratory; present year-round in southern California.		
Lasiurus xanthinus **Western yellow bat**	US: – CA: SSC	Found mostly in desert and desert riparian areas of the southwest US, but also expanding its range with the increased usage of native and non-native ornamental palms in landscaping. Individuals typically roost amid dead fronds of palms but have also been documented roosting in cottonwood trees. Forages over many habitats.	Year-round; nocturnal	**Low**. Suitable foraging habitat is present within the BSA.
Onychomys torridus ramona **Southern grasshopper mouse**	US: – CA: SSC	Believed to inhabit sandy or gravelly valley floor habitats with friable soils in open and semi-open scrub, including coastal sage scrub, mixed chaparral, low sagebrush, riparian scrub, and annual grassland with scattered shrubs, preferring low to moderate shrub cover. More susceptible to small- and large-scale habitat loss and fragmentation than most other rodents, due to its low fecundity, low population density, and large home range size. Arid portions of southwestern California and northwestern Baja California.	Nocturnal; active year-round	**Low:** Marginally suitable habitat (sandy valley floor) is present within the BSA.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Perognathus longimembris brevinasus **Los Angeles pocket mouse**	US: – CA: SSC	Prefers sandy soil for burrowing but has been found on gravel washes and stony soils. Found in coastal sage scrub in Los Angeles, Riverside, and San Bernardino Counties.	Nocturnal; active late spring to early fall	**Low:** Marginally suitable habitat (sandy soil) is present within the BSA.

US: Federal Classifications
– No applicable classification.
FE Taxa federally listed as Endangered.
FT Taxa federally listed as Threatened.
FPE Taxa federally listed as Proposed Endangered.
FPT Taxa federally listed as Proposed Threatened.

CA: State Classifications
– No applicable classification.
SE Taxa State listed as Endangered.
ST Taxa State listed as Threatened.
SPE Taxa State listed as Proposed Endangered.
SPT Taxa State listed as Proposed Threatened.
SFP Taxa State listed as fully protected.
SSC California Species of Special Concern. Refers to animals with vulnerable or seriously declining populations.
SCE Candidate for State-listing as Endangered.
SA Special Animal. Refers to any other animal monitored by the Natural Diversity Database, regardless of its legal or protection status.
1B California Rare Plant Rank 1B: Rare, threatened, or endangered in California and elsewhere.
2B California Rare Plant Rank 2B: Rare, threatened, or endangered in California, but more common elsewhere.
3 California Rare Plant Rank 3: A review list of plants about which more information is needed.
4 California Rare Plant Rank 4: A watch list of plants of limited distribution.

BSA = biological study area

APPENDIX C

GEOTECHNICAL STUDIES

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KRIEGER & STEWART
Engineering Consultants

TECHNICAL MEMORANDUM NO. 3

TO: FERMIN BALVANEDA
EASTERN MUNICIPAL WATER DISTRICT

FILE: 491-140.5.1

FROM: PHILIP E. STROM
SINISA SARIC
BRANDON C. VALADEZ
KRIEGER & STEWART, INCORPORATED

DATE: 10/1/2021

SUBJECT: MATTHEWS BOOSTER PUMPING STATION AND PIPELINE PROJECT
PIPELINE GEOTECHNICAL REPORT

This Technical Memorandum (TM) is provided to summarize the geotechnical requirements for the proposed Matthews Booster Pumping Station (BPS) Transmission Pipeline.

DRAFT

A. INTRODUCTION

The proposed Matthews BPS Transmission Pipeline consists of two segments connecting to the 1720L Longview PZ: a 30" diameter pipeline and 24" diameter pipeline. The 30" pipeline will begin at the Matthews BPS site and leave the site due east to Antelope Road. Once in Antelope Road, the 30" pipeline will turn and head north to Watson Road where the pipeline will turn and head east and connect to the 1720L PZ near the existing Watson BPS. The 24" pipeline will connect to the 30" pipeline at the intersection of Watson Road and Menifee Road and head north in Menifee Road to connect to the 1720L PZ near the existing Vista BPS. Both the 30" and 24" pipelines are shown on **Figure 1** attached.

Leighton Consulting, Inc. (Leighton) performed fourteen (14) exploratory borings to a maximum depth of 15' below ground surface (BGS) along the pipeline alignment at approximately 1,000' intervals (Borings LB-04 through LB-17). One (1) exploratory boring was performed at the proposed Matthews BPS site to a depth of 35' BGS (LB-01) and two (2) exploratory borings were performed for the proposed bore and jack for crossing the railroad and Highway 74 adjacent to the existing Romoland BPS (one (1) exploratory boring for the proposed bore and jack pit to a depth of 50' BGS (LB-02) and one (1) exploratory boring for the proposed receiving pit to a depth of 35' BGS (LB-03)). Approximate locations of the exploratory borings are shown on **Figure 1** attached.

B. SUMMARY OF GEOTECHNICAL EXPLORATION FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Leighton's Geotechnical Exploration Report (Report) is attached in **Appendix A**. The Report provides design criteria and recommendations for trench excavations, temporary shoring, pipe subgrade, pipe bedding, trench backfill, import soils, bearing capacity, earth pressures, soil parameters for pipe structural design, external pipe loads, and trenchless excavations (i.e. bore and jack). The Report also includes corrosivity data for use by the project corrosion engineer for preparing the corrosion analysis report. Based on their exploration and analysis, Leighton considers construction of the proposed pipeline feasible using standard construction techniques, except for a short segment of the alignment that is underlain by bedrock.

Groundwater was not encountered in any of the exploratory borings. Subsurface materials along the 30" pipeline alignment in Antelope Road and Watson Road, and along the 24" pipeline alignment in Menifee Road from Watson Road to Mapes Road, include artificial fill and dense alluvial deposits, which Leighton has classified as OSHA Soil Type C. Subsurface materials in Menifee Road north of Mapes Road is weathered granitic bedrock, which Leighton has classified as OSHA Soil Type B. Although bedrock was encountered north of Mapes Road, Leighton anticipates that the bedrock can be excavated with a Caterpillar 235 trackhoe or similar (e.g. 40-ton, 200 horsepower excavator) within the upper 10' BGS since the bedrock is "weathered". However, Leighton states that non-weathered core-stones should be anticipated within the upper 5' BGS, in which case rock-ripping, blasting, or other rock-reducing techniques may be required.

The proposed pipeline will be installed within existing paved roadways or outside existing roadways in dirt shoulders. As a minimum, existing pavement should be replaced in kind plus 1" additional thickness over 8" of aggregate base.

DRAFT

BCV/blt
REPORTS/491-140P5P1-TM3

cc: David Ahles, Eastern Municipal Water District

Attachments: Figure 1 - 30" and 24" Pipeline Alignments and Geotechnical Boring Locations
Appendix A - Leighton Geotechnical Exploration Report

FIGURE 1

30" AND 24" PIPELINE ALIGNMENTS AND GEOTECHNICAL BORING LOCATIONS

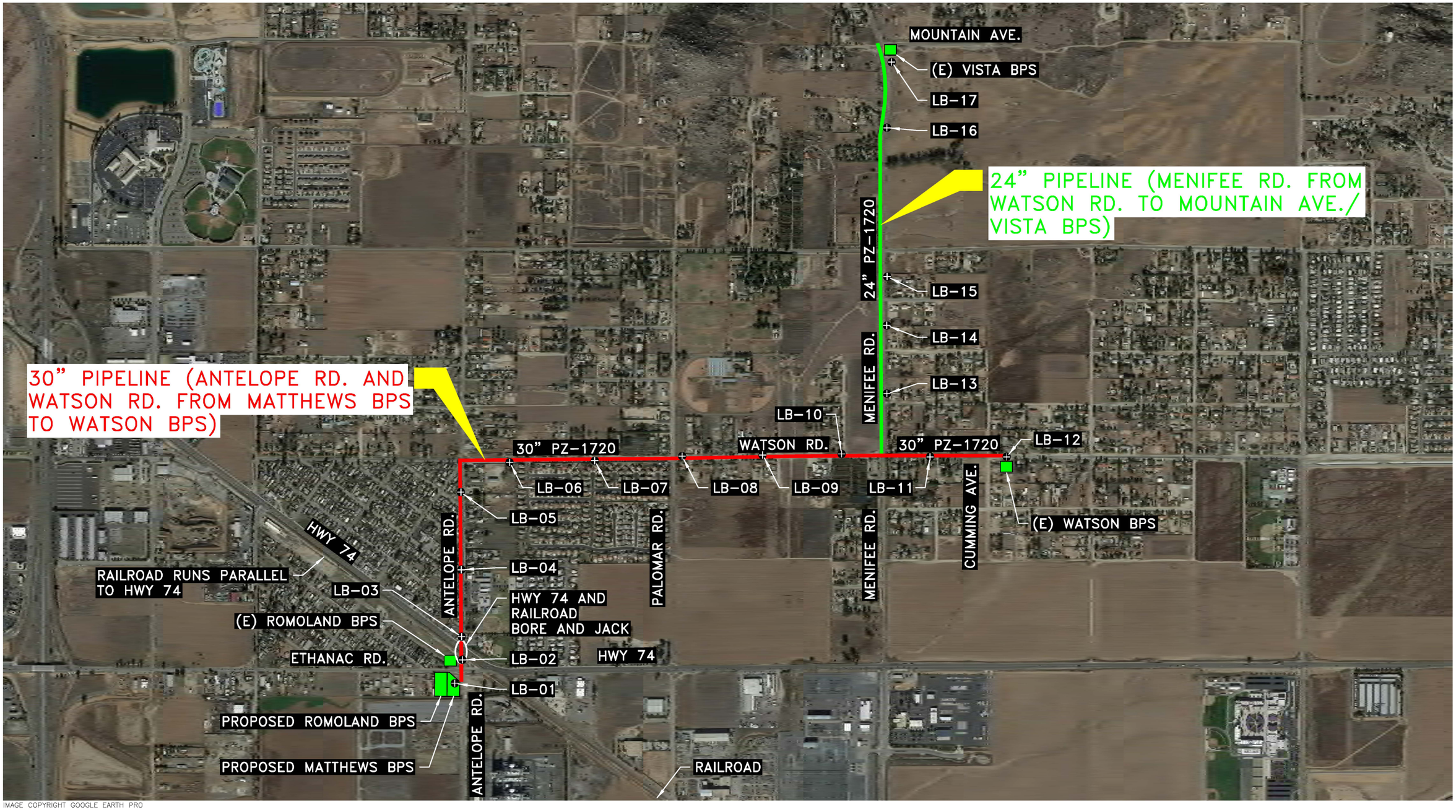

IMAGE COPYRIGHT GOOGLE EARTH PRO

LEGEND

- ⊕ LB-# GEOTECHNICAL BORING (APPROXIMATE LOCATION)

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

KRIEGER & STEWART Engineering Consultants
3602 University Avenue • Riverside, CA 92501
www.kriegerandstewart.com • 951 · 684 · 6900

EASTERN MUNICPAL WATER DISTRICT

MATTHEWS BOOSTER PUMP STATION TRANSMISSION PIPELINE

30" AND 24" PIPELINE ALIGNMENTS AND GEOTECHNICAL BORING LOCATIONS

FIGURE 1

SCALE: 1"=1,200' DATE: 10/01/21 DRAWN BY: SPK CHECKED BY: BCV W.O.: 491-140

491-140_F1.DWG

APPENDIX A

LEIGHTON GEOTECHNICAL EXPLORATION REPORT

GEOTECHNICAL EXPLORATION
MATTHEWS BOOSTER PUMP STATION AND PIPELINE PROJECT
EASTERN MUNICIPAL WATER DISTRICT (EMWD)
MENIFEE, RIVERSIDE COUNTY, CALIFORNIA

Prepared For

KRIEGER & STEWART, INC.
3602 UNIVERSITY AVENUE
RIVERSIDE, CALIFORNIA 92501

Prepared By

LEIGHTON CONSULTING, INC.
41715 ENTERPRISE CIRCLE N, SUITE 103
TEMECULA, CA 92590

Project Number 12847.001

Issue Date September 27, 2021

Leighton Consulting, Inc.
A Leighton Group Company

September 27, 2021
Project No. 12847.001

KRIEGER & STEWART, INC.
3602 University Avenue
Riverside, California 92501

Attention: Mr. Brandon C. Valadez, PE

Subject: Geotechnical Exploration
Matthews Booster Pump Station and Pipeline Project
Eastern Municipal Water District (EMWD)
Menifee, Riverside County, California

In accordance with your authorization, we performed a geotechnical exploration for the subject project. **This report presents our findings and provides our geotechnical recommendations for the design and construction of the proposed pipeline**. Based on the results of our exploration, the proposed pipeline alignment is underlain by dense alluvial deposits. Weathered granitic bedrock is expected within a shallow depth (<15 feet BGS) north of Mapes Road. The pipeline alignment is not located within any currently designated County or AP Earthquake Fault Zones. Groundwater was not encountered in any of our borings within the depth explored. From a geotechnical perspective, the constructability of the proposed pipeline is considered feasible provided the recommendations included in this report are implemented.

The opportunity to be of service is sincerely appreciated. If you should have any questions, please do not hesitate to call our office.

Respectfully submitted,

LEIGHTON CONSULTING, INC.

Simon I. Saiid, GE 2641
Principal Engineer
Ext. 8013 ssaiid@leightongroup.com

Robert F. Riha, CEG 1921
President/Senior Principal Geologist
Ext. 8914 rriha@leightongroup.com

Distribution: (1) Addressee (PDF copy via email)

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1.0 INTRODUCTION

1.1 Site/Alignment Description

The proposed pipeline is generally located within the Right-Of-Way's (ROW) of Antelope Road, Watson Road, and Menifee Road as depicted on Figure 1, *Site Location Map*. The surrounding areas along the proposed pipeline generally consist of residential homes and undeveloped land. The first segment of the pipeline alignment begins at the intersection of Antelope Road and Ethanac Road near the existing Booster Pump Station (BPS) and continues north approximately 2800 feet to the intersection of Antelope Road and Watson Road. The second segment then runs east along Watson Road for approximately 7000 feet to the Watson Booster Station located approximately 1600 feet east of Menifee Road. The third segment begins at the intersection of Menifee Road and Watson Road and extends north along Menifee Road for approximately 5300 feet to the intersection of Mountain Avenue. The overall topography along the alignment is relatively flat with very gentle slope up to the north and east.

1.2 Project Description

Based on information provided, we understand that EMWD is planning to install approximately 9,800 lineal feet (LF) of 30" water pipelines along the proposed alignment along Antelope Road and Watson Road, and approximately 5,300 LF of 24" pipe along Menifee Road. It is anticipated that this pipeline will be installed at approximately 5 to 7 feet below ground surface (BGS). We also expect a trenchless excavation method/jack-and-bore to be used for crossing Highway 74 and existing railroad tracks as well as for crossing Menifee Road at Watson Road.

1.3 Purpose and Scope of Exploration

The purpose of our exploration is to (1) evaluate geotechnical engineering characteristics of the earth materials along the proposed alignment, and (2) provide geotechnical recommendations for design and construction of the proposed project. As described in our proposal, the scope of our evaluation included the following tasks:

- Field Exploration: Our field exploration consisted of seventeen (17) hollow stem auger borings drilled along or as close as practical to the proposed alignment.
- Geotechnical Laboratory Tests: Geotechnical laboratory tests were performed on selected soil samples collected during our field exploration.

This laboratory-testing program was designed to evaluate general physical and engineering characteristics of soil along the proposed alignment.

- Engineering Analysis: Data obtained from our background review, field exploration, and geotechnical laboratory testing program was evaluated to develop geotechnical conclusions and recommendations for the proposed pipeline design and construction.
- Report Preparation: Results of this evaluation have been summarized in this report, presenting our findings, conclusions and geotechnical recommendations for the proposed pipeline.

This report does not address the potential for encountering hazardous materials along this alignment. Important information about limitations of geotechnical reports, in general, is presented in Appendix C.

1.4 Field Exploration

Our field exploration consisted of the excavation of seventeen (17) hollow stem auger borings in accessible areas within the ROWs of Antelope Road, Watson Road, and Menifee Road. Boring LB-1 was drilled within the new BPS site. Prior to drilling, we located and marked boring locations for coordination with Underground Service Alert. We also obtained encroachment permits from Riverside County and City of Menifee to drill within ROW of existing streets. Approximate locations of the borings are depicted on the Boring Location Map (*Figure 3*). The exploratory borings were excavated utilizing a truck-mounted, CME 75 drill rig using 8-inch hollow-stem flight augers. During the drilling operation, bulk and relatively undisturbed samples were obtained from the borings for laboratory testing and evaluation. Sampling of the borings was conducted by a staff engineer from our office. The collected samples were transported to our laboratory for testing. Borings were drilled in existing street shoulders, where feasible, to minimize impact on existing traffic and backfilled with native soils. The logs of borings are presented in Appendix A.

1.5 Laboratory Testing

Laboratory tests were performed on representative samples to provide a basis for development of geotechnical design parameters. Selected samples were also tested for soluble sulfate content and chloride, pH, and resistivity. The results of our laboratory testing are presented in Appendix B.

2.0 SUMMARY OF GEOTECHNICAL FINDINGS

A summary of our findings from research of pertinent literature, site-specific field exploration, geotechnical laboratory testing and engineering analysis, is discussed in this section.

2.1 Regional Geology

As shown on Figure 2, *Regional Geology Map*, the proposed pipeline alignment is underlain by Quaternary Alluvial Deposits (Qof) from LB-1 through LB-15, and weathered Cretaceous Tonalite bedrock (Klmt) north of LB-15. These conditions were confirmed in our exploratory borings.

2.2 Subsurface Conditions

The subsurface soils conditions along the proposed alignment vary depending on location and depth. Detailed descriptions of the earth materials encountered are provided in Appendix A.

2.2.1. Artificial Fill (Af)

Some of our borings encountered artificial fill as typical embankment fill associated with existing roadways. The fill generally consists of silty sand materials (SM) and is expected to be less than 2 feet in thickness. Where our borings penetrated existing asphalt, the measured thickness of asphaltic concrete and aggregate base layers are listed in Table 1 below.

Table 1. Existing Pavement Thickness

Boring #	Location (see Figure 4)	Approx. AC Thickness (Inch)	Approx. Aggregate Base Thickness (Inch)
LB-3	Antelope Road	3.5	No Base
LB-4	Antelope Road	8.0	No Base
LB-5	Antelope Road	5.0	No Base
LB-6	Watson Road	3.0	7.0
LB-7	Watson Road	5.0	8.0
LB-8	Watson Road	3.0	No Base
LB-9	Watson Road	4.0	No Base
LB-10	Watson Road	3.0	No Base

2.2.2. Quaternary Alluvium

Quaternary old alluvial materials were encountered beneath the artificial fill in all borings. This alluvium is generally dense to very dense and consist of

silty sand (SM) and sandy silt (ML) soils. The Sand Equivalent for these materials is expected to be less than 20. This alluvium possesses slight collapse potential (up to 2.5 percent).

2.2.3. Cretaceous Plutonic Bedrock – Tonalite (Klmt)

Tonalite bedrock was encountered in borings LB-16 and LB-17 at depths of 9 feet and 3.5 feet BGS, respectively. As encountered, the bedrock was highly weathered and generally excavated into well-graded sand with silt during our drilling operation.

2.3 Surface and Groundwater

No surface or groundwater was observed/encountered at the time of our field exploration along the proposed alignment. However, groundwater conditions can fluctuate seasonally and also be directly-impacted by other factors not observed at the time of our field explorations.

2.4 Faulting and Seismicity

The subject site, like the rest of Southern California, is located within a seismically active region as a result of being located near the active margin between the North American and Pacific tectonic plates. The principal source of seismic activity on this site is movement along the northwest-trending regional fault systems such as the San Andreas, San Jacinto, and Elsinore. Based on our review of published geologic map, the proposed alignment is not located within an Alquist-Priolo Earthquake Fault Zoning Act or County mapped fault zones.

2.5 Secondary Seismic Hazards

Secondary seismic hazards such as ground rupture, landsliding, liquefaction, and lateral spreading are discussed below.

2.5.1. Ground Rupture

As indicated above, the site is not located in any designated earthquake hazard zone per the Alquist Priolo Act or Riverside County Hazard Maps. Chance of ground rupture along the proposed alignment is considered low.

2.5.2. Dynamic Settlement / Liquefaction

Liquefaction of saturated cohesionless soils can be caused by strong ground motion resulting from earthquakes. Soil liquefaction is a phenomenon in which saturated, cohesionless soils lose their strength due to the build-up of excess pore water pressure during cyclic loading such as that induced by earthquakes. However, the proposed pipeline is generally planned to be

installed in dense older alluvium underlain by bedrock, which are not prone to liquefaction.

2.5.3. Lateral Spreading

Based on Section 2.5.2 above, lateral spreading is not considered a geologic hazard for this pipeline.

2.5.4. Landslides

Based on our site review and published geologic maps, no landslides were noted along the proposed alignment.

3.0 RECOMMENDATIONS

3.1 General

The proposed improvements appear feasible from a geotechnical viewpoint provided that the following recommendations are incorporated into the design and construction phases of development. Based on the results of this geotechnical exploration, the main geologic/geotechnical concerns that may affect the constructability cost the proposed pipeline are as follows:

- Trench excavation is likely to encounter shallow rock (upper 10 feet) in the northern portion of the pipeline (~north of Mapes Road). This granitic diorite bedrock will vary in weathering, hardness and density depending on depth and location.
- Transition subgrade from bedrock to alluvium is likely to occur along the northern portion of the alignment and potentially cause excessive differential settlement. In such case, we recommend that the rock side be over-excavated to a depth of at least 12 inches below trench subgrade for a distance of 30 feet and replaced by compacted class II aggregate base or properly compacted granular soils approved by the geotechnical consultant.

3.2 Earthwork Considerations

Earthwork associated with the proposed pipelines should be performed in accordance with applicable EMWD Specifications, “Standard Specifications for Public Works Construction” (Greenbook, latest edition) and the recommendations included in the text of this report.

3.2.1. General

Trench excavation should be performed in accordance with the project plans, specifications, and all applicable OSHA requirements. The contractor should be responsible for providing the "competent person" required by OSHA standards. Contractors should be advised that onsite sandy soils could make excavations particularly unsafe and hence necessary safety precautions should be taken at all times.

3.2.2. Excavation Characteristics

Based on the results of our exploratory borings, the encountered artificial fill and alluvium should generally be excavatable with conventional heavy duty earthmoving/excavation equipment in good working conditions. However, as discussed above, trench excavation is likely to encounter shallow rock (upper 10 feet) in the northern portion of the pipeline (~north of Mapes Road). Although no correlations are published for typical trench excavation

equipment based on resistance to an 8-inch auger drilling, it is our opinion that trenching using Cat 235 trackhoe (hydraulic excavator with rock bucket or similar) should generally be feasible within the upper 10 feet BGS. However, resistant or non-weathered core-stones should still be anticipated within shallower depth, especially in areas where bedrock is encountered within the upper 5 feet BGS. As such, very difficult ripping/trenching or possible blasting (or other rock reducing techniques) may be required at such locations.

3.2.3. Pipe Subgrade

Pipe subgrade soils are expected to generally consist of medium dense to dense silty sand. In order to reduce the potential for excessive differential settlement at transient subgrade (rock to alluvium on Menifee Road), we recommend that an over-excavation of at least 12 inches be performed for a distance of 30 feet (covering 15 feet on each side of the transition line) and replaced by compacted class II aggregate base or properly compacted granular soils approved by the geotechnical consultant.

Elsewhere, the alluvium materials at bottom of trench should be properly moisture-conditioned (>2% of optimum) and compacted to minimum of 90 percent relative compaction per ASTM D1557 or as required per District standard specifications. If loose soils are encountered or the subgrade become disturbed due to localized seepage or surface water, the contractor should over-excavate the disturbed or saturated soils to a maximum depth of 2 feet and replace with suitable materials to provide a stable trench bottom. Crushed rock (1-inch maximum size) may be used if found necessary to stabilize bottom of trench prior to placing bedding materials. Placement of filter fabric separation layer may be required due to the granular nature of onsite soils and to provide further stability of the subgrade soils. Any oversize particles larger than 3-inches in largest dimension within the subgrade or where the subgrade is exposing uneven rock surface, at least 6-inch bedding materials should be maintained above highest rock surface to provide uniform bedding/ seating support for the pipe.

3.2.4. Pipe Bedding

Prior to backfilling, pipes should be bedded in and covered with a uniform, granular material that has a Sand Equivalent (SE) of 30 or greater, and a gradation meeting requirements of the pipe manufacturer. Approved pipe bedding material may be mechanically compacted or water-densified in-place provided appropriate water evacuation is utilized. Most onsite soils are expected to be too silty to be considered for bedding material. A minimum cover of 12 inches of bedding material should be provided above the top of the pipe.

3.2.5. Trench Backfill

Native soils are generally considered suitable as backfill materials over the pipe bedding zone. These materials should be placed in thin lifts moisture conditioned (or dried back) as necessary, and mechanically compacted to a minimum of 90 percent relative compaction per ASTM D 1557 or as required per EMWD standard specifications. The actual lift thickness should depend on the compaction equipment used. For hand-directed mechanical equipment such as vibratory plates or tampers, the maximum lift thickness should not exceed 4 inches. The contractor should not use jetting to compact trench backfill unless approved by EMWD and the jetting procedures and soils requirements comply with the "GreenBook". Screening may be required along portions of the alignment if oversized materials (i.e. >3 inches) are generated during excavation.

3.2.6. Import Soils

Import soils and/or borrow sites, if needed, should be evaluated by Leighton prior to import. Import soils should be uncontaminated, granular in nature, free of organic material (loss on ignition less-than 2 percent), have very low expansion potential (or EI<21) and have a low corrosion impact to the proposed improvements.

3.3 Bearing Capacity and Earth Pressures

3.3.1. Bearing Capacity

A net allowable bearing capacity of 2,000 pounds-per-square-foot (psf), may be used for design of footings of appurtenant structures founded into a minimum of 2 feet of compacted fill or dense alluvium. A minimum base width of 18 inches for continuous footings and a minimum bearing area of 3 square feet (1.75 ft by 1.75 ft) for pad foundations should be used. This allowable bearing pressure may be increased by 250 psf for each additional foot of embedment and/or width, to a maximum vertical bearing value of 3,000 psf. A modulus of subgrade reaction of 200 pci may be used for design of mat and/or large pad foundations.

Additionally, an increase of one-third may be applied when considering short-term live loads (e.g. seismic and wind). Our recommended allowable bearing capacity is generally based on a total allowable, post construction settlement of 1 inch. Differential settlement is estimated at ½ inch over a horizontal distance of 40 feet. However, for a completely subterranean vault (without any above-grade structure), static settlement is expected to be negligible.

3.3.2. Earth Pressures

Lateral loads on thrust blocks and other appurtenant structures may be resisted by passive soil pressure and friction, in combination. An allowable

passive pressure based on an equivalent fluid pressure of 300 pounds-per-cubic-foot (pcf), not to exceed 3,500 pounds per square foot (psf) can be used if the pipe is embedded in the dense alluvium or granitic rock (minimum 2 feet embedment). This equivalent fluid pressure may be doubled for isolated thrust blocks. We have not applied a factor-of-safety to these values.

A modulus of soil reaction (E') of 1,000 psi can be used to estimate the stiffness of the soil bedding backfill at the sides and below buried flexible pipelines, if applicable, for the purpose of evaluating deflection caused by weight of the backfill over the pipe. An E' of 1,500 psi or higher can be used where pipeline is underlain by dense rock.

3.4 Pipeline Design

3.4.1. Soils Parameters

Structural design of pipes requires proper evaluation of possible loads acting on the pipe, including dead and live or transient loads. Stresses and strains induced on a buried pipe depend on many factors, including the type of pipe, depth and width of trench, bedding and embedment conditions, soil density, angle of internal friction, coefficient of passive earth pressure, and coefficient of friction at the interface between the backfill and in-situ soils. We recommend the following soil parameters for the proposed pipe design:

Table 2. Soil Parameters for Pipe Design

Soil Parameters	Recommended Values
Average Compacted fill moist unit weight, (pcf)	120 to 130
Angle of internal friction of soils (degrees)	30 to 36
Soil cohesion, c (psf)	100
Sliding friction between PVC pipe and native soils	0.20
Sliding friction between cement mortar coated pipe and native soils	0.4
Coefficient of friction between backfill and native soils	0.45

3.4.2. External Loads on Flexible Pipe by Soil

Structural design of pipes requires proper evaluation of possible loads acting on the pipe, including dead and live or transient loads. Stresses and strains induced on a buried flexible pipe depend on many factors. The magnitude of the load supported depends on the amount of backfill, type of soil, and pipe stiffness. The approximate dead load per unit length can be calculated from the following formula:

$$W = C\,\gamma\,B\,D$$

Where,

W	External soil load on pipe: (pounds per foot of pipe)
C	Unitless load coefficient (C = 1.5 for 6 feet deep trench, and 2.0 for 10 feet or deeper trench, assuming a trench width of 3 to 6 feet just above the pipe)
γ	Total unit weight of soil above pipe (pounds-per-cubic-foot)
B	Width of the trench (width just above top of the pipe, in feet)
D	Pipe diameter (feet)

In addition to the load from backfill (above equation), loads due to embankments (if applicable) and other loads (live loads) should be considered.

3.5 Asphalt Paving

The upper 8 inches of trench backfill and aggregate base materials should be compacted to 95-percent of the ASTM D1557 laboratory maximum dry density or as required by City or County Standards. New pavement should at least match existing pavement section or be designed based on actual R-value testing and appropriate Traffic Index (TI).

3.6 Corrosivity Evaluation

Soils samples were collected from six borings spaced approximately equidistant along the alignments (LB-1, LB-4, LB-7, LB-10, LB-14, and LB-17). Sulfate ions in the soil can lower soil resistivity and can be highly aggressive to Portland cement concrete by combining chemically with certain constituents of the concrete, principally tricalcium aluminate. This reaction is accompanied by expansion and eventual disruption of the concrete matrix. Potentially high sulfate content could also cause corrosion of the reinforcing steel in concrete. Table 5 below summarizes current standards for concrete exposed to sulfate-containing solutions.

Table 3. Sulfate Concentration and Sulfate Exposure

Sulfate In Water (parts-per-million)	Water-Soluble Sulfate (SO_4) in soil (percentage by weight)	Sulfate Exposure
0-150	0.00 - 0.10	Negligible
150-1,500	0.10 - 0.20	Moderate (Seawater)
1,500-10,000	0.20 - 2.00	Severe
>10,000	Over 2.00	Very Severe

The results indicate that the water soluble sulfate is less than 0.1 percent by weight, which is considered negligible. Based upon the test results, Type II cement or an equivalent may be used.

Many factors can affect corrosion potential of soil including soil moisture content, resistivity, permeability and pH, as well as chloride and sulfate concentration. In general, soil resistivity, which is a measure of how easily electrical current flows through soils, is the most influential factor. Based on the findings of studies presented in ASTM STP 1013 titled "Effects of Soil Characteristics on Corrosion" (February, 1989), the approximate relationship between soil resistivity and soil corrosiveness was developed as shown in Table 6 below.

Table 4. Relationship between Soil Resistivity and Soil Corrosivity

Soil Resistivity (ohm-cm)	Classification of Soil Corrosiveness
0 to 900	Very Severely Corrosive
900 to 2,300	Severely Corrosive
2,300 to 5,000	Moderately Corrosive
5,000 to 10,000	Mildly Corrosive
10,000 to >100,000	Very Mildly Corrosive

Acidity is an important factor of soil corrosivity. The lower the pH (the more acidic the environment), the higher the soil corrosivity will be with respect to buried metallic structures and utilities. As soil pH increases above 7 (the neutral value), the soil is increasingly more alkaline and less corrosive to buried steel structures, due to protective surface films, which form on steel in high pH environments. The pH of site soils on representative samples vary from 7.7 to 9.7 which is generally considered less active from a corrosion standpoint. Chloride and sulfate ion concentrations, and pH appear to play secondary roles in affecting corrosion potential. High chloride levels tend to reduce soil resistivity and break down otherwise protective surface deposits, which can result in corrosion of buried steel or reinforced concrete structures.

Based on minimum resistivity laboratory test results as summarized in Table 7 below, the onsite soil is considered severely or moderately corrosive. Ferrous pipe can be protected by polyethylene bags, tape or coatings, di-electric fittings, concrete encasement or other means to separate the pipe from wet onsite soils. We understand that further testing and/or soil corrosivity evaluation is being performed by others and specific recommendations for corrosion protection is provided by the corrosion engineer.

Table 5. Corrosion Sample Results

Boring #	Sample Depth (ft)	Sulfate Content (ppm)	Chloride Content (ppm)	pH	Minimum Resistivity (ohm-cm)
LB-01	5.0	185	60	7.7	2,000
LB-04	1.0	165	40	9.7	2,800
LB-07	5.0	177	40	8.0	2,300
LB-10	5.0	165	60	7.8	2,100
LB-14	5.0	136	40	7.7	2,300
LB-17	1.0	103	40	8.0	2,000

3.7 Temporary Slopes/Excavations

The contractor is responsible for all temporary slopes and trenches excavated at the site and the design of any required temporary shoring. Shoring, bracing and benching should be performed by the contractor in accordance with the current edition of the *California Construction Safety Orders*, see:

http://www.dir.ca.gov/title8/sb4a6.html

During construction, exposed earth material conditions should be regularly evaluated to verify that conditions are as anticipated. The contractor is responsible for providing the "competent person" required by OSHA standards to evaluate soil conditions. Close coordination between the competent person and geotechnical consultant should be maintained to facilitate construction while providing safe excavations. Existing artificial fill and alluvial soils encountered (south of Mapes Road) are classified as OSHA soil Type C. Therefore, unshored temporary cut slopes should be no steeper than 1½:1 (horizontal:vertical), for a height no-greater-than (≤) 20 feet (*California Construction Safety Orders*, Appendix B to Section 1541.1, Table B-1). Encountered granitic rock (north of Mapes Road) may be classified as OSHA soil Type B. Therefore, unshored temporary cut slopes should be no steeper than 1:1, for a height no-greater-than (≤) 20 feet. These recommended temporary cut slopes assume a level ground surface for a distance equal to one-and-a-half (x1.5) the depth of excavation. For steeper temporary slopes, deeper excavations, and/or where slopes terrain exists within close proximity to excavation (<1.5xdepth), appropriate shoring methods or flatter slopes may be required to protect the workers in the excavation and adjacent improvements. Such methods should be implemented by the contractor and approved by the geotechnical consultant.

3.8 Temporary Shoring

3.8.1. Trench Excavation

If the sloped open cut excavation is not feasible based on requirements above and due to existing structures, excavations for the proposed pipeline should be supported by a temporary shoring system such as cross-braced hydraulic shoring, conventional shields, sheet piles, soldier piles and wood lagging. The choice should be left to the contractor's judgment since economic considerations and/or the individual contractor's construction experience may determine which method is more economical and/or appropriate. However, the contractor and shoring designer should also consider the presence of groundwater and perform additional geotechnical studies as necessary to select the proper method.

The support of all adjacent existing structures during excavation and construction (including pavements) without distress is the contractor's responsibility. In addition, it should be the contractor's responsibility to undertake a pre-construction survey with benchmarks and photographs of the adjacent properties. Shoring systems should be designed by a California licensed civil or structural engineer. As preliminary design guidelines, we present the following geotechnical parameters for shoring design. The following lateral earth pressures are recommended for temporary shoring supporting encountered alignment soils with level ground behind the shoring. Passive pressure also may be used to compute lateral soil resistance, if necessary, for sheet piles. Earth pressures provided are ultimate values and a safety factor should be applied as appropriate.

Table 6. Static Lateral Earth Pressures

Conditions[1]	Static Equivalent Fluid Weight (pcf)
Active (cantilever)	35
At-Rest (braced)	55
Passive[2]	300

1. For temporary excavations only, with level backfill, not including surcharges
2. Passive equivalent fluid pressure may be doubled for isolated soldier piles spaced at least 2½ diameters on-center. Passive resistance should not exceed 3,000 pounds-per-square-foot (psf)

Determination of appropriate design conditions (active or at-rest) depends on shoring flexibility. If a rotation of more than 0.001 radian (0.06 degrees) is allowed, active pressure conditions apply; otherwise, at-rest condition governs. Surcharge loads (dead or live) should be added to the indicated lateral earth pressures and should be applied uniformly, if such loads are within a horizontal distance that is less-than the exposed shoring height. The corresponding lateral earth pressure will approximately be 33-percent of the vertical surcharge for active conditions, and 50-percent for at-rest conditions. Surcharge pressures from concentrated loads should be evaluated after geometric constraints and loading conditions are determined on individual basis.

4.0 CONSTRUCTION CONSIDERATIONS

4.1 Pre-excavation Survey and Settlement Monitoring

A very important geotechnical concern is to avoid damaging any existing improvements adjacent to excavations. It is recommended that the contractor provide settlement monitoring and contingency plans when excavating near existing settlement-sensitive structures or underground utilities.

4.2 Dewatering during Open Trench Excavation

If encountered during trench excavation, groundwater control, such as dewatering, will be required to limit instability of the pipeline trench and aid in foundation construction and soil backfill. Dewatering or any other suitable method for stabilizing excavation bottom may be selected by the contractor based on actual groundwater conditions encountered and based on the contractor's chosen means-and-methods of construction. The selected method by the contractor should be able to effectively mitigate for bottom heave or stabilize subgrade soils during construction/backfilling. However, deep groundwater drawdown should be avoided, to reduce the potential for damaging adjacent structures, if applicable. Dewatering flow/volume will vary significantly based on the specific geologic conditions described in our report and actual depth and geometry of excavated trench or pit. Contractors should be responsible for estimating dewatering quantities and verify subsurface conditions prior to construction.

4.3 Trenchless Excavation/Shafts

This construction method is presumably feasible from a geotechnical perspective, within encountered alluvial soils. However, the contractor should (1) review our findings to confirm that the selected excavation technique is feasible, and (2) perform additional studies as deemed necessary to evaluate such technique and the effect of groundwater seepage / saturated sand. If applicable, passive earth pressure developed at the jacking reaction block may provide support during pipe jacking operations. The ultimate resistance for design of jacking reaction block(s) may be assumed to be 300 pcf at level undisturbed alluvium, which can be doubled for isolated thrust vectors. However, some deformation will occur, and thrusting could result in heave and damage to overlying structures in the direction of the thrust vector.

4.4 Additional Geotechnical Services

Recommendations are based on information available at the time our report was prepared and may change as plans are developed, or if supplemental subsurface exploration is authorized. Leighton Consulting, Inc. should review site plans, when available, and comment further on geotechnical aspects of the project. Geotechnical observation and testing should be conducted during excavation and all phases of grading. Geotechnical conclusions and preliminary recommendations should be reviewed and verified by us (Leighton Consulting, Inc.) during construction, and revised accordingly if geotechnical conditions encountered vary from our findings and interpretations. Geotechnical observation and testing should be provided:

- During over-excavation of unsuitable soil,
- During compaction of all fill materials,
- During trench backfilling and compaction,
- During pavement subgrade and base and/or sub-base preparation, and
- When any unusual conditions are encountered.

5.0 LIMITATIONS

This report was necessarily based in part upon data obtained from a limited number of observances, site visits, soil samples, tests, analyses, histories of occurrences, spaced subsurface explorations and limited information on historical events and observations. Such information is necessarily incomplete. The nature of many sites is such that differing characteristics can be experienced within small distances and under various climatic conditions. Changes in subsurface conditions can and do occur over time. This exploration was performed with the understanding that the project as described in Section 1.2 of this report.

This report was prepared for Krieger & Stewart, Inc. based on Krieger & Stewart, Inc.'s needs, directions, and requirements at the time of our investigation. This report is not authorized for use by, and is not to be relied upon by any party except Krieger & Stewart, Inc., and its successors and assigns as owner of the property, with whom Leighton Consulting, Inc. has contracted for the work. Use of or reliance on this report by any other party is at that party's risk. Unauthorized use of or reliance on this report constitutes an agreement to defend and indemnify Leighton Consulting, Inc. from and against any liability which may arise as a result of such use or reliance, regardless of any fault, negligence, or strict liability of Leighton Consulting, Inc.

The client is referred to Appendix C regarding important information provided by the Geoprofessional Business Association (GBA) on geotechnical engineering studies and report and their applicability.

REFERENCES

ASCE, 2016, ASCE Standard 7-16, Minimum Design Loads for Buildings and Other Structures by Structural Engineering Institute

California Building Code (CBC), 2019, "*California Code of Regulations*," Title 24, Part 2, Vol. 2.

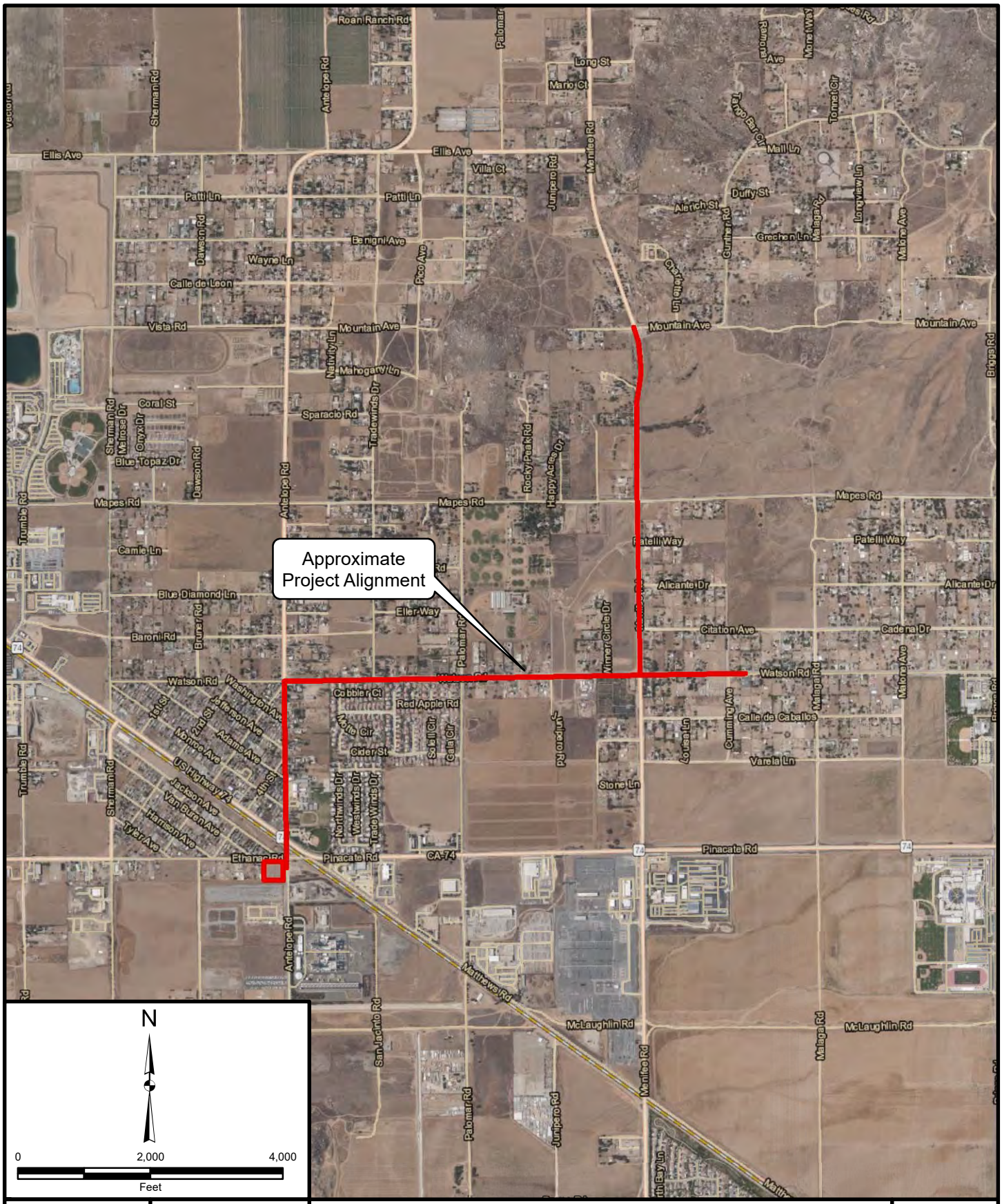
Morton, Douglas M., 1996, Geologic Map of the Romoland 7.5' Quadrangle, Riverside County, California, Version 1.0, prepared in cooperation with California Geological Survey (CGS)

Dibblee, Thomas W. Jr., 2003, Geologic Map of the Perris Quadrangle, Riverside County Southern California, Santa Barbara Museum of Natural History, Dibblee Geology Center Map #DF-112

Hart, E.W., Bryant, W.A., 2007, Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Zones Maps, Department of Conservation, California Geological Survey, Special Publication 42, 2007 Interim Revision.

Public Works Standard, Inc., 2021, Greenbook, *Standard Specifications for Public Works Construction*: BNI Building News, Anaheim, California.

Riverside County, 2021, Map My County, Website: https:\\gis.countyofriverside.us.



Project: 12847.001	Eng/Geol: SIS/RFR
Scale:1 " = 2,000 '	Date: August 2021
Base Map: ESRI ArcGIS Online 2021 Author: Leighton Geomatics (btran)	

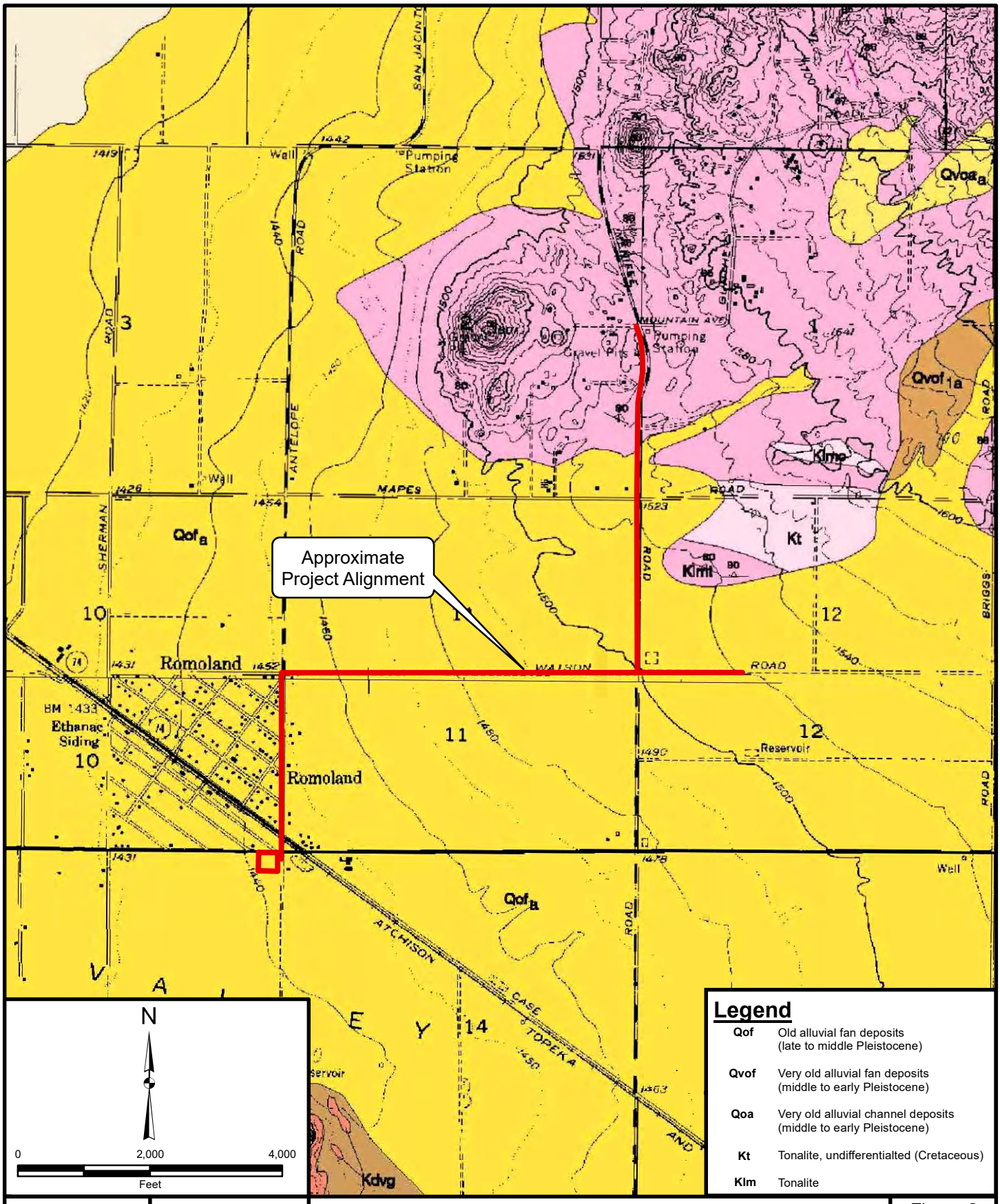
SITE LOCATION MAP

Eastern Municipal Water District - Matthew's Booster Pump Station and Pipeline Project

Figure 1

Leighton

Map Saved as V:\Drafting\12847\001\Maps\12847-001_F01_SLM_2021-07-22.mxd on 7/22/2021 3:25:11 PM



Legend

Qof	Old alluvial fan deposits (late to middle Pleistocene)
Qvof	Very old alluvial fan deposits (middle to early Pleistocene)
Qoa	Very old alluvial channel deposits (middle to early Pleistocene)
Kt	Tonalite, undifferentialted (Cretaceous)
Klm	Tonalite

Project: 12847.001	Eng/Geol: SIS/RFR
Scale:1 " = 2,000 '	Date: August 2021

Base Map: Geologic Map of The Perris and Romoland Quadrangles, Riverside County, California by Douglas M. Morton 1991, 1995 and 1996

Author: Leighton Geomatics (btran)

REGIONAL GEOLOGY MAP

Eastern Municipal Water District - Matthew's Booster Pump Station and Pipeline Project

Figure 2

Leighton

Map Saved as V:\Drafting\12847\001\Maps\12847-001_F02_RGM_2021-07-22.mxd on 7/22/2021 10:45:19 AM

Legend

- Approximate Location of Geotechnical Boring
- 24" Pipeline Alignment
- 30" Pipeline Alignment
- BPS Sites (Matthews East & Romoland West)

LB-17 TD 15'
LB-16 TD 15'
LB-15 TD 15'
LB-14 TD 15'
LB-13 TD 15'
LB-12 TD 15'
LB-11 TD 15'
LB-10 TD 15'
LB-09 TD 15'
LB-08 TD 15'
LB-07 TD 15'
LB-06 TD 15'
LB-05 TD 15'
LB-04 TD 15'
LB-03 TD 50'
LB-02 TD 35'
LB-01 TD 35'

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
© 2021 Microsoft Corporation © 2021 Maxar ©CNES (2021) Distribution Airbus DS

N

0 400 800
Feet

BORING LOCATION MAP

Eastern Municipal Water District - Matthew's Booster Pump Station and Pipeline Project

Project: 12847.001	Eng/Geol: SIS/RFR
Scale: 1 " = 400 feet	Date: August 2021
Base Map: ESRI ArcGIS Online 2021 Thematic Information: Leighton	Author: Leighton Geomatics (btran)

Figure 3

Leighton

Map Saved as V:\Drafting\12847\001\Maps\12847-001_F03_BLM_2021-07-22.mxd on 7/22/2021 8:50:58 AM

APPENDIX A

Field Exploration / Logs or Exploratory Borings

Our field exploration consisted of a site reconnaissance and a subsurface exploration program consisting of hollow-stem auger soil borings. Approximate locations of the borings are depicted on the Boring Location Map (*Figure 3*). Encountered soils were continuously logged in the field by our representative and described in accordance with the Unified Soil Classification System (ASTM D 2488). Logs of these subsurface explorations, as well as a key to the classification of the soil, are included as part of this appendix.

Relatively undisturbed soil samples were obtained at selected intervals within the borings using a California ring sampler, with 2.42-inch inside diameter brass rings, driven into the soil with a 140-pound hammer free falling 30-inches in general accordance with ASTM Test Method D3550. The numbers of blows required for each 6 inches of drive penetration were noted in the field and are recorded on the boring logs. Unless otherwise indicated, the blows per foot recorded on the boring logs represent the number of blows required to drive 18 inches in 6 inch increments. In addition, disturbed bag (or bulk) samples were also obtained from soil cuttings. Types of samples obtained from each location are shown on the boring logs at corresponding depths. Our borings were backfilled with soil cuttings obtained during the drilling. Representative earth-material samples obtained from these subsurface explorations were transported to our Temecula geotechnical laboratory for evaluation and appropriate testing.

The attached subsurface exploration logs and related information depict subsurface conditions only at the locations indicated and at the particular date designated on the logs. Subsurface conditions at other locations may differ from conditions occurring at these locations. The passage of time may result in altered subsurface conditions due to environmental changes. In addition, any stratification lines on the logs represent the approximate boundary between soil types and the transition may be gradual.

GEOTECHNICAL BORING LOG LB-01

Project No.	12847.001	**Date Drilled**	6-21-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1445'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0							SM	Sandy SILT, medium dense, pale brown, moist, fine sand **Quaternary Alluvium (Qal)** Silty SAND, very dense, brown to strong brown, moist, fine sand	
	5			R1 B1	50/5"	102	10		Silty SAND, very dense, brown to strong brown, moist, fine sand	CR
	10			S1	15 18 24		13.6		SILTY SAND, medium dense, strong brown, moist, fine sand, 45% FINES	-200
	15			R2	20 50/6"				SILTY SAND, medium dense, strong brown, moist, fine sand, phi =31 degrees, cohesion = 125 psf (ultimate values)	DS
	20			S2	7 13 22			ML	Sandy SILT, medium dense, strong brown, moist, fine sand	
	25			R3	6 16 23	74	28		Sandy SILT, medium dense, strong brown, moist, fine sand	
	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

Leighton

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LB-01

Project No.	12847.001	**Date Drilled**	6-21-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1445'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	30			S3	14 15 23				Sandy SILT, medium dense, brown, moist, fine sand	
	35			R4	23 50/3"				Sandy SILT, very dense, brown, moist, fine sand	
									Boring Terminated at 35 Feet 9 Inches No Groundwater Encountered Boring Backfilled with Cuttings	
	40									
	45									
	50									
	55									
	60									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
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- RV R VALUE
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- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

Leighton

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LB-02

Project No.	12847.001	**Date Drilled**	6-21-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1450'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0								Sandy SILT, medium dense, pale brown, moist, fine sand	
				B1				SM	**Quaternary Alluvium (Qal)** Silty SAND, dense, strong brown, moist, fine sand, 28% FINES, 68% SAND, 4% GRAVEL, ATTERBERG LIMIT: NON-PLASTIC	AL, SA
	5			R1	50/6"	116	6		Silty SAND, very dense, strong brown, moist, fine sand	
	10			S1	31 50/6"				Silty SAND, very dense, brown, coarse sand, note: very difficult drilling	
	15			R2	29 42 50/5"			ML	Sandy SILT, very dense, reddish brown, moist, fine sand, note: sample disturbed, rings broken during sampling	
	20			S2	14 24 29				Sandy SILT, dense, strong brown, moist, fine sand, 52% FINES, 48% SAND, 0% GRAVEL	SA
	25			R3	24 50/6"	92	25		Sandy SILT, very dense, strong brown, moist, fine sand	
	30									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
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- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG LB-02

Project No.	12847.001	**Date Drilled**	6-21-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1450'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	30			S3	9 14 32			ML	SILT, dense, yellow to gray, moist	
	35			R4	20 50/4"			SM	Silty SAND, very dense, brown, moist	
									Boring Terminated at 35 Feet 10 Inches No Groundwater Encountered Boring Backfilled with Cuttings	
	40									
	45									
	50									
	55									
	60									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
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- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
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GEOTECHNICAL BORING LOG LB-03

Project No.	12847.001	**Date Drilled**	6-14-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1450'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
	0								3.5 inch AC over No Base	
								SM	**Quaternary Alluvium (Qal)**	
				R1	27 50/3"				Silty SAND with Gravel, medium dense, brown, moist, fine sand	
	5			R2 B1	40 50/4"	124	7		Silty SAND, very dense, strong brown to reddish brown, moist, fine sand, 36% FINES, 62% SAND, 2% GRAVEL	SA
	10			R3	50/5"				Silty SAND, very dense, strong brown to reddish brown, moist, fine sand	
	15			R4	25 50/5"				Silty SAND, very dense, strong brown to reddish brown, moist, fine sand	
	20			S1	18 28 30				Silty SAND, very dense, brown to light brown, moist, fine sand	
	25			R5	25 50/4"	97	17	ML	Sandy SILT, hard, reddish brown, moist, fine sand	
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG LB-03

Project No.	12847.001	**Date Drilled**	6-14-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1450'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	30			S2	15 25 30				Sandy SILT, hard, reddish brown, moist, fine sand, 49% FINES	-200
	35			R6	7 17 35				Sandy SILT, hard, reddish brown, moist, fine sand	
	40			S3	13 21 34				Sandy SILT, hard, strong brown, moist, fine sand	
	45			R7	19 34 50/4"				Sandy SILT, hard, reddish brown, moist, fine sand	
	50			S4	25 50/4"				Sandy SILT with Gravel, hard, reddish brown to light brown, moist, fine sand	
									Boring Terminated at 50 Feet 9 Inches No Groundwater Encountered Boring Backfilled with Cuttings and Topped with Cold-Patch Asphalt	
	55									
	60									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG LB-04

Project No.	12847.001	**Date Drilled**	6-14-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1455'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0								8 inch AC over No Base	
				B1					**Quaternary Alluvium (Qal)**	CR
				R1	10 15 17	128	8	SM	Silty SAND, medium dense, brown, moist, fine sand	
	5			R2	38 50/3"	124	9		Silty SAND, very dense, strong brown to reddish brown, moist, fine sand	
	10			R3	30 50/4"				Silty SAND, very dense, strong brown to reddish brown, moist, fine sand	
	15			R4	50/6"				Silty SAND, very dense, strong brown to reddish brown, moist, fine sand	
									Boring Terminated at 15 Feet 6 Inches No Groundwater Encountered Boring Backfilled with Cuttings and Topped with Cold-Patch Asphalt	
	20									
	25									
	30									

SAMPLE TYPES:

B	BULK SAMPLE
C	CORE SAMPLE
G	GRAB SAMPLE
R	RING SAMPLE
S	SPLIT SPOON SAMPLE
T	TUBE SAMPLE

TYPE OF TESTS:

-200	% FINES PASSING	DS	DIRECT SHEAR	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	EI	EXPANSION INDEX	SE	SAND EQUIVALENT
CN	CONSOLIDATION	H	HYDROMETER	SG	SPECIFIC GRAVITY
CO	COLLAPSE	MD	MAXIMUM DENSITY	UC	UNCONFINED COMPRESSIVE STRENGTH
CR	CORROSION	PP	POCKET PENETROMETER		
CU	UNDRAINED TRIAXIAL	RV	R VALUE		

Leighton

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GEOTECHNICAL BORING LOG LB-05

Project No.	12847.001	**Date Drilled**	6-14-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1455'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0								5 inch AC over No Base	
									Quaternary Alluvium (Qal)	
				R1	11 18 22	132	7	SM	Silty SAND, medium dense, brown to yellowish brown, moist, fine sand	
	5			R2	11 13 17				Silty SAND, medium dense, brown to yellowish brown, moist, fine sand, Collapse = 0.9%	CO
				B1						
	10			R3	50/5"				Silty SAND, very dense, strong brown to reddish brown, moist, fine sand	
	15			R4	21 50/6"				Silty SAND, very dense, reddish brown, moist, fine sand	
									Boring Terminated at 16 Feet 0 Inches No Groundwater Encountered Boring Backfilled with Cuttings and Topped with Cold-Patch Asphalt	
	20									
	25									
	30									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

Leighton

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GEOTECHNICAL BORING LOG LB-06

Project No.	12847.001	**Date Drilled**	6-14-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1465'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
	0								3 inches AC over 7 inches Base	
									Quaternary Alluvium (Qal)	
				R1	4 6 7	117	8	SM	Silty SAND, loose, brown, moist	
	5			R2	12 13 14	123	11		Silty SAND, medium dense, brown, moist	
	10			R3	9 16 28				Silty SAND, medium dense, yellowish brown to yellowish brown	
									Silty SAND, very dense, light yellowish brown, moist, coarse sand	
	15			R4	50/5"					
									Boring Terminated at 15 Feet 5 Inches No Groundwater Encountered Boring Backfilled with Cuttings and Topped with Cold-Patch Asphalt	
	20									
	25									
	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

Leighton

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LB-07

Project No.	12847.001	**Date Drilled**	6-14-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1475'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
	0								5 inch AC over 8 inch Base	
									Quaternary Alluvium (Qal)	
				R1	6 11 14	123	9	SM	Silty SAND, medium dense, brown, moist	
	5			R2 B1	9 12 18	123	12		Silty SAND, medium dense, brown to strong brown, moist, Maximum Density = 135.7 pcf at Moisture = 7.5%, Sand Equivalent = 12	MD, CR, SE
	10			R3	18 35 50/5"				Silty SAND, very dense, brown to strong brown, moist	
	15			R4	15 35 50/3"				Silty SAND, very dense, brown to strong brown, moist	
									Boring Terminated at 16 Feet 3 Inches No Groundwater Encountered Boring Backfilled with Cuttings and Topped with Cold-Patch Asphalt	
	20									
	25									
	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

Leighton

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GEOTECHNICAL BORING LOG LB-08

Project No.	12847.001	**Date Drilled**	6-14-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1485'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
	0								3 inches AC over No Base	
				B1					**Quaternary Alluvium (Qal)**	
				R1	15 19 20	129	9	SM	Silty SAND, medium dense, brown, moist	
	5			R2	15 17 20				Silty SAND, medium dense, brown, moist	
									Silty SAND, very dense, reddish brown, moist	
	10			R3	24 50/6"	130	9			
	15			R4	50/6"				Silty SAND, very dense, reddish brown, moist	
									Boring Terminated at 15 Feet 6 Inches No Groundwater Encountered Boring Backfilled with Cuttings and Topped with Cold-Patch Asphalt	
	20									
	25									
	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

Leighton

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GEOTECHNICAL BORING LOG LB-09

Project No.	12847.001	**Date Drilled**	6-14-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1495'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
	0								4 inch AC over No Base	
									Quaternary Alluvium (Qal)	
				R1	15 15 10	124	8	SM	Silty SAND, medium dense, brown, moist, fine sand	
	5			R2	7 12 10				Silty SAND, medium dense, brown, moist, fine sand, Collapse = 2.8%	CO
	10			R3	21 50/4"				Silty SAND, very dense, strong brown to reddish brown, moist, fine sand	
	15			R4	8 12 18				Silty SAND, medium dense, reddish brown, moist, fine sand	
									Boring Terminated at 16 Feet 6 Inches No Groundwater Encountered Boring Backfilled with Cuttings and Topped with Cold-Patch Asphalt	
	20									
	25									
	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

Leighton

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GEOTECHNICAL BORING LOG LB-10

Project No.	12847.001	**Date Drilled**	6-21-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1505'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
	0								3 inch AC over No Base	
									Quaternary Alluvium (Qal)	
				R1	12 14 16			SM	Silty SAND, medium dense, brown, moist, fine sand	
	5			R2 B1	7 14 18	123	7		Silty SAND, medium dense, brown, moist, fine sand	CR
	10			R3	20 29 40	123	11		Silty SAND, dense, strong brown, moist, fine sand	
	15			R4	11 17 25				Silty SAND with Gravel, medium dense, strong brown, moist, fine sand	
									Boring Terminated at 16 Feet 6 Inches No Groundwater Encountered Boring Backfilled with Cuttings and Topped with Cold-Patch Asphalt	
	20									
	25									
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

Leighton

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GEOTECHNICAL BORING LOG LB-11

Project No.	12847.001	**Date Drilled**	6-21-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1515'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0								Silty SAND, medium dense, pale brown, moist, fine sand	
									Quaternary Alluvium (Qal)	
				R1	17 18 36	121	4	SM	Silty SAND, dense, strong brown to reddish brown, moist, fine sand	
	5			R2	27 50/6"				Silty SAND, dense, strong brown to reddish brown, moist, fine sand	
	10			R3	15 22 25	120	3		Silty SAND with Gravel, medium dense, reddish brown, moist, fine sand	
	15			R4	25 50/6"				Silty SAND with Gravel, dense, reddish brown, moist, fine sand	
									Boring Terminated at 16 Feet 0 Inches No Groundwater Encountered Boring Backfilled with Cuttings	
	20									
	25									
	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

Leighton

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GEOTECHNICAL BORING LOG LB-12

Project No.	12847.001	**Date Drilled**	6-21-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1525'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0								Silty SAND, medium dense, pale brown, moist, fine sand	
									Quaternary Alluvium (Qal)	
				R1	15 16 13	128	4	SM	Silty SAND, dense, brown, moist, fine sand	
	5			R2 B1	9 13 20	125	5		Silty SAND, dense, brown, moist, fine sand	
	10			R3	17 16 29				Silty SAND, medium dense, brown to strong brown, moist, fine sand, Collapse = 0.69%	CO
	15			R4	50/6"			SP-SM	Poorly-graded SAND with Silt, very dense, brown, moist, coarse sand	
									Boring Terminated at 15 Feet 6 Inches No Groundwater Encountered Boring Backfilled with Cuttings	
	20									
	25									
	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

Leighton

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GEOTECHNICAL BORING LOG LB-13

Project No.	12847.001	**Date Drilled**	6-21-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1510'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0								Sandy SILT, stiff, pale brown, dry, fine sand	
									Quaternary Alluvium (Qal)	
				R1	9 17 27	118	5	SM	Silty SAND, medium dense, strong brown, moist, fine sand	
	5			R2	15 27 38	125	7		Silty SAND, dense, strong brown, moist, fine sand	
	10			R3	23 33 50/4"				SILTY SAND with trace clay, very dense, grayish brown to gray, moist, 18% FINES	-200
	15			R4	15 50/6"	124	13		SILTY SAND with trace clay, very dense, grayish brown to gray, moist	
									Boring Terminated at 16 Feet 0 Inches No Groundwater Encountered Boring Backfilled with Cuttings	
	20									
	25									
	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

Leighton

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GEOTECHNICAL BORING LOG LB-14

Project No.	12847.001	**Date Drilled**	6-21-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1520'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
	0								Sandy SILT, stiff, pale brown, dry, fine sand	
									Quaternary Alluvium (Qal)	
				R1	16 37 50/4"	129	6	SM	Silty SAND, dense, brown to strong brown, moist, fine sand	
	5			R2 B1	50/6"				Silty SAND, dense, strong brown, moist, fine sand, 36% FINES, 63% SAND, 1% GRAVEL; Sand Equivalent = 15	CR, SE, SA
	10			R3	24 38 38	120	6		Silty SAND, very dense, strong brown, moist	
	15			R4	14 50/5"			GP	Quartz Rock Fragments Recovered as: Poorly-graded Gravel, very dense, white, dry	
									Boring Terminated at 15 Feet 11 Inches No Groundwater Encountered Boring Backfilled with Cuttings	
	20									
	25									
	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

Leighton

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GEOTECHNICAL BORING LOG LB-15

Project No.	12847.001	**Date Drilled**	6-21-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1530'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0								Sandy SILT, stiff, pale brown, dry, fine sand	
									Quaternary Alluvium (Qal)	
				R1	11 10 9	121	6	SM	Silty SAND, medium dense, brown, moist, fine sand	
	5			R2	4 12 32	127	10		Silty SAND, dense, reddish brown to strong brown, fine sand	
	10			R3	12 22 33				Silty SAND with Gravel, dense, reddish brown, moist	
	15			R4	23 28 50/6"				Silty SAND with Gravel, very dense, reddish brown, moist, (less silt, almost SP-SM)	
									Boring Terminated at 16 Feet 6 Inches No Groundwater Encountered Boring Backfilled with Cuttings	
	20									
	25									
	30									

The Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

Leighton

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LB-16

Project No.	12847.001	**Date Drilled**	6-21-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1545'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0								**Quaternary Alluvium (Qal)** Silty SAND, medium dense, pale brown to brown, moist	
				R1	10 8 6	116	8	SM	Silty SAND, loose, brown, moist	
	5			R2	5 7 7	118	6		Silty SAND, loose, brown to yellowish brown, moist, Collapse = 2.27%	CO
	10			R3	40 50/3"				**Weathered Quartz Diorite (qdh)** Recovered as: Silty SAND, very dense, brown to yellowish brown, moist	
	15			R4	50/5"	139	4		Silty SAND, very dense, brown to yellowish brown, moist	
									Boring Terminated at 15 Feet 5 Inches No Groundwater Encountered Boring Backfilled with Cuttings	
	20									
	25									
	30									

SAMPLE TYPES:

B	BULK SAMPLE
C	CORE SAMPLE
G	GRAB SAMPLE
R	RING SAMPLE
S	SPLIT SPOON SAMPLE
T	TUBE SAMPLE

TYPE OF TESTS:

-200	% FINES PASSING	DS	DIRECT SHEAR	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	EI	EXPANSION INDEX	SE	SAND EQUIVALENT
CN	CONSOLIDATION	H	HYDROMETER	SG	SPECIFIC GRAVITY
CO	COLLAPSE	MD	MAXIMUM DENSITY	UC	UNCONFINED COMPRESSIVE STRENGTH
CR	CORROSION	PP	POCKET PENETROMETER		
CU	UNDRAINED TRIAXIAL	RV	R VALUE		

Leighton

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GEOTECHNICAL BORING LOG LB-17

Project No.	12847.001	**Date Drilled**	6-21-21
Project	EMWD Matthews	**Logged By**	DP
Drilling Co.	2R Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~1555'
Location	See Boring Location Map	**Sampled By**	DP

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0								**Quaternary Alluvium (Qa)**	
				R1	15 40	123	10	SM	Silty SAND, medium dense, pale brown to brown, moist	
					50				**Weathered Quartz Diorite (qdh)** Recovered as:	
	5			R2 B1	39 50/4"				Silty SAND, very dense, gray to yellowish brown, moist, 19% FINES, 75% SAND, 6% GRAVEL	CR, SA
	10			R3	15 26 50/4"	118	4		Silty SAND, very dense, gray to yellowish brown, moist	
	15			R4	25 30 34				Silty SAND, very dense, gray to yellowish brown, moist	
									Boring Terminated at 16 Feet 5 Inches No Groundwater Encountered Boring Backfilled with Cuttings	
	20									
	25									
	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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APPENDIX B

Results of Laboratory Testing

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PARTICLE-SIZE DISTRIBUTION (GRADATION) of SOILS USING SIEVE ANALYSIS

ASTM D 6913

Project Name:	EMWD Matthews BPS & Pipeline	Tested By:	MRV	Date:	06/30/21
Project No.:	12847.001	Checked By:	MRV	Date:	07/14/21
Boring No.:	LB-2	Depth (feet):	0.0		
Sample No.:	B-1				
Soil Identification:	Silty Sand (SM), Brown.				

		Moisture Content of Total Air - Dry Soil	
Container No.:	LB	Wt. of Air-Dry Soil + Cont. (g)	647.3
Wt. of Air-Dried Soil + Cont.(g)	647.3	Wt. of Dry Soil + Cont. (g)	627.6
Wt. of Container (g)	278.1	Wt. of Container No._____ (g)	278.1
Dry Wt. of Soil (g)	349.5	Moisture Content (%)	5.6

After Wet Sieve	Container No.	LB
	Wt. of Dry Soil + Container (g)	536.5
	Wt. of Container (g)	278.1
	Dry Wt. of Soil Retained on # 200 Sieve (g)	258.4

U. S. Sieve Size (in.)	U. S. Sieve Size (mm.)	Cumulative Weight Dry Soil Retained (g)	Percent Passing (%)
3"	75.000		100.0
1"	25.000		100.0
3/4"	19.000		100.0
1/2"	12.500	0.0	100.0
3/8"	9.500	4.6	98.7
#4	4.750	12.5	96.4
#8	2.360	23.5	93.3
#16	1.180	65.2	81.3
#30	0.600	110.0	68.5
#50	0.300	165.1	52.8
#100	0.150	214.9	38.5
#200	0.075	251.3	28.1
PAN			

GRAVEL:	**4 %**		
SAND:	**68 %**		
FINES:	**28 %**		
GROUP SYMBOL:	**SM**	Cu = D60/D10 =	N/A
		Cc = $(D30)^2/(D60*D10)$ =	N/A

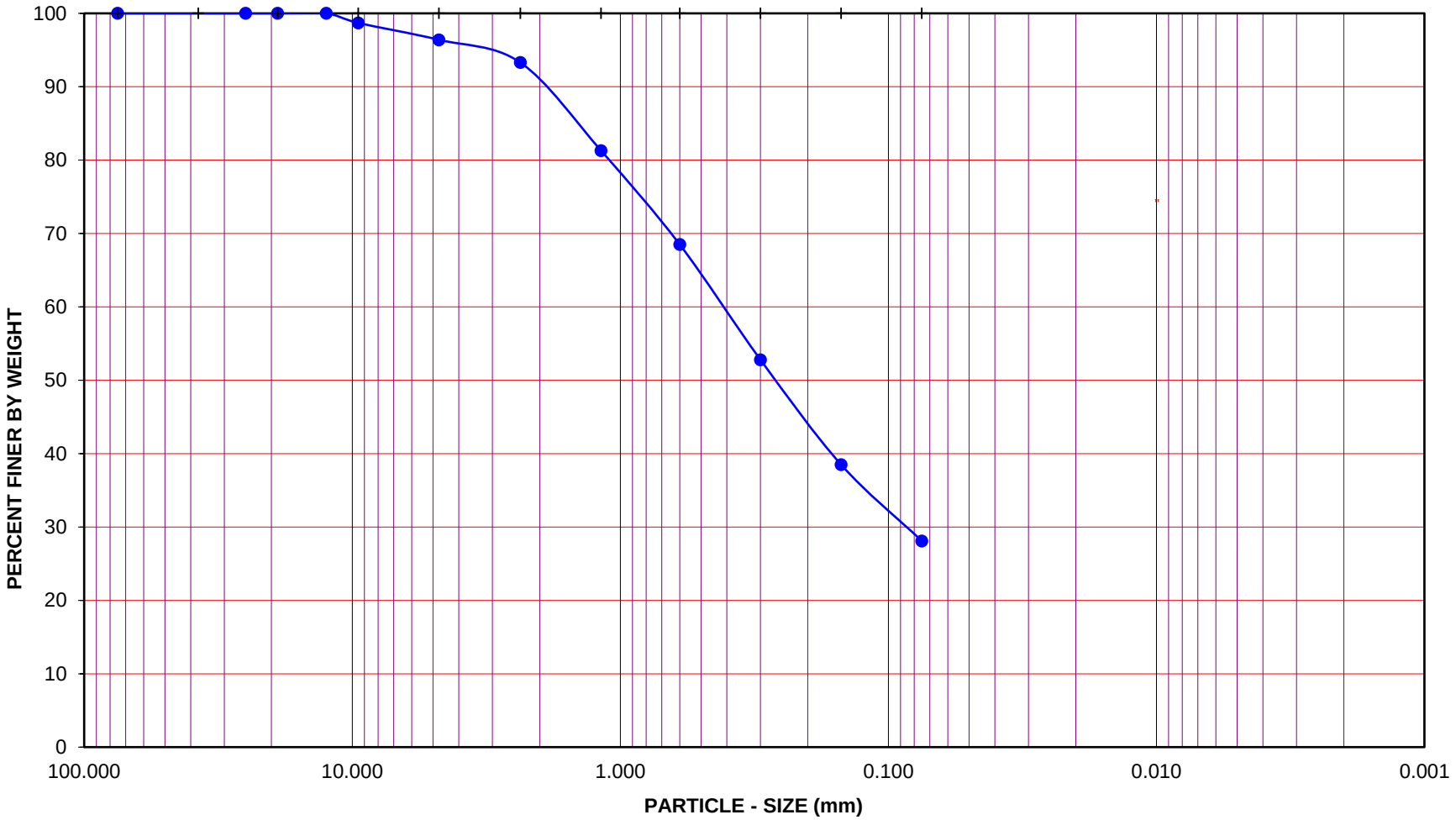
Remarks:

GRAVEL		SAND			FINES	
COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

U.S. STANDARD SIEVE OPENING: 3.0" 1 1/2" 3/4" 3/8"

U.S. STANDARD SIEVE NUMBER: #4 #8 #16 #30 #50 #100 #200

HYDROMETER



Project Name: EMWD Matthews BPS & Pipeline

Project No.: 12847.001

Boring No.: LB-2 Sample No.: B-1

Depth (feet): 0.0 Soil Type : SM

Soil Identification: Silty Sand (SM), Brown.

GR:SA:FI : (%) 4 : 68 : 28

Leighton

PARTICLE - SIZE DISTRIBUTION ASTM D 6913

Jul-21

Leighton

PARTICLE-SIZE DISTRIBUTION (GRADATION) of SOILS USING SIEVE ANALYSIS

ASTM D 6913

Project Name:	EMWD Matthews BPS & Pipeline	Tested By:	MRV	Date:	06/30/21
Project No.:	12847.001	Checked By:	MRV	Date:	07/14/21
Boring No.:	LB-2	Depth (feet):	20.0		
Sample No.:	S-2				
Soil Identification:	Sandy Silt s(ML), Brown.				

		Moisture Content of Total Air - Dry Soil	
Container No.:	W	Wt. of Air-Dry Soil + Cont. (g)	638.5
Wt. of Air-Dried Soil + Cont.(g)	638.5	Wt. of Dry Soil + Cont. (g)	583.4
Wt. of Container (g)	279.5	Wt. of Container No._____ (g)	279.4
Dry Wt. of Soil (g)	304.0	Moisture Content (%)	18.1

After Wet Sieve	Container No.	W
	Wt. of Dry Soil + Container (g)	443.0
	Wt. of Container (g)	279.4
	Dry Wt. of Soil Retained on # 200 Sieve (g)	163.6

U. S. Sieve Size (in.)	U. S. Sieve Size (mm.)	Cumulative Weight Dry Soil Retained (g)	Percent Passing (%)
3"	75.000		100.0
1"	25.000		100.0
3/4"	19.000		100.0
1/2"	12.500		100.0
3/8"	9.500		100.0
#4	4.750	0.0	100.0
#8	2.360	0.7	99.8
#16	1.180	3.6	98.8
#30	0.600	9.5	96.9
#50	0.300	24.2	92.0
#100	0.150	69.1	77.3
#200	0.075	144.6	52.43
PAN			

GRAVEL: **0 %**

SAND: **48 %**

FINES: **52 %**

GROUP SYMBOL: **s(ML)**

Cu = D60/D10 = N/A

Cc = $(D30)^2/(D60*D10)$ = N/A

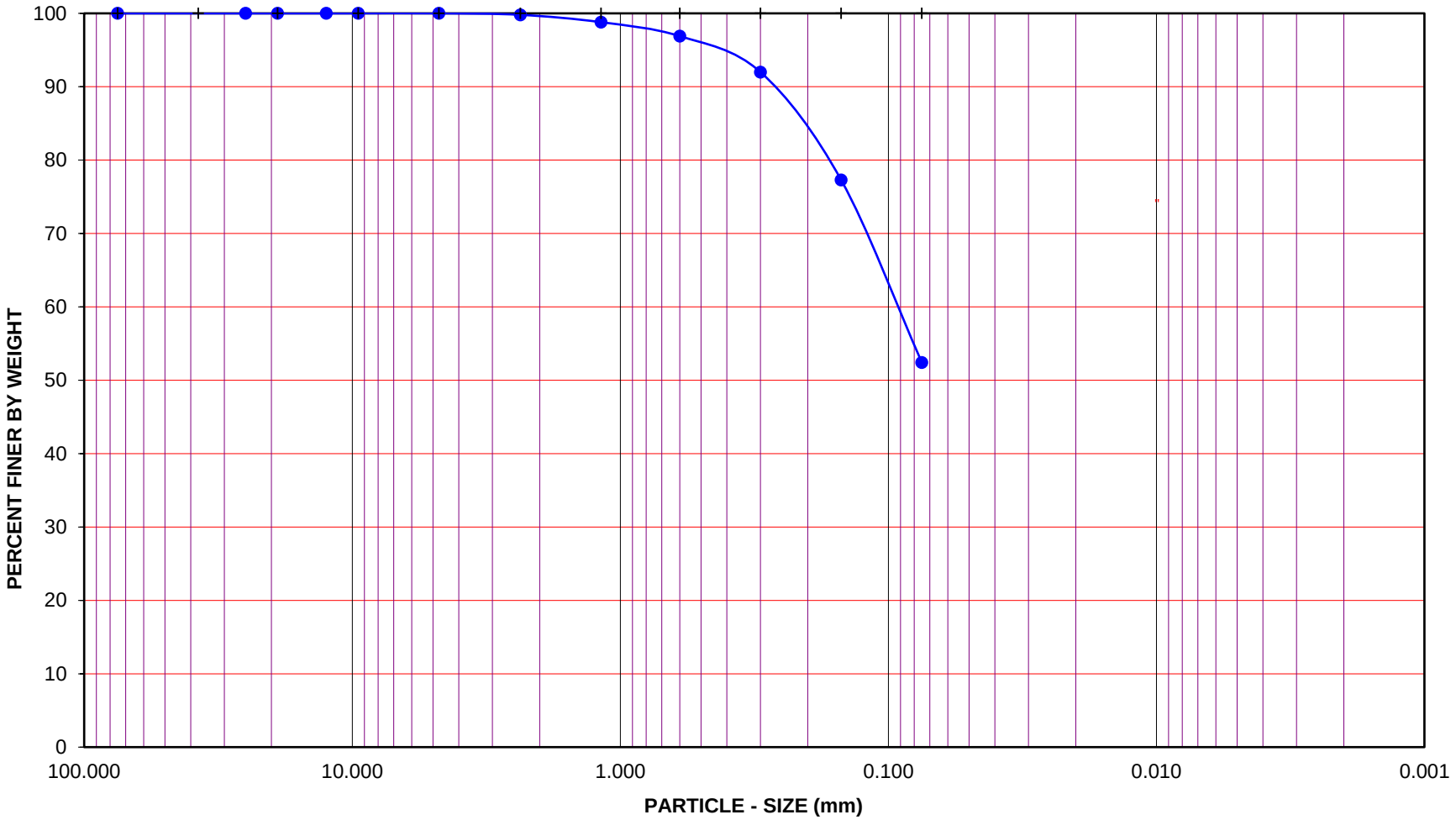
Remarks:

GRAVEL		SAND			FINES	
COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

U.S. STANDARD SIEVE OPENING: 3.0" 1 1/2" 3/4" 3/8"

U.S. STANDARD SIEVE NUMBER: #4 #8 #16 #30 #50 #100 #200

HYDROMETER



Project Name: EMWD Matthews BPS & Pipeline

Project No.: 12847.001

Boring No.: LB-2 Sample No.: S-2

Depth (feet): 20.0 Soil Type : s(ML)

Soil Identification: Sandy Silt s(ML), Brown.

GR:SA:FI : (%) 0 : 48 : 52

Leighton

PARTICLE - SIZE DISTRIBUTION ASTM D 6913

Jul-21

Leighton

PARTICLE-SIZE DISTRIBUTION (GRADATION) of SOILS USING SIEVE ANALYSIS

ASTM D 6913

Project Name:	EMWD Matthews BPS & Pipeline	Tested By:	MRV	Date:	06/30/21
Project No.:	12847.001	Checked By:	MRV	Date:	07/14/21
Boring No.:	LB-3	Depth (feet):	5.0		
Sample No.:	B-1				
Soil Identification:	Silty Sand (SM), Reddish Brown.				

		Moisture Content of Total Air - Dry Soil	
Container No.:	86	Wt. of Air-Dry Soil + Cont. (g)	639.0
Wt. of Air-Dried Soil + Cont.(g)	639.0	Wt. of Dry Soil + Cont. (g)	614.9
Wt. of Container (g)	278.0	Wt. of Container No._____ (g)	278.0
Dry Wt. of Soil (g)	336.9	Moisture Content (%)	7.2

After Wet Sieve	Container No.	86
	Wt. of Dry Soil + Container (g)	53.5
	Wt. of Container (g)	278.0
	Dry Wt. of Soil Retained on # 200 Sieve (g)	-224.5

U. S. Sieve Size (in.)	U. S. Sieve Size (mm.)	Cumulative Weight Dry Soil Retained (g)	Percent Passing (%)
3"	75.000		100.0
1"	25.000		100.0
3/4"	19.000		100.0
1/2"	12.500		100.0
3/8"	9.500	0.0	100.0
#4	4.750	5.6	98.3
#8	2.360	22.2	93.4
#16	1.180	62.0	81.6
#30	0.600	100.4	70.2
#50	0.300	142.4	57.7
#100	0.150	182.4	45.9
#200	0.075	217.4	35.5
PAN			

GRAVEL: **2 %**

SAND: **62 %**

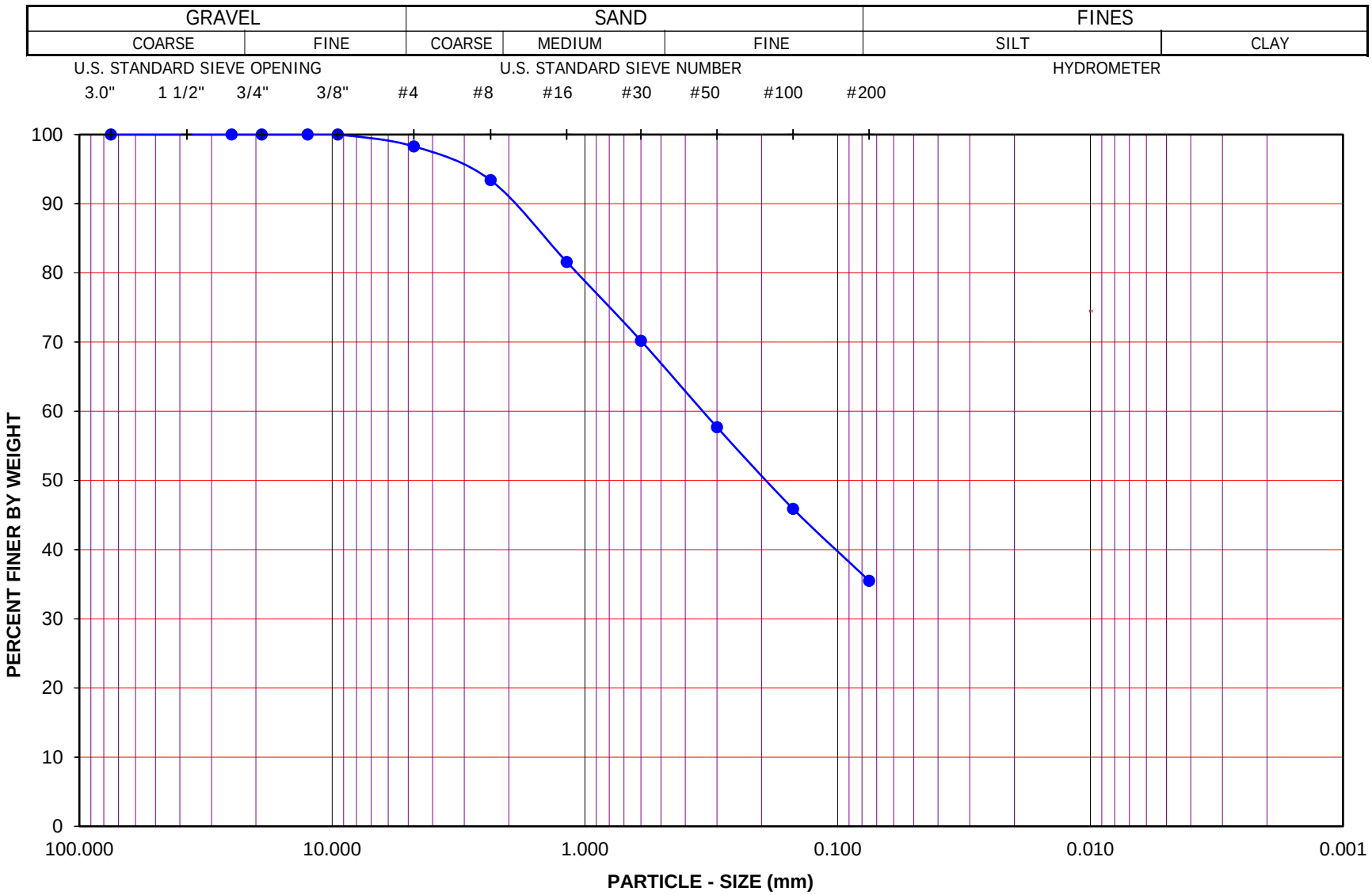
FINES: **36 %**

GROUP SYMBOL: **SM**

Cu = D60/D10 = N/A

Cc = $(D30)^2/(D60*D10)$ = N/A

Remarks:



Project Name: EMWD Matthews BPS & Pipeline

Project No.: 12847.001

Boring No.: LB-3 Sample No.: B-1

Depth (feet): 5.0 Soil Type : SM

Soil Identification: Silty Sand (SM), Reddish Brown.

GR:SA:FI : (%) 2 : 62 : 36

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PARTICLE - SIZE DISTRIBUTION ASTM D 6913

Jul-21

Leighton

PARTICLE-SIZE DISTRIBUTION (GRADATION) of SOILS USING SIEVE ANALYSIS

ASTM D 6913

Project Name:	EMWD Matthews BPS & Pipeline	Tested By:	MRV	Date:	07/12/21
Project No.:	12847.001	Checked By:	MRV	Date:	07/12/21
Boring No.:	LB-14	Depth (feet):	5.0		
Sample No.:	B-1				
Soil Identification:	Silty Sand (SM), Brown.				

		Moisture Content of Total Air - Dry Soil	
Container No.:	AC	Wt. of Air-Dry Soil + Cont. (g)	620.7
Wt. of Air-Dried Soil + Cont.(g)	620.7	Wt. of Dry Soil + Cont. (g)	601.6
Wt. of Container (g)	278.9	Wt. of Container No._____ (g)	278.9
Dry Wt. of Soil (g)	322.7	Moisture Content (%)	5.9

After Wet Sieve	Container No.	AC
	Wt. of Dry Soil + Container (g)	493.3
	Wt. of Container (g)	278.9
	Dry Wt. of Soil Retained on # 200 Sieve (g)	214.4

U. S. Sieve Size (in.)	U. S. Sieve Size (mm.)	Cumulative Weight Dry Soil Retained (g)	Percent Passing (%)
3"	75.000		100.0
1"	25.000		100.0
3/4"	19.000		100.0
1/2"	12.500		100.0
3/8"	9.500	0.0	100.0
#4	4.750	2.5	99.2
#8	2.360	12.9	96.0
#16	1.180	43.5	86.5
#30	0.600	80.5	75.1
#50	0.300	127.4	60.5
#100	0.150	171.2	46.9
#200	0.075	205.6	36.3
PAN			

GRAVEL: **1 %**

SAND: **63 %**

FINES: **36 %**

GROUP SYMBOL: **SM**

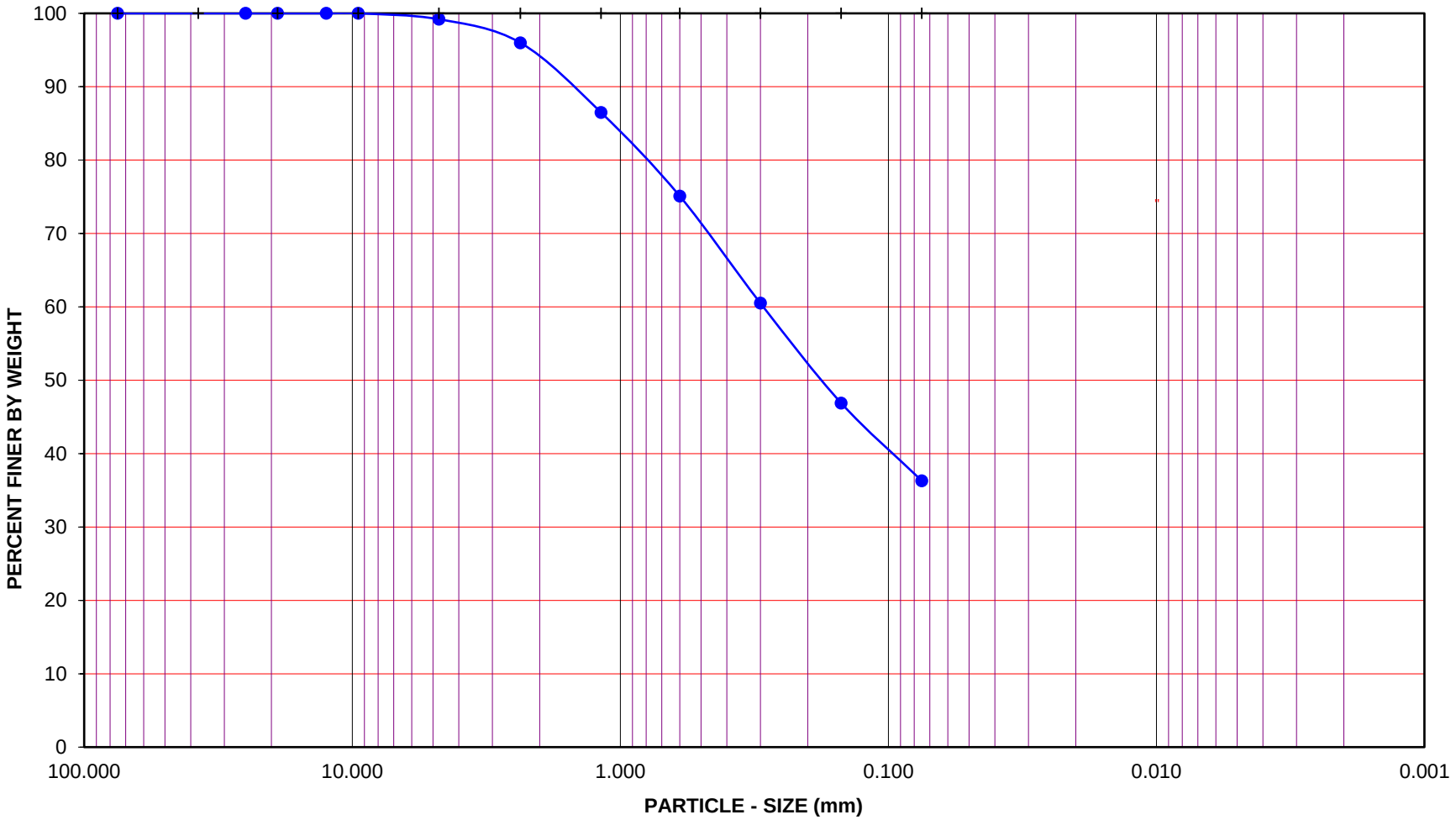
Cu = D60/D10 = N/A

Cc = $(D30)^2/(D60*D10)$ = N/A

Remarks:

GRAVEL		SAND			FINES	
COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

U.S. STANDARD SIEVE OPENING: 3.0" 1 1/2" 3/4" 3/8"
U.S. STANDARD SIEVE NUMBER: #4 #8 #16 #30 #50 #100 #200
HYDROMETER



Project Name: EMWD Matthews BPS & Pipeline

Project No.: 12847.001

Boring No.: LB-14 Sample No.: B-1

Depth (feet): 5.0 Soil Type : SM

Soil Identification: Silty Sand (SM), Brown.

GR:SA:FI : (%) 1 : 63 : 36

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PARTICLE - SIZE DISTRIBUTION ASTM D 6913

Jul-21

Leighton

PARTICLE-SIZE DISTRIBUTION (GRADATION) of SOILS USING SIEVE ANALYSIS

ASTM D 6913

Project Name:	EMWD Matthews BPS & Pipeline	Tested By:	MRV	Date:	07/12/21
Project No.:	12847.001	Checked By:	MRV	Date:	07/14/21
Boring No.:	LB-17	Depth (feet):	5.0		
Sample No.:	B-1				
Soil Identification:	Silty Sand (SM), Grayish Brown.				

		Moisture Content of Total Air - Dry Soil	
Container No.:	BL	Wt. of Air-Dry Soil + Cont. (g)	645.0
Wt. of Air-Dried Soil + Cont.(g)	645.0	Wt. of Dry Soil + Cont. (g)	622.1
Wt. of Container (g)	278.3	Wt. of Container No._____ (g)	278.3
Dry Wt. of Soil (g)	343.8	Moisture Content (%)	6.7

After Wet Sieve	Container No.	BL
	Wt. of Dry Soil + Container (g)	561.9
	Wt. of Container (g)	278.3
	Dry Wt. of Soil Retained on # 200 Sieve (g)	283.6

U. S. Sieve Size (in.)	U. S. Sieve Size (mm.)	Cumulative Weight Dry Soil Retained (g)	Percent Passing (%)
3"	75.000		100.0
1"	25.000		100.0
3/4"	19.000		100.0
1/2"	12.500	0.0	100.0
3/8"	9.500	5.2	98.5
#4	4.750	20.4	94.1
#8	2.360	73.1	78.7
#16	1.180	117.1	65.9
#30	0.600	163.7	52.4
#50	0.300	216.9	36.9
#100	0.150	249.4	27.5
#200	0.075	280.1	18.5
PAN			

GRAVEL: **6 %**

SAND: **75 %**

FINES: **19 %**

GROUP SYMBOL: **SM**

Cu = D60/D10 = N/A

Cc = $(D30)^2/(D60*D10)$ = N/A

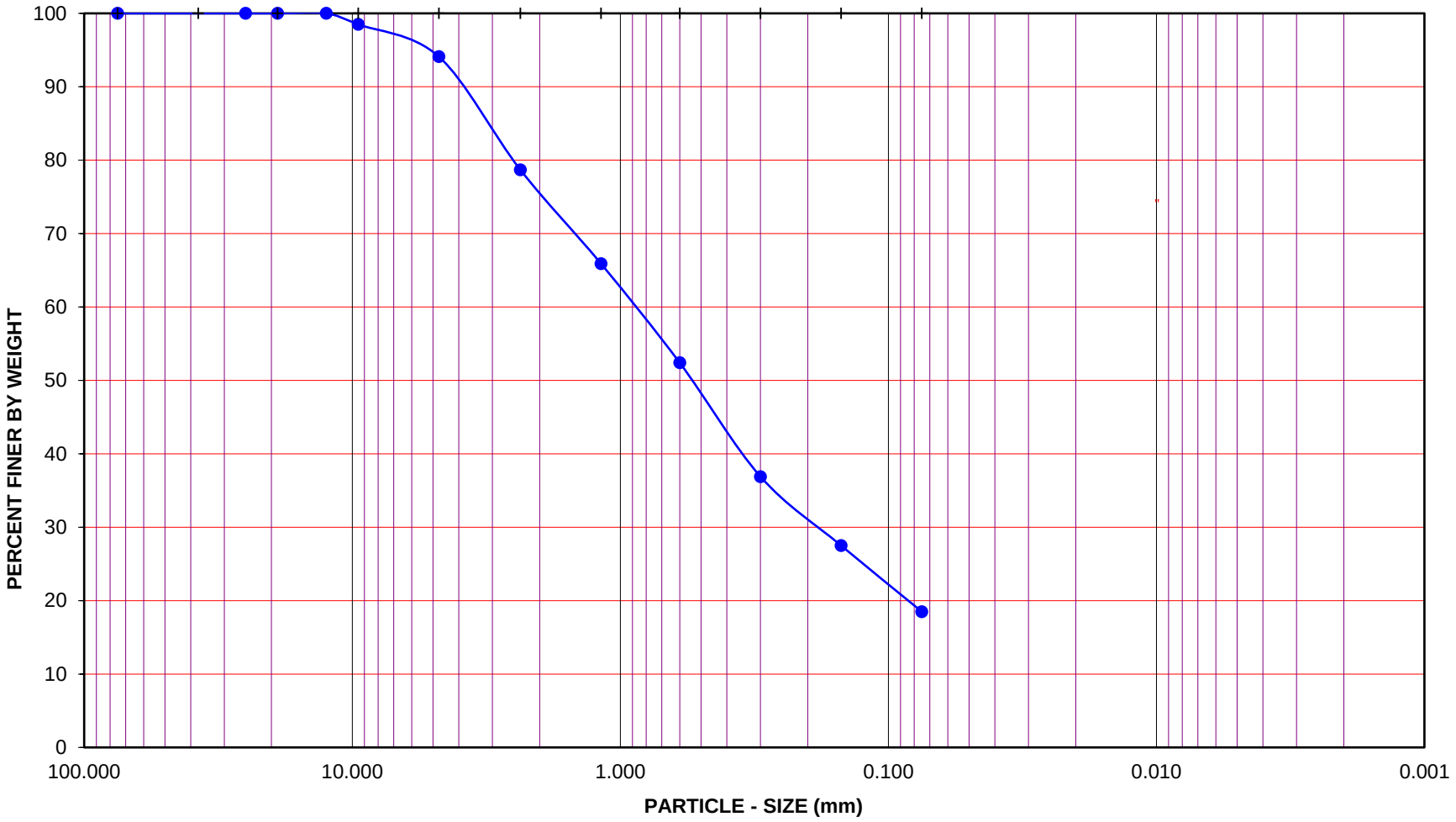
Remarks:

GRAVEL		SAND			FINES	
COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

U.S. STANDARD SIEVE OPENING: 3.0" 1 1/2" 3/4" 3/8"

U.S. STANDARD SIEVE NUMBER: #4 #8 #16 #30 #50 #100 #200

HYDROMETER



Project Name: EMWD Matthews BPS & Pipeline

Project No.: 12847.001

Boring No.: LB-17 Sample No.: B-1

Depth (feet): 5.0 Soil Type : SM

Soil Identification: Silty Sand (SM), Grayish Brown.

GR:SA:FI : (%) 6 : 75 : 19

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PARTICLE - SIZE DISTRIBUTION ASTM D 6913

Jul-21

Boring No.	LB-1	LB-3	LB-13					
Sample No.	S-1	S-2	R-3					
Depth (ft.)	10.0	30.0	10.0					
Sample Type	SPT	SPT	RING					
Visual Soil Classification	SM	SM	SM					
Soak Time (min)	10	10	10					
Moisture Correction								
Wet Weight of Soil + Container (gm.)	624.4	626.1	627.2					
Dry Weight of Soil + Container (gm.)	583.0	575.1	601.8					
Weight of Container (gm)	279.2	279.0	277.6					
Moisture Content (%)	13.6	17.2	7.8					
Container No.:	B1	AC	86					
Sample Dry Weight Determination								
Weight of Sample + Container (gm.)	583.0	575.1	601.8					
Weight of Container (gm.)	279.2	279.0	277.6					
Weight of Dry Sample (gm.)	303.8	296.1	324.2					
Container No.:	B1	AC	86					
After Wash								
Dry Weight of Sample + Container (gm)	445.7	430.6	542.3					
Weight of Container (gm)	279.2	279.0	277.6					
Dry Weight of Sample (gm)	166.5	151.6	264.7					
% Passing No. 200 Sieve	**45**	**49**	**18**					
% Retained No. 200 Sieve	55	51	82					

PERCENT PASSING No. 200 SIEVE
ASTM D 1140

Leighton

Project Name: EMWD Matthews BPS & Pipeline

Project No.: 12847.001

Client Name: Krieger & Stewart, Inc

Tested By: M. Vinet Date: 06/30/21

Rev. 08-04

Leighton

ATTERBERG LIMITS

ASTM D 4318

Project Name:	EMWD Matthews BPS & Pipeline	Tested By:	M. Vinet	Date:	06/30/21
Project No. :	12847.001	Input By:	M. Vinet	Date:	07/14/21
Boring No.:	LB-2	Checked By:	M. Vinet		
Sample No.:	B-1	Depth (ft.)	0.0		
Soil Identification:	Silty Sand (SM), Brown.				

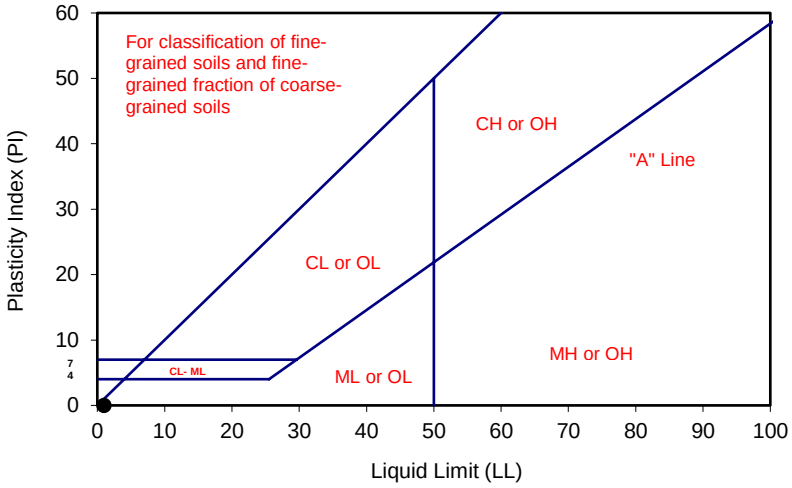
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			10			
Wet Wt. of Soil + Cont. (g)	**Cannot be rolled:**		21.78	**Cannot get more than 10 blows:**		
Dry Wt. of Soil + Cont. (g)	**NonPlastic**		18.38	**NonPlastic**		
Wt. of Container (g)			1.05			
Moisture Content (%) [Wn]			19.62			

Liquid Limit	**NP**
Plastic Limit	**NP**
Plasticity Index	**NP**
Classification	**NP**

PI at "A" - Line = 0.73(LL-20) =

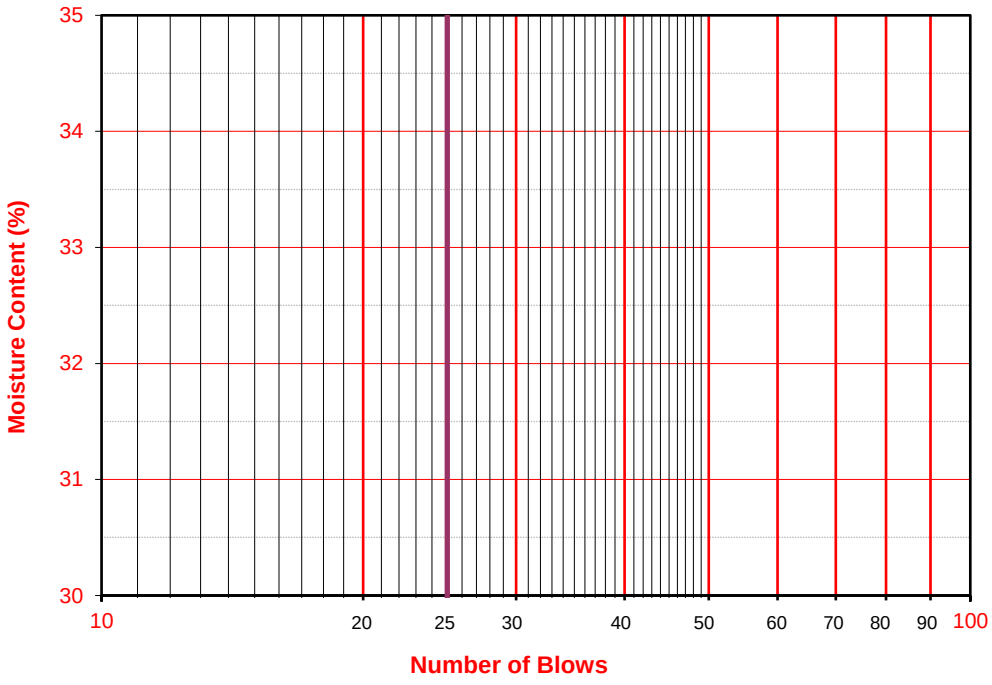
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [X] Dry Preparation
  Multipoint - Dry
- [X] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



Leighton

MODIFIED PROCTOR COMPACTION TEST

ASTM D 1557

Project Name:	EMWD Matthews BPS & Pipeline	Tested By:	J. Bowman	Date:	07/13/21
Project No.:	12847.001	Input By:	M. Vinet	Date:	07/14/21
Boring No.:	LB-7	Depth (ft.):	5.0		
Sample No.:	B-1				
Soil Identification:	Silty Sand (SM), Dark Brown.				

Preparation Method: [X] Moist [ ] Dry

[X] Mechanical Ram [ ] Manual Ram

Mold Volume (ft³) 0.03340 *Ram Weight = 10 lb.; Drop = 18 in.*

TEST NO.	1	2	3	4	5	6
Wt. Compacted Soil + Mold (g)	5674	5762	5710			
Weight of Mold (g)	3548	3548	3548			
Net Weight of Soil (g)	2126	2214	2162			
Wet Weight of Soil + Cont. (g)	1866.2	1914.2	2015.3			
Dry Weight of Soil + Cont. (g)	1780.0	1796.2	1859.0			
Weight of Container (g)	280.4	277.5	280.1			
Moisture Content (%)	5.7	7.8	9.9			
Wet Density (pcf)	140.3	146.1	142.7			
Dry Density (pcf)	132.7	135.6	129.8			

Maximum Dry Density (pcf) **135.7** **Optimum Moisture Content (%)** **7.5**

PROCEDURE USED

[X] **Procedure A**
Soil Passing No. 4 (4.75 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if +#4 is 20% or less

[ ] **Procedure B**
Soil Passing 3/8 in. (9.5 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
Use if +#4 is >20% and +3/8 in. is 20% or less

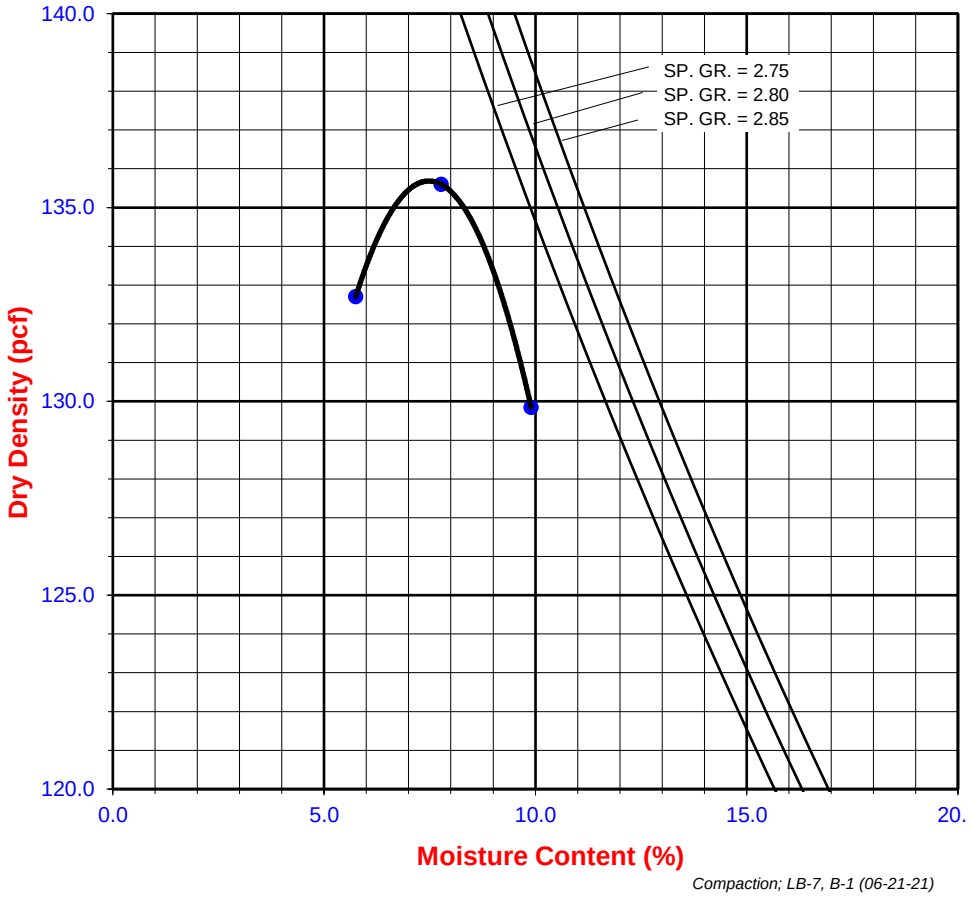
[ ] **Procedure C**
Soil Passing 3/4 in. (19.0 mm) Sieve
Mold : 6 in. (152.4 mm) diameter
Layers : 5 (Five)
Blows per layer : 56 (fifty-six)
Use if +3/8 in. is >20% and +¾ in. is <30%

Particle-Size Distribution:

GR:SA:FI

Atterberg Limits:

LL,PL,PI



One-Dimensional Swell or Settlement Potential of Cohesive Soils

(ASTM D 4546) -- Method 'B'

Leighton

Project Name: EMWD Matthews BPS & Pipeline
Project No.: 12847.001
Boring No.: **LB-5**
Sample No.: **R-2**
Sample Description: Silty Sand (SM), Brown.

Tested By: M. Vinet Date: 7/7/21
Checked By: M. Vinet Date: 7/14/21
Sample Type: IN SITU
Depth (ft.) 5.0

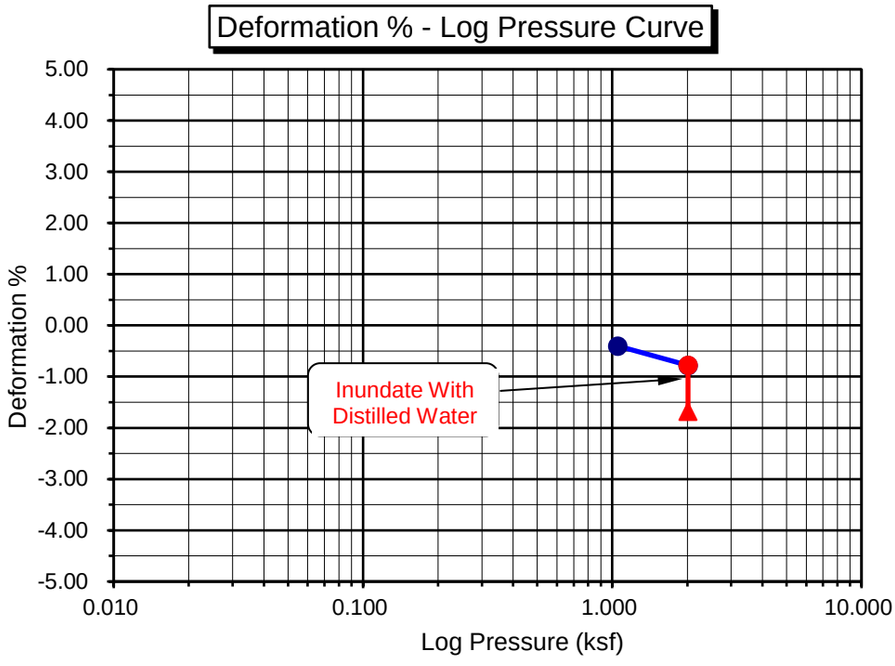
Source and Type of Water Used for Inundation: Arrowhead (Distilled)
** Note: Loading After Wetting (Inundation) not Performed Using this Test Method.

Initial Dry Density (pcf):	120.1
Initial Moisture (%):	11.0
Initial Height (in.):	1.0000
Initial Dial Reading (in):	0.0000
Inside Diameter of Ring (in):	2.416

Final Dry Density (pcf):	122.1
Final Moisture (%) :	13.4
Initial Void ratio:	0.4037
Specific Gravity (assumed):	2.70
Initial Degree of Saturation (%):	73.3

Pressure (p) (ksf)	Final Reading (in)	Apparent Thickness (in)	Load Compliance (%)	Swell (+) Settlement (-) % of Sample Thickness	Void Ratio	Corrected Deformation (%)
1.050	0.0040	0.9960	0.00	-0.40	0.3981	-0.40
2.013	0.0078	0.9922	0.00	-0.78	0.3928	-0.78
H2O	0.0168	0.9832	0.00	-1.68	0.3802	-1.68

Percent Swell / Settlement After Inundation = -0.91



One-Dimensional Swell or Settlement Potential of Cohesive Soils

(ASTM D 4546) -- Method 'B'

Leighton

Project Name: EMWD Matthews BPS & Pipeline
Project No.: 12847.001
Boring No.: **LB-9**
Sample No.: **R-2**
Sample Description: Silty Sand (SM), Dark Brown.

Tested By: M. Vinet Date: 7/7/21
Checked By: M. Vinet Date: 7/14/21
Sample Type: IN SITU
Depth (ft.) 5.0

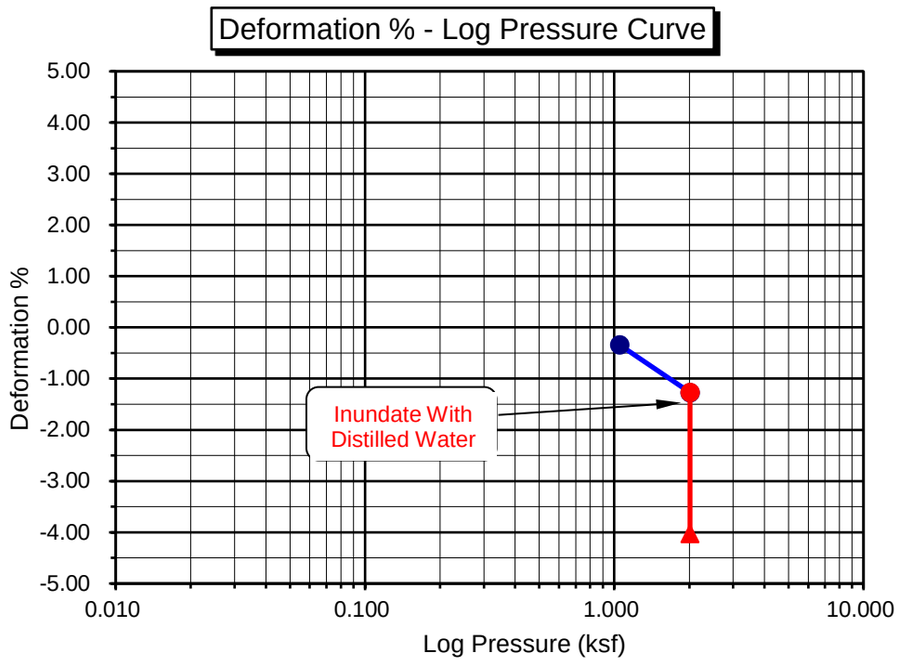
Source and Type of Water Used for Inundation: Arrowhead (Distilled)
** Note: Loading After Wetting (Inundation) not Performed Using this Test Method.

Initial Dry Density (pcf):	114.3
Initial Moisture (%):	8.2
Initial Height (in.):	1.0000
Initial Dial Reading (in):	0.0000
Inside Diameter of Ring (in):	2.416

Final Dry Density (pcf):	119.1
Final Moisture (%) :	12.7
Initial Void ratio:	0.4752
Specific Gravity (assumed):	2.70
Initial Degree of Saturation (%):	46.4

Pressure (p) (ksf)	Final Reading (in)	Apparent Thickness (in)	Load Compliance (%)	Swell (+) Settlement (-) % of Sample Thickness	Void Ratio	Corrected Deformation (%)
1.050	0.0034	0.9966	0.00	-0.34	0.4702	-0.34
2.013	0.0127	0.9873	0.00	-1.27	0.4565	-1.27
H2O	0.0403	0.9597	0.00	-4.03	0.4158	-4.03

Percent Swell / Settlement After Inundation = -2.80



One-Dimensional Swell or Settlement Potential of Cohesive Soils

(ASTM D 4546) -- Method 'B'

Leighton

Project Name: EMWD Matthews BPS & Pipeline
Project No.: 12847.001
Boring No.: **LB-12**
Sample No.: **R-3**
Sample Description: Silty Sand (SM), Dark Yellowish Brown.

Tested By: M. Vinet Date: 7/7/21
Checked By: M. Vinet Date: 7/14/21
Sample Type: IN SITU
Depth (ft.) 10.0

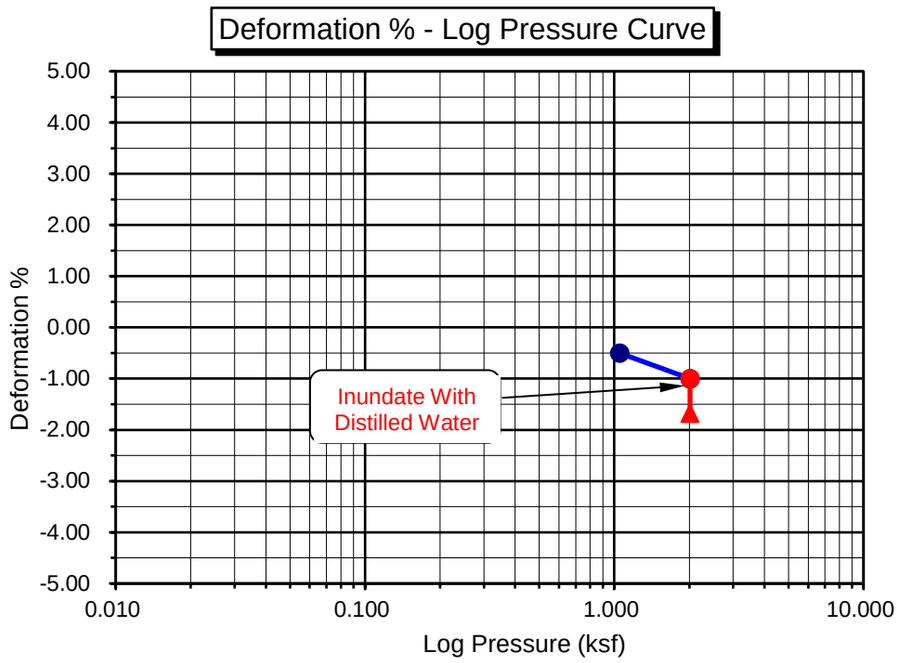
Source and Type of Water Used for Inundation: Arrowhead (Distilled)
** Note: Loading After Wetting (Inundation) not Performed Using this Test Method.

Initial Dry Density (pcf):	114.0
Initial Moisture (%):	8.9
Initial Height (in.):	1.0000
Initial Dial Reading (in):	0.0000
Inside Diameter of Ring (in):	2.416

Final Dry Density (pcf):	116.0
Final Moisture (%) :	14.9
Initial Void ratio:	0.4782
Specific Gravity (assumed):	2.70
Initial Degree of Saturation (%):	50.1

Pressure (p) (ksf)	Final Reading (in)	Apparent Thickness (in)	Load Compliance (%)	Swell (+) Settlement (-) % of Sample Thickness	Void Ratio	Corrected Deformation (%)
1.050	0.0050	0.9950	0.00	-0.50	0.4708	-0.50
2.013	0.0100	0.9900	0.00	-1.00	0.4634	-1.00
H2O	0.0168	0.9832	0.00	-1.68	0.4534	-1.68

Percent Swell / Settlement After Inundation = -0.69



One-Dimensional Swell or Settlement Potential of Cohesive Soils

(ASTM D 4546) -- Method 'B'

Leighton

Project Name: EMWD Matthews BPS & Pipeline
Project No.: 12847.001
Boring No.: **LB-16**
Sample No.: **R-2**
Sample Description: Silty Sand (SM), Brown.

Tested By: M. Vinet Date: 7/7/21
Checked By: M. Vinet Date: 7/14/21
Sample Type: IN SITU
Depth (ft.) 5.0

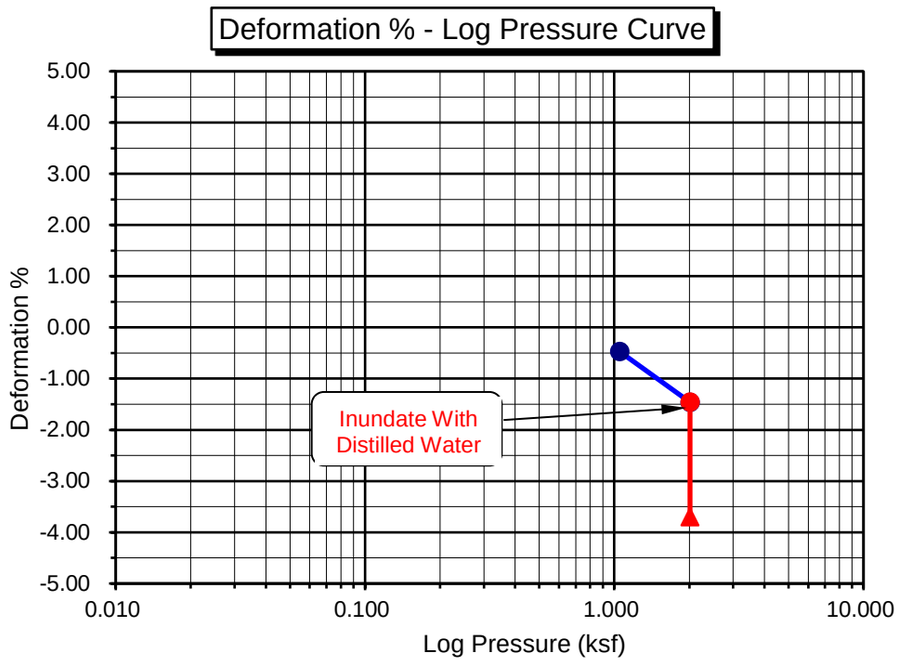
Source and Type of Water Used for Inundation: Arrowhead (Distilled)
** Note: Loading After Wetting (Inundation) not Performed Using this Test Method.

Initial Dry Density (pcf):	106.0
Initial Moisture (%):	7.3
Initial Height (in.):	1.0000
Initial Dial Reading (in):	0.0000
Inside Diameter of Ring (in):	2.416

Final Dry Density (pcf):	110.0
Final Moisture (%) :	16.2
Initial Void ratio:	0.5909
Specific Gravity (assumed):	2.70
Initial Degree of Saturation (%):	33.4

Pressure (p) (ksf)	Final Reading (in)	Apparent Thickness (in)	Load Compliance (%)	Swell (+) Settlement (-) % of Sample Thickness	Void Ratio	Corrected Deformation (%)
1.050	0.0047	0.9953	0.00	-0.47	0.5834	-0.47
2.013	0.0146	0.9854	0.00	-1.46	0.5677	-1.46
H2O	0.0370	0.9630	0.00	-3.70	0.5320	-3.70

Percent Swell / Settlement After Inundation = -2.27



Leighton

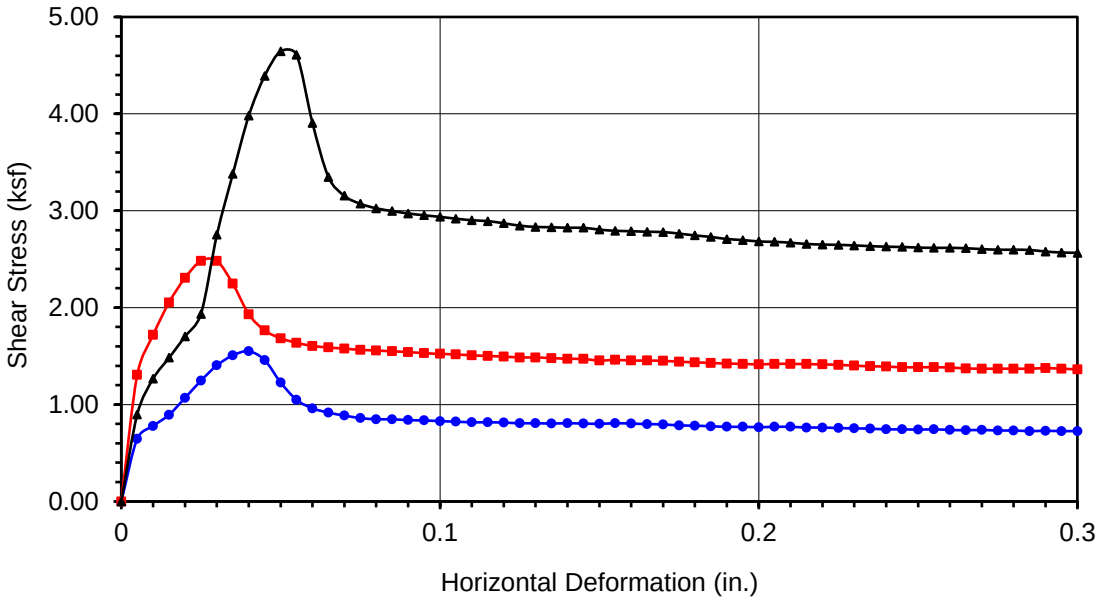
DIRECT SHEAR TEST

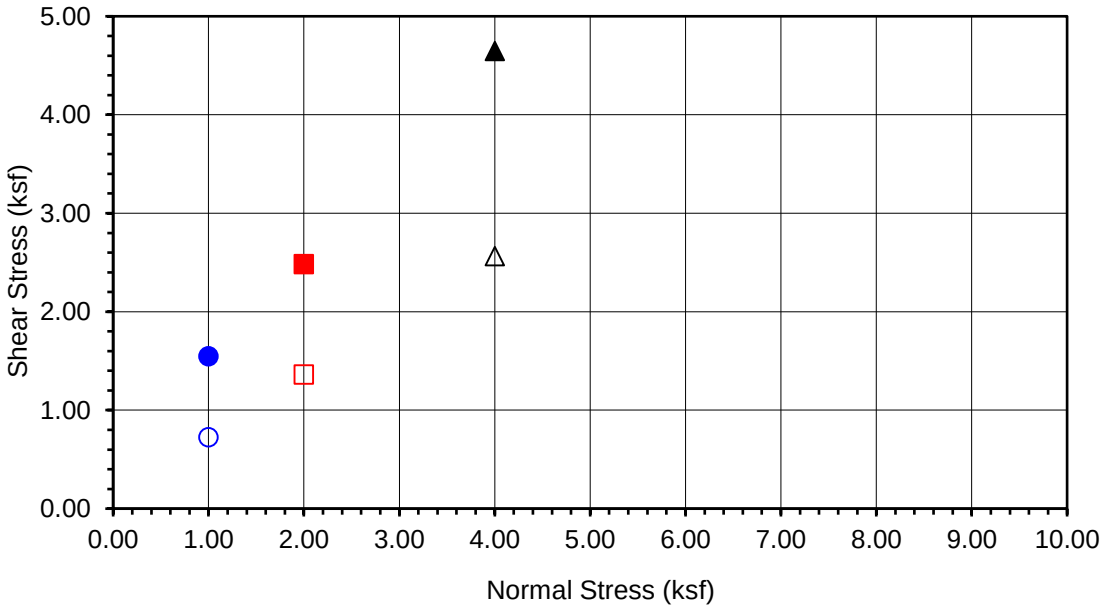
Consolidated Drained - ASTM D 3080

Project Name:	EMWD Matthews BPS & Pipeline	Tested By:	M. Vinet	Date:	07/07/21
Project No.:	12847.001	Checked By:	M. Vinet	Date:	07/14/21
Boring No.:	LB-1	Sample Type:	RING		
Sample No.:	R-2	Depth (ft.):	15.0		

Soil Identification: Sandy Silt s(ML), Yellowish Brown.

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	203.12	199.43	197.18
Weight of Ring(gm):	44.71	43.16	44.59
Before Shearing			
Weight of Wet Sample+Cont.(gm):	246.93	246.93	246.93
Weight of Dry Sample+Cont.(gm):	223.22	223.22	223.22
Weight of Container(gm):	50.09	50.09	50.09
Vertical Rdg.(in): Initial	0.0000	0.2517	0.2520
Vertical Rdg.(in): Final	-0.0019	0.2555	0.2686
After Shearing			
Weight of Wet Sample+Cont.(gm):	213.56	211.17	208.60
Weight of Dry Sample+Cont.(gm):	189.88	186.65	182.69
Weight of Container(gm):	49.65	50.06	50.52
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**LB-1**
Sample No.	**R-2**
Depth (ft)	**15**
Sample Type: RING	
Soil Identification: Sandy Silt s(ML), Yellowish Brown.	

Normal Stress (kip/ft²)	1.000	2.000	4.000
Peak Shear Stress (kip/ft²)	● 1.549	■ 2.482	▲ 4.646
Shear Stress @ End of Test (ksf)	○ 0.726	□ 1.363	△ 2.566
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	13.69	13.69	13.69
Dry Density (pcf)	115.9	114.3	111.6
Saturation (%)	81.3	77.9	72.5
Soil Height Before Shearing (in.)	0.9981	0.9962	0.9834
Final Moisture Content (%)	16.9	18.0	19.6

Leighton

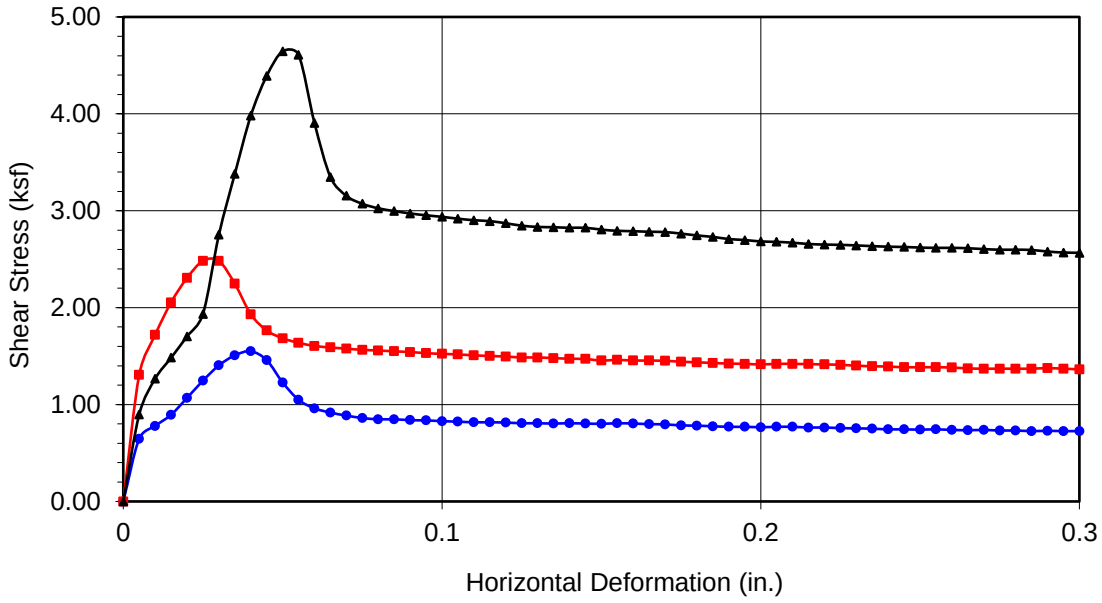
DIRECT SHEAR TEST RESULTS

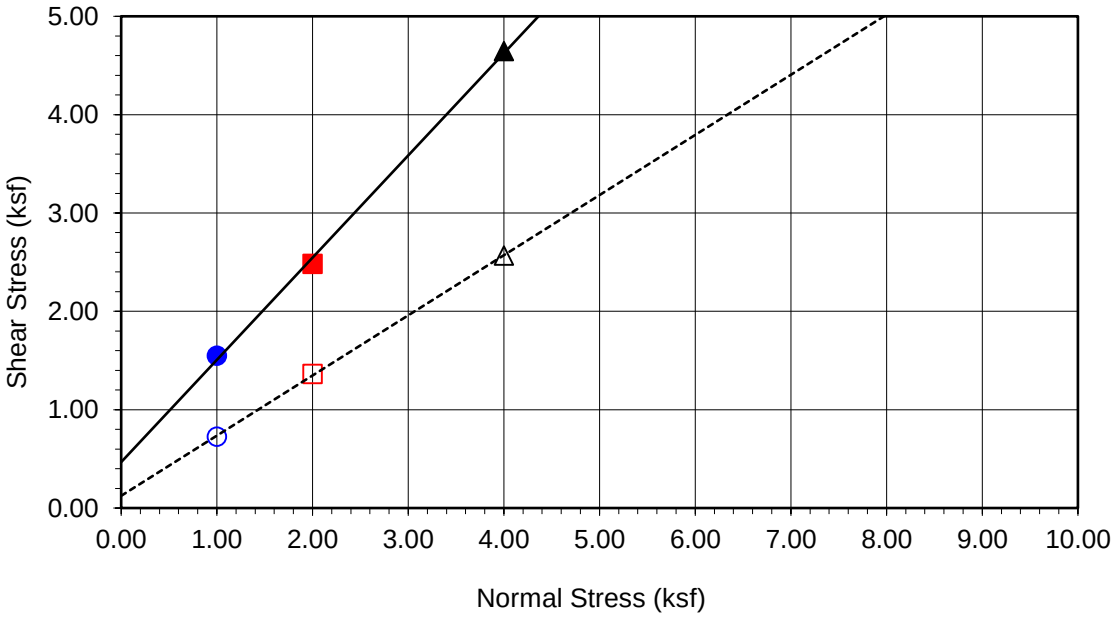
Consolidated Drained - ASTM D 3080

Project No.: 12847.001

EMWD Matthews BPS & Pipeline

07-21





Boring No.	**LB-1**
Sample No.	**R-2**
Depth (ft)	**15**
Sample Type:	RING
Soil Identification:	Sandy Silt s(ML), Yellowish Brown.

Strength Parameters

	C (psf)	ϕ (^{o})
Peak	467	46
Ultimate	125	31

Normal Stress (kip/ft²)	1.000	2.000	4.000
Peak Shear Stress (kip/ft²)	● 1.549	■ 2.482	▲ 4.646
Shear Stress @ End of Test (ksf)	○ 0.726	□ 1.363	△ 2.566
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	13.69	13.69	13.69
Dry Density (pcf)	115.9	114.3	111.6
Saturation (%)	81.3	77.9	72.5
Soil Height Before Shearing (in.)	0.9981	0.9962	0.9834
Final Moisture Content (%)	16.9	18.0	19.6

Leighton

DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 12847.001

EMWD Matthews BPS & Pipeline

07-21

Leighton

SAND EQUIVALENT TEST

ASTM D 2419 / DOT CA Test 217

Project Name:	EMWD Matthews BPS & Pipeline	Tested By:	M. Vinet	Date:	7/13/21
Project No. :	12847.001	Computed By:	M. Vinet	Date:	7/13/21
Client:	Krieger & Stewart, Inc	Checked By:	M. Vinet	Date:	7/14/21

Boring No.	Sample No.	Depth (ft.)	Soil Description	T1	T2	T3	T4	R1	R2	SE	Average SE
LB-7	B-1	5	Silty Sand (SM)	10:00	10:10	10:12	10:32	12.7	1.4	12	**12**
				10:02	10:12	10:14	10:34	12.3	1.3	11	

T1 = Starting Time

T2 = (T1 + 10 min) Begin Agitation

T3 = Settlement Starting Time

T4 = (T3 + 20 min) Take Clay Reading (R1)

Sand Equivalent = R2 / R1 * 100

Record SE as Next Higher Integer

Leighton

SAND EQUIVALENT TEST

ASTM D 2419 / DOT CA Test 217

Project Name:	EMWD Matthews BPS & Pipeline	Tested By:	M. Vinet	Date:	7/13/21
Project No. :	12847.001	Computed By:	M. Vinet	Date:	7/13/21
Client:	Krieger & Stewart, Inc	Checked By:	M. Vinet	Date:	7/14/21

Boring No.	Sample No.	Depth (ft.)	Soil Description	T1	T2	T3	T4	R1	R2	SE	Average SE
LB-14	B-1	5	Silty Sand (SM)	10:04	10:14	10:16	10:36	13.1	1.9	15	**15**
				10:06	10:16	10:18	10:38	13.0	1.9	15	

T1 = Starting Time

T2 = (T1 + 10 min) Begin Agitation

T3 = Settlement Starting Time

T4 = (T3 + 20 min) Take Clay Reading (R1)

Sand Equivalent = R2 / R1 * 100

Record SE as Next Higher Integer

Leighton

TESTS for SULFATE CONTENT
CHLORIDE CONTENT and pH of SOILS

Project Name: EMWD Matthews BPS & Pipeline Tested By : M. Vinet Date: 07/14/21

Project No. : 12847.001 Data Input By: M. Vinet Date: 07/14/21

Boring No.	LB-1	LB-4	LB-7	LB-10
Sample No.	B-1	B-1	B-1	B-1
Sample Depth (ft)	5.0	1.0	5.0	5.0
Soil Identification:	Silty Sand (SM)	Silty Sand (SM)	Silty Sand (SM)	Silty Sand (SM)
Wet Weight of Soil + Container (g)	100.00	100.00	100.00	100.00
Dry Weight of Soil + Container (g)	100.00	100.00	100.00	100.00
Weight of Container (g)	0.00	0.00	0.00	0.00
Moisture Content (%)	0.00	0.00	0.00	0.00
Weight of Soaked Soil (g)	100.00	100.00	100.00	100.00

SULFATE CONTENT, DOT California Test 417, Part II

Beaker No.	1	2	3	4
Crucible No.	1	2	3	4
Furnace Temperature (°C)	850	850	850	850
Time In / Time Out	Timer	Timer	Timer	Timer
Duration of Combustion (min)	45	45	45	45
Wt. of Crucible + Residue (g)	25.1135	24.8962	25.0175	24.8642
Wt. of Crucible (g)	25.1090	24.8922	25.0132	24.8602
Wt. of Residue (g) (A)	0.0045	0.0040	0.0043	0.0040
PPM of Sulfate (A) x 41150	185.17	164.60	176.94	164.60
PPM of Sulfate, Dry Weight Basis	**185**	**165**	**177**	**165**

CHLORIDE CONTENT, DOT California Test 422

ml of Extract For Titration (B)	30	30	30	30
ml of AgNO3 Soln. Used in Titration (C)	0.8	0.6	0.6	0.8
PPM of Chloride (C -0.2) * 100 * 30 / B	60	40	40	60
PPM of Chloride, Dry Wt. Basis	**60**	**40**	**40**	**60**

pH TEST, DOT California Test 643

pH Value	**7.70**	**9.70**	**8.00**	**7.80**
Temperature °C	21.0	21.0	21.0	21.0

Leighton

SOIL RESISTIVITY TEST

DOT CA TEST 643

Project Name:	EMWD Matthews BPS & Pipeline		Tested By :	M. Vinet	Date: 07/14/21
Project No. :	12847.001		Data Input By:	M. Vinet	Date: 07/14/21
Boring No.:	LB-1		Depth (ft.) :	5.0	
Sample No. :	B-1				

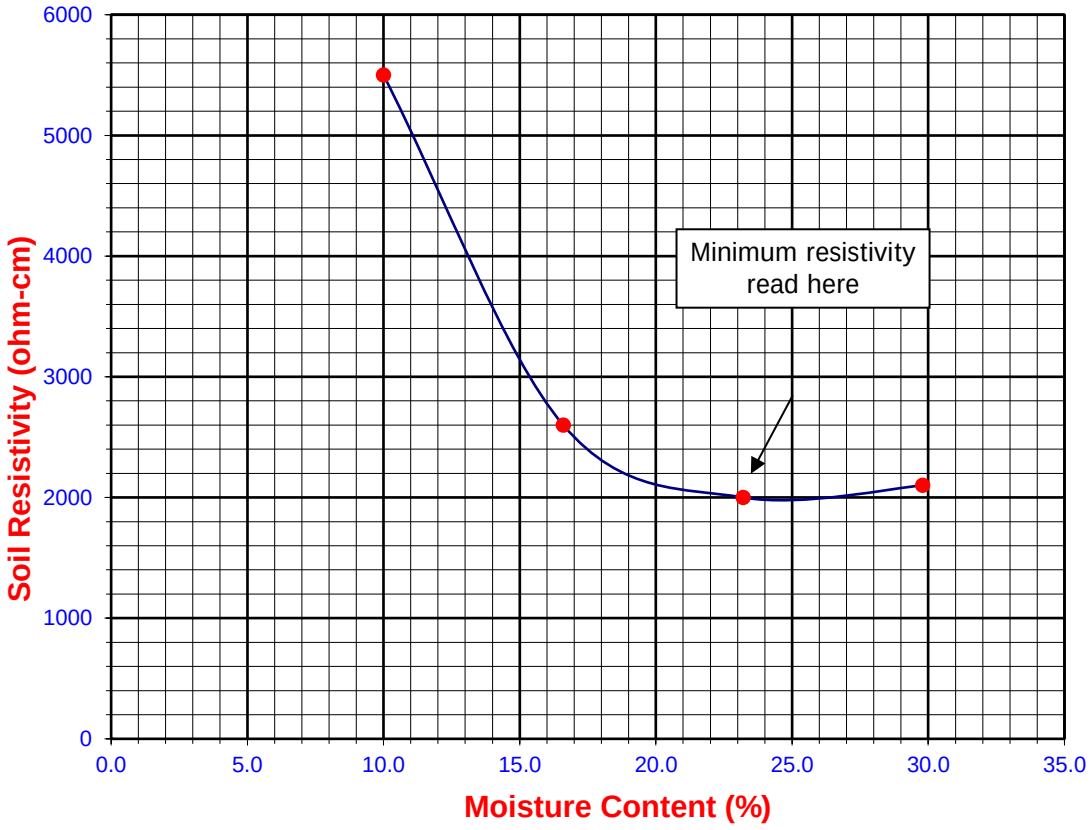
Soil Identification:* Silty Sand (SM)

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	50	10.00	5500	5500
2	83	16.60	2600	2600
3	116	23.20	2000	2000
4	149	29.80	2100	2100
5				

Moisture Content (%) (MCi)	0.00
Wet Wt. of Soil + Cont. (g)	100.00
Dry Wt. of Soil + Cont. (g)	100.00
Wt. of Container (g)	0.00
Container No.	A
Initial Soil Wt. (g) (Wt)	500.00
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
2000	**23.2**	**185**	**60**	**7.70**	**21.0**



Leighton

SOIL RESISTIVITY TEST

DOT CA TEST 643

Project Name:	EMWD Matthews BPS & Pipeline		Tested By :	M. Vinet	Date: 07/14/21
Project No. :	12847.001		Data Input By:	M. Vinet	Date: 07/14/21
Boring No.:	LB-4		Depth (ft.) :	1.0	
Sample No. :	B-1				

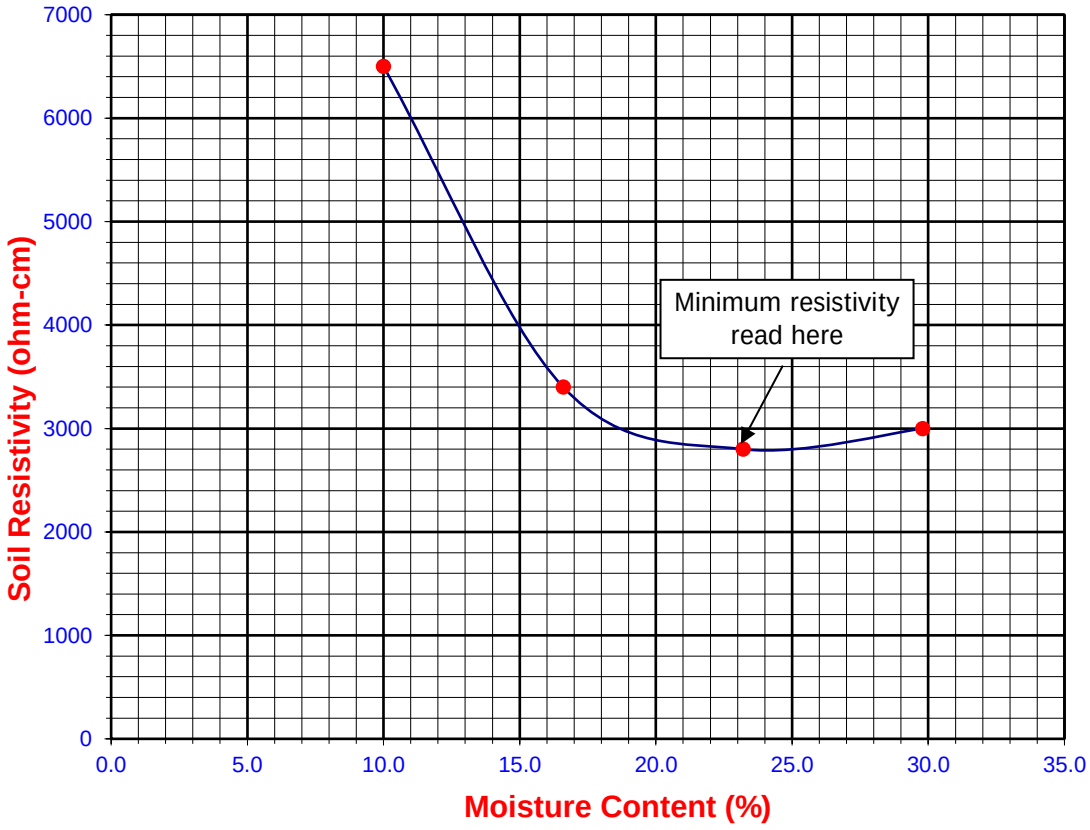
Soil Identification:* Silty Sand (SM)

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	50	10.00	6500	6500
2	83	16.60	3400	3400
3	116	23.20	2800	2800
4	149	29.80	3000	3000
5				

Moisture Content (%) (MCi)	0.00
Wet Wt. of Soil + Cont. (g)	100.00
Dry Wt. of Soil + Cont. (g)	100.00
Wt. of Container (g)	0.00
Container No.	A
Initial Soil Wt. (g) (Wt)	500.00
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
2800	**23.2**	**165**	**40**	**9.70**	**21.0**



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SOIL RESISTIVITY TEST

DOT CA TEST 643

Project Name:	EMWD Matthews BPS & Pipeline		Tested By :	M. Vinet	Date: 07/14/21
Project No. :	12847.001		Data Input By:	M. Vinet	Date: 07/14/21
Boring No.:	LB-7		Depth (ft.) :	5.0	
Sample No. :	B-1				

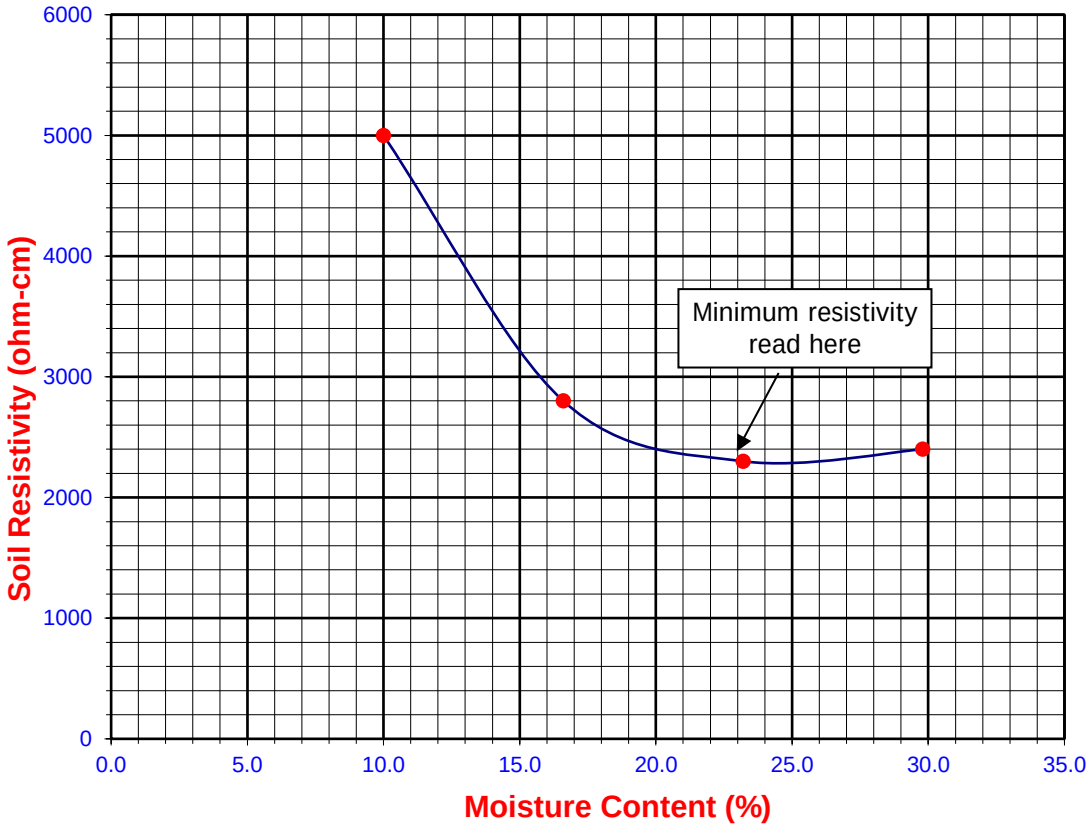
Soil Identification:* Silty Sand (SM)

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	50	10.00	5000	5000
2	83	16.60	2800	2800
3	116	23.20	2300	2300
4	149	29.80	2400	2400
5				

Moisture Content (%) (MCi)	0.00
Wet Wt. of Soil + Cont. (g)	100.00
Dry Wt. of Soil + Cont. (g)	100.00
Wt. of Container (g)	0.00
Container No.	A
Initial Soil Wt. (g) (Wt)	500.00
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
2300	**23.2**	**177**	**40**	**8.00**	**21.0**



Leighton

SOIL RESISTIVITY TEST

DOT CA TEST 643

Project Name:	EMWD Matthews BPS & Pipeline		Tested By :	M. Vinet	Date: 07/14/21
Project No. :	12847.001		Data Input By:	M. Vinet	Date: 07/14/21
Boring No.:	LB-10		Depth (ft.) :	5.0	
Sample No. :	B-1				

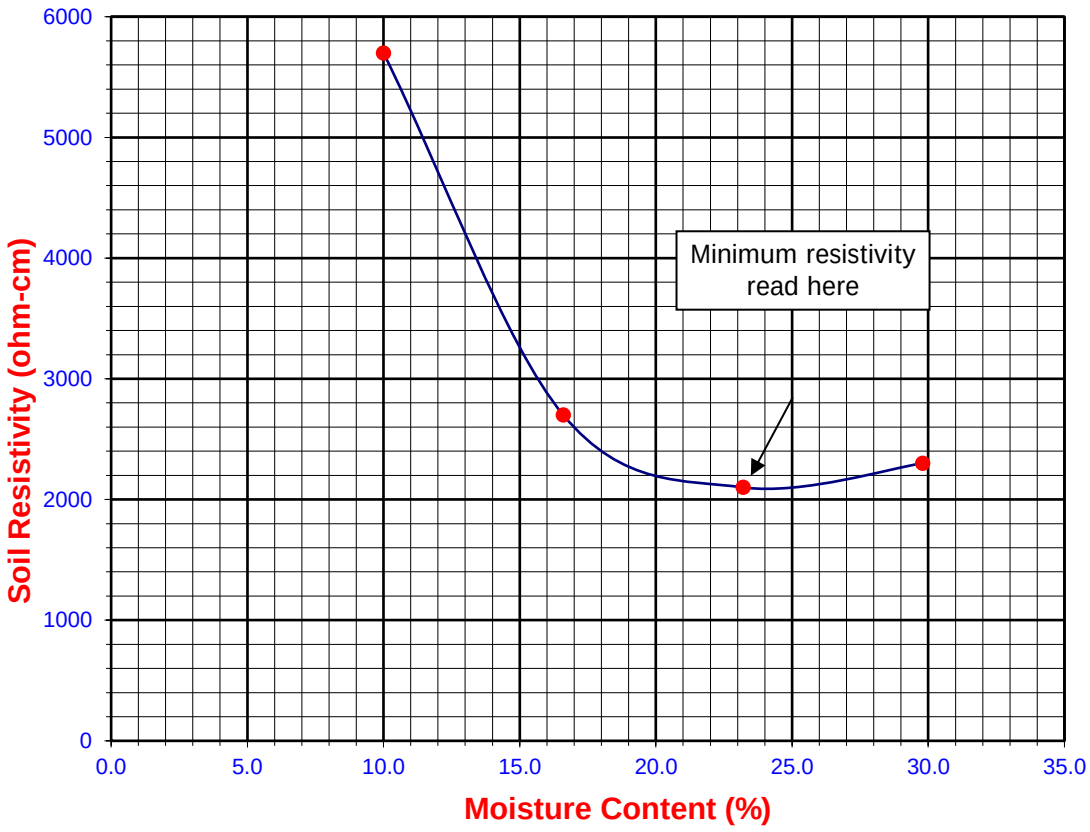
Soil Identification:* Silty Sand (SM)

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	50	10.00	5700	5700
2	83	16.60	2700	2700
3	116	23.20	2100	2100
4	149	29.80	2300	2300
5				

Moisture Content (%) (MCi)	0.00
Wet Wt. of Soil + Cont. (g)	100.00
Dry Wt. of Soil + Cont. (g)	100.00
Wt. of Container (g)	0.00
Container No.	A
Initial Soil Wt. (g) (Wt)	500.00
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
2100	**23.2**	**165**	**60**	**7.80**	**21.0**



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Leighton

TESTS for SULFATE CONTENT
CHLORIDE CONTENT and pH of SOILS

Project Name: EMWD Matthews BPS & Pipeline Tested By : M. Vinet Date: 07/14/21

Project No. : 12847.001 Data Input By: M. Vinet Date: 07/14/21

Boring No.	LB-14	LB-17		
Sample No.	B-1	B-1		
Sample Depth (ft)	5.0	1.0		
Soil Identification:	Silty Sand (SM)	Silty Sand (SM)		
Wet Weight of Soil + Container (g)	100.00	100.00		
Dry Weight of Soil + Container (g)	100.00	100.00		
Weight of Container (g)	0.00	0.00		
Moisture Content (%)	0.00	0.00		
Weight of Soaked Soil (g)	100.00	100.00		

SULFATE CONTENT, DOT California Test 417, Part II

Beaker No.	1	2		
Crucible No.	1	2		
Furnace Temperature (°C)	850	850		
Time In / Time Out	Timer	Timer		
Duration of Combustion (min)	45	45		
Wt. of Crucible + Residue (g)	25.1125	24.8950		
Wt. of Crucible (g)	25.1092	24.8925		
Wt. of Residue (g) (A)	0.0033	0.0025		
PPM of Sulfate (A) x 41150	135.79	102.88		
PPM of Sulfate, Dry Weight Basis	**136**	**103**		

CHLORIDE CONTENT, DOT California Test 422

ml of Extract For Titration (B)	30	30		
ml of AgNO3 Soln. Used in Titration (C)	0.6	0.6		
PPM of Chloride (C -0.2) * 100 * 30 / B	40	40		
PPM of Chloride, Dry Wt. Basis	**40**	**40**		

pH TEST, DOT California Test 643

pH Value	**7.70**	**8.00**		
Temperature °C	21.0	21.0		

Leighton

SOIL RESISTIVITY TEST

DOT CA TEST 643

Project Name:	EMWD Matthews BPS & Pipeline		Tested By :	M. Vinet	Date: 07/14/21
Project No. :	12847.001		Data Input By:	M. Vinet	Date: 07/14/21
Boring No.:	LB-14		Depth (ft.) :	5.0	
Sample No. :	B-1				

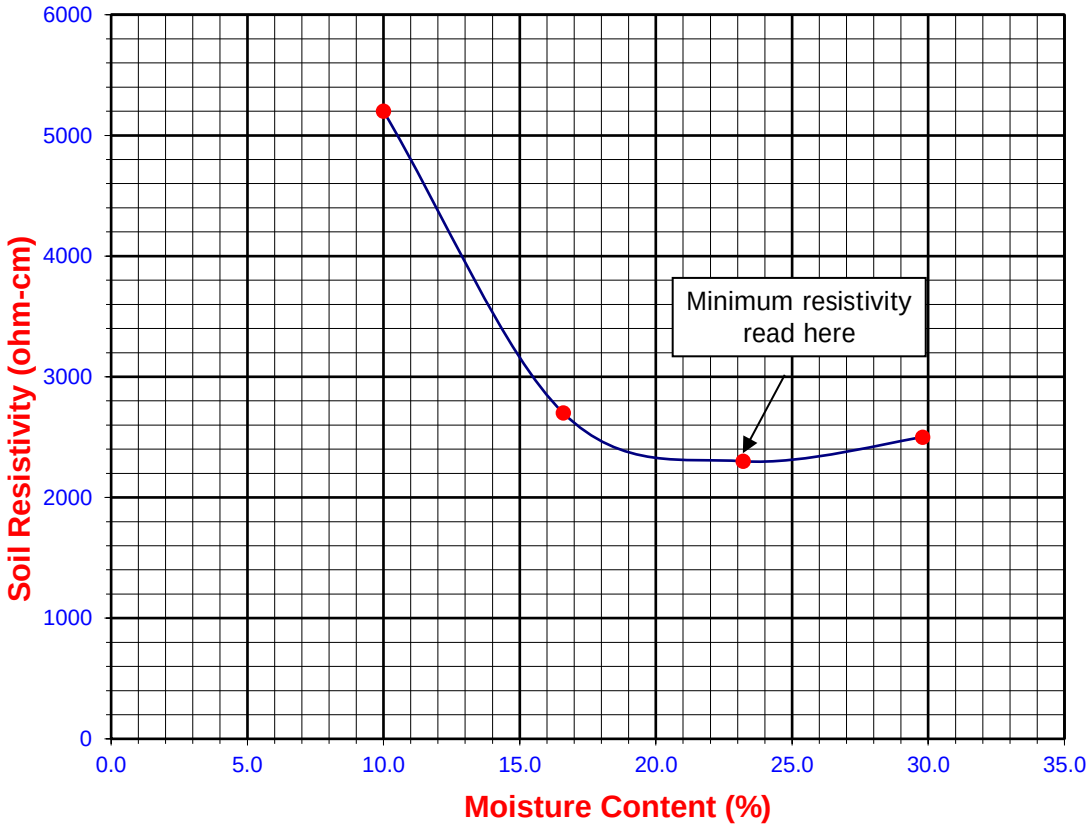
Soil Identification:* Silty Sand (SM)

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	50	10.00	5200	5200
2	83	16.60	2700	2700
3	116	23.20	2300	2300
4	149	29.80	2500	2500
5				

Moisture Content (%) (MCi)	0.00
Wet Wt. of Soil + Cont. (g)	100.00
Dry Wt. of Soil + Cont. (g)	100.00
Wt. of Container (g)	0.00
Container No.	A
Initial Soil Wt. (g) (Wt)	500.00
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
2300	**23.2**	**136**	**40**	**7.70**	**21.0**



Leighton

SOIL RESISTIVITY TEST

DOT CA TEST 643

Project Name:	EMWD Matthews BPS & Pipeline		Tested By :	M. Vinet	Date: 07/14/21
Project No. :	12847.001		Data Input By:	M. Vinet	Date: 07/14/21
Boring No.:	LB-17		Depth (ft.) :	1.0	
Sample No. :	B-1				

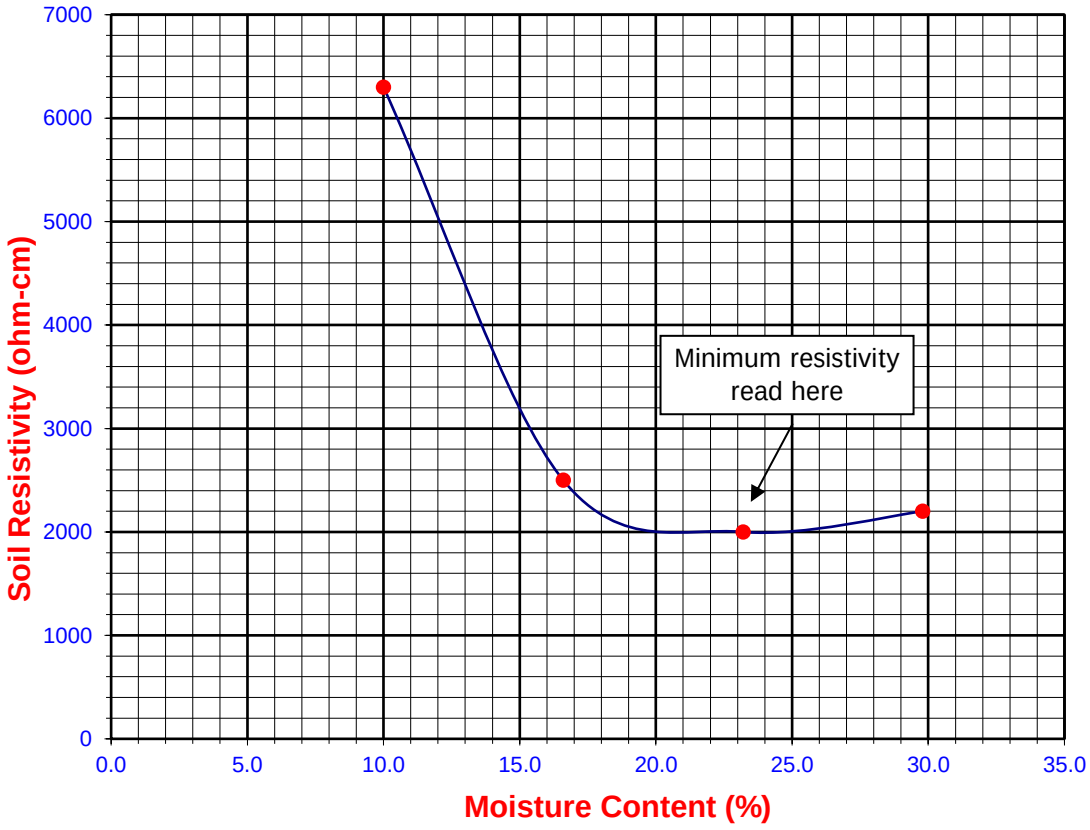
Soil Identification:* Silty Sand (SM)

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	50	10.00	6300	6300
2	83	16.60	2500	2500
3	116	23.20	2000	2000
4	149	29.80	2200	2200
5				

Moisture Content (%) (MCi)	0.00
Wet Wt. of Soil + Cont. (g)	100.00
Dry Wt. of Soil + Cont. (g)	100.00
Wt. of Container (g)	0.00
Container No.	A
Initial Soil Wt. (g) (Wt)	500.00
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
2000	**23.2**	**103**	**40**	**8.00**	**21.0**



APPENDIX C

GBA Important Information About This Geoenvironmental Report

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

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Appendix G:

Geotechnical Report

GEOTECHNICAL UPDATE

Eastern Municipal Water District (EMWD)
Matthews/Romoland Booster Pump Station
City of Menifee, Riverside County, California

Prepared for:
Lee + Ro, Inc.
1199 S. Fullerton Road
City Of Industry, Ca 91748

Prepared by:
Verdantas
41715 Enterprise Circle N, Suite 103
Temecula, California 92590
951-296-0530

Verdantas Project No: 041.32115

June 2025

41715 Enterprise Circle N Suite 103
Temecula, CA 92590
+1 951.296.0530

June 12, 2025

Project No. 32115

Mr. Amritendu Maji, P.E
LEE + RO, Inc.
1199 S. Fullerton Road
City of Industry, CA 91748

Subject: **Geotechnical Exploration Report**
Matthews/Romoland Booster Pump Station
Eastern Municipal Water District (EMWD)
City of Menifee, Riverside County, California

In accordance with your request, Verdantas Inc. (Verdantas, *formerly Leighton Consulting, Inc.*) is pleased to present herewith our update geotechnical report for the proposed water booster pump station (BPS) located west of the intersection of Antelope Road and Watson Road, in the City of Menifee, California.

Based on the results of this exploration, the proposed (BPS) is considered feasible from a geotechnical perspective. The site is generally underlain to the depth explored by dense older alluvial soils. These materials are expected to possess very low expansion potential and should be considered as CalOSHA Type C soils, so sloped excavations will be required to protect workers, if shoring and/or shields are not used.

The opportunity to be of service is sincerely appreciated. If you should have any questions, please do not hesitate to call our office.

Sincerely,

Verdantas Inc.

PROFESSIONAL GEOLOGIST
JEFFREY T. DELAND
No. 10387
STATE OF CALIFORNIA

Jeffrey T. DeLand, PG
Project Geologist/PM
1 951.252.8015
jdeland@verdantas.com

LICENSED PROFESSIONAL ENGINEER
BASHIR SAIID
C 93187
CIVIL
STATE OF CALIFORNIA

Bashir S. Saiid, PE
Associate Engineer
1 951.252.8927
bsaiid@verdantas.com

Distribution: (1) Addressee (PDF via email)

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Appendix C – Site-Specific Seismic Analysis
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1. INTRODUCTION

1.1 Site Location and Description

As depicted on Figure 1, the proposed Booster Pump Station (BPS) is located northwest of the intersection of Antelope Road and Watson Road in the City of Menifee. The site of the BPS consists of one parcel that is rectangular in shape. This parcel has been designated Assessors Parcel Number (APN) 329-050-049. The site is currently vacant surrounded by residential homes. Site topography is relatively flat.

1.2 Project Description

Based on information provided, we understand that a new dual zone BPS will be constructed to replace the existing Romoland BPS and to service new water pipelines. A previous site was selected for this BPS, however, due to a logistic issue with the City of Menifee, a new site was selected. The project includes approximately 10,000 gallons per minute (gpm) and 12,700 gpm of ultimate pumping capacity for the Matthews BPS and Romoland BPS, respectively. Plans were not available as of the date of this report; however, we assume that the proposed improvements will also consist of a masonry block wall building for the BPS along with associated yard piping, and perimeter wall. Depth to pipe invert is anticipated to be approximately 10 feet below the existing ground surface while pump can depth is approximately 12 to 15 feet below the existing ground surface, based on the provided information.

1.3 Purpose and Scope of Exploration

The purpose of our exploration is to (1) evaluate geotechnical engineering characteristics of the earth materials at the proposed site, and (2) provide geotechnical recommendations for design and construction of the proposed booster station. The scope of our work included the following tasks:

- Background Review: We reviewed readily available, relevant, geotechnical/ geologic reports and maps pertinent to the project.
- Field Exploration: Our field exploration consisted of two (2) hollow stem auger borings drilled within the proposed booster station site to provide field data for geotechnical evaluation.
- Geotechnical Laboratory Tests: Geotechnical laboratory tests were performed on selected soil samples collected during our field exploration. This laboratory-testing program was designed to evaluate general physical and engineering characteristics of soil within the project site.
- Engineering Analysis: Data obtained from our background review, field exploration, and geotechnical laboratory testing programs was evaluated to develop geotechnical conclusions and recommendations for the proposed booster pump station.
- Report Preparation: Results of this exploration have been summarized in this report, presenting our findings, conclusions and recommendations.

This report does not address the potential for encountering hazardous materials. Important information about limitations of geotechnical reports, in general, is presented in Appendix D, *GBA Important Information About This Geotechnical Report*.

1.4 Field Exploration

Our field exploration consisted of the excavation of two (2) hollow stem auger borings to a maximum depth of 51.5 feet below ground surface (BGS) within designated areas of the site. During exploration, disturbed/bulk and relatively undisturbed samples were collected for further laboratory testing and evaluation. Approximate locations of these borings are depicted on the Boring Location Map (see Figure 3). Sampling and logging were conducted by staff from our firm. After logging and sampling, the excavations were loosely backfilled with spoils generated during excavation. The exploration logs are provided in Appendix A.

1.5 Laboratory Testing

Laboratory tests were performed on representative bulk samples to provide a basis for development of earthwork control and foundation design. The laboratory testing program included maximum density and moisture content relationship, expansion index, collapse/swell potential, corrosion suite, R-value, and sieve analysis. The results of our laboratory testing are presented in Appendix B.

2. SUMMARY OF GEOTECHNICAL FINDINGS

A summary of our findings from research of pertinent literature, previous site-specific field explorations, geotechnical laboratory testing and engineering analysis, is discussed in this section.

2.1 Regional Geology

The site is located within a prominent natural geomorphic province in southwestern California known as the Peninsular Ranges. It is characterized by steep, elongated ranges and valleys that trend northwestward. More specifically, the site is situated within the Perris Block, an eroded mass of Cretaceous and older crystalline rock.

The Perris Block, approximately 20 miles by 50 miles in extent, is bounded by the San Jacinto Fault Zone to the northeast, the Elsinore Fault Zone to the southwest, the Cucamonga Fault Zone to the northwest, and the Temecula Basin to the southeast. The southeast boundary of the Perris block is poorly defined. The Perris Block has had a complex tectonic history, apparently undergoing relative vertical land movements of several thousand feet in response to movement on the Elsinore and San Jacinto Fault Zones. Thin sedimentary materials locally mantle the crystalline bedrock and alluvial and colluvial deposits fill the lower valley areas.

2.2 Subsurface Conditions

Our field exploration indicates that the subject site is underlain by quaternary-aged older fan deposits overlain by a thin layer (<1') of artificial fill/disturbed soil. This older alluvium consists of dense to very dense silty sand (SM) and clayey sand (SC) as well as very hard sandy silt (ML). Based on laboratory testing, the shallow soils possess very low expansion potential (EI<21) and possess very slight potential for collapse (<1%). Detailed descriptions of the earth materials encountered in each excavation are provided in Appendix A.

2.3 Surface and Groundwater

No surface or groundwater was observed or encountered to a depth of 51.5 feet explored. Water elevation from monitoring wells within ½ mile of the site indicate that the historic high is approximately 1363 feet mean sea level (approximately 90 feet below ground surface). However, groundwater conditions can fluctuate seasonally and also be directly-impacted by other factors such as future adjacent irrigation, which does not exist at the time of our field explorations.

2.4 Faulting and Seismic Design Parameters,

The subject site, like the rest of Southern California, is located within a seismically active region as a result of being located near the active margin between the North American and Pacific tectonic plates. The principal source of seismic activity on this site is movement along the northwest-trending regional fault systems such as the Elsinore and San Jacinto fault zones. Based on our review of published geologic maps (CGS, 2018), the subject site is not included within an Earthquake Fault Zone as created by the Alquist-Priolo Earthquake Fault Zoning Act.

For the purpose of structural design, seismic coefficients based on the 2022 California Building Code (CBC) are provided below. Since this facility is water pump station, we anticipate this is an Essential Facility (Risk Category IV), and a site-specific seismic analysis is required (Site Class D). In accordance with CBC 2022 and ASCE 7-16, seismic coefficients are tabulated below. More detailed information and graphical output of our analysis is provided in Appendix C.

Table 1. CBC Site Categorization and Seismic Coefficients

CBC Categorization/Coefficient	Value
Site Longitude (decimal degrees)	-117.1727
Site Latitude (decimal degrees)	33.7508
Site Class Definition	D
Mapped Spectral Response Acceleration at 0.2s Period, S_s	1.43g
Mapped Spectral Response Acceleration at 1s Period, S_1	0.53g
Adjusted Spectral Response Acceleration at 0.2s Period, S_{MS}	1.43g
Adjusted Spectral Response Acceleration at 1s Period, S_{M1}	0.90g
Design Spectral Response Acceleration at 0.2s Period, S_{DS}	0.95g
Design Spectral Response Acceleration at 1s Period, S_{D1}	0.60g

g = Gravity acceleration

* Per Supplement 3 to ASCE 7-16, the seismic parameters S_{M1} and S_{D1} in Table 1 above should be increased by 50% (Site Class D). Alternatively, a site-specific ground motion hazard analysis in accordance with Section 21.2 of ASCE 7-16 is required for this site.

The results of this analysis also indicate that the modified Peak Ground Acceleration (PGAm) for this site is 0.55g (see Appendix C).

2.5 Secondary Seismic Hazards

Secondary hazards such as ground rupture, seiches and tsunamis, landsliding, rockfalls, ground fissuring and subsidence should be considered nil for this site.

2.5.1 Liquefaction Potential

The site is mapped by the County of Riverside as having a low liquefaction hazard. Due to the absence of shallow groundwater and dense silty and clayey sands, the potential for liquefaction is considered very low or not a geologic concern.

2.5.2 Seismically-Induced Settlement

Due to the dense nature of subsurface soils, the seismically-induced settlement resulting from seismic loading is estimated to be less-than (<) 1-inch. Differential settlement resulting from seismic loading is assumed to be less than 0.5-inch over a distance of 40 feet. Seismic settlement is not considered a geotechnical constraint to the project, particularly for a buried vault and conduits.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 General

The proposed water booster pump station appears feasible from a geotechnical viewpoint provided that the following recommendations are incorporated into the design and construction phases of development. Due to the subsurface consisting of silty sand, the soils encountered may be considered CalOSHA Type C soils, and sloped excavations will be required to protect workers, if shoring and/or shields are not used.

3.2 Earthwork Considerations

Earthwork associated with the proposed booster pump station should be performed in accordance with applicable EMWD Specifications, “Standard Specifications for Public Works Construction” (Greenbook, latest edition) and the recommendations included in the text of this report.

3.2.1 Excavation Characteristics

Based on the results of our exploratory borings, the onsite alluvium should generally be easy to excavate with conventional earthmoving excavation equipment. Excavation should be performed in accordance with the project plans, specifications, and all applicable OSHA requirements. The contractor should be responsible for providing the "competent person" required by OSHA standards. Contractors should be advised that onsite sandy soils could make excavations particularly unsafe and hence necessary safety precautions should be taken at all times.

3.2.2 Subgrade Preparation – Pipelines

Prior to pipe installation, the subgrade should be firm, uniform, and free of standing water, loose materials and then properly compacted to provide uniform seating and support to the entire section of the pipe placed on bedding material. Oversize particles larger than 2-inches in largest dimension should be removed from the trench subgrade and replaced with compacted uniform bedding materials. If groundwater is encountered or the subgrade become disturbed due to localized seepage or surface water, the contractor should excavate the disturbed or saturated soils to a maximum depth of 2 feet and replace with suitable materials to provide a stable bottom. Crushed rock (½-inch maximum size) may be used if found necessary to stabilize bottom of trench/pit prior to placing bedding materials.

3.2.3 Subgrade Preparation – Pump House/Walls/Structures

We anticipate that foundations for the perimeter wall, various concrete pads and pump building will be constructed at or near finish grades. As such, in all areas requiring additional fill to achieve finish grades, the upper 12-inches of existing soils (or 12-inches below bottom of footings) should be removed/over-excavated and recompacted prior to placing the new fill. The intent of this overexcavation is to achieve minimum of 12-inches of compacted soils beneath all settlement-sensitive structures including pavement areas. Localized areas of deeper removals/ over-

excavation may be required in some areas depending on the actual conditions encountered and pending verification by our field representative during grading.

After performing required over-excavation, the exposed bottom/subgrade should be scarified a minimum depth of 8 inches, and moisture conditioned to near optimum moisture content and compacted to a minimum of 90 percent relative compaction in accordance with ASTM D1557.

3.2.4 Subgrade Preparation – Pump Can Subgrade

As described in Section 1.2 of this report, subgrade elevations for the pump cans are anticipated to be approximately 12 to 15 feet below the existing ground surface. If disturbed during excavation, the exposed subgrade should moisture conditioned to optimum moisture content and compacted to a minimum of 90 percent relative compaction in accordance with ASTM D1557.

3.2.5 Trench Backfill

Prior to backfilling, pipes should be bedded in and covered with a uniform, granular material that has a Sand Equivalent (SE) of 30 or greater, and a gradation meeting requirements of the pipe manufacturer. Onsite soils are expected to be too silty to be considered for bedding material. A minimum cover of 12 inches of bedding material should be provided above the top of the pipe. As an alternative, crushed rock per EMWD Standards can be used as pipe bedding.

3.2.6 General Backfill

Native soils are considered suitable in all structural fill areas including building pads and pavement. These materials should be placed in thin lifts (not exceeding 8 inches); moisture conditioned, as necessary, and mechanically compacted to a minimum of 90 percent relative compaction per ASTM D 1557 or as required per EMWD standard specifications. The actual lift thickness should depend on the compaction equipment used. For hand-directed mechanical equipment such as vibratory plates or tampers, the maximum lift thickness should not exceed 4 inches. The contractor should not use jetting to compact trench backfill unless approved by EMWD and the jetting procedures and soils requirements comply with Section 306-1.3 of the “Green Book”.

3.2.7 Import Soils

Import soils and/or borrow sites, if needed, should be evaluated by Verdantas prior to import. Import soils should be uncontaminated, granular in nature, free of organic material (loss on ignition less-than 2 percent), have very low expansion potential (or EI<21) and have a low corrosion impact to the proposed improvements.

3.2.8 Shrinkage and Subsidence

Change in volume of excavated and recompacted soil varies according to initial density, which is a function of soil type and location. This volume change is represented as a percentage increase (bulking) or decrease (shrinkage) in volume of fill after removal and recompaction. Subsidence occurs as natural ground is moisture-conditioned and densified to receive fill. Field and laboratory

data used in our calculations included laboratory-measured maximum dry densities for soil types encountered at this site relative to measure in-place densities of soils sampled. We estimate the upper 2 feet requiring removal and re-compaction to have a shrinkage factor of 5 to 10 percent. Level of fill compaction, variations in existing soil dry density, and other factors influence the amount of volume change. Some adjustments to earthwork volume should be anticipated during grading of the site.

3.3 Foundation Design / Earth Pressures

3.3.1 Bearing Capacity

A net allowable bearing capacity of 2,500 pounds-per-square-foot (psf), may be used for design of footings of appurtenant structures founded into a minimum of 12-inches of compacted fill. A minimum base width of 18 inches for continuous footings and a minimum bearing area of 3 square feet (1.75 ft by 1.75 ft) for pad foundations should be used. This allowable bearing pressure may be increased by 250 psf for each additional foot of embedment and 150 psf with each additional foot of width, to a maximum vertical bearing value of 3,500 psf. A modulus of subgrade reaction of 200 pci may be used for design of mat and/or large pad foundations.

Additionally, an increase of one-third may be applied when considering short-term live loads (e.g. seismic and wind). Our recommended allowable bearing capacity is generally based on a total allowable, post construction settlement of 1 inch. Differential settlement is estimated at 0.5-inch over a horizontal distance of 40 feet. However, for a completely subterranean vault (without any above-grade structure), static settlement is expected to be negligible.

3.3.2 Lateral Resistance

Lateral loads may be resisted by friction between the footings and the supporting subgrade. A maximum allowable frictional resistance of 0.30 may be used for design. In addition, lateral resistance may be provided by passive pressures acting against foundations poured neat against properly compacted granular fill. We recommend that an allowable passive pressure based on an equivalent fluid pressure of 250 pounds-per-cubic-foot (pcf) be used in design. Passive pressure should not exceed 3,000 psf. These values may be increased by one-third when considering wind and seismic forces. The friction and passive values should be reduced by a factor-of-safety of 1.5 if used in combination.

3.3.3 Static Lateral Earth Pressures for Retaining Walls:

We recommend that retaining walls be backfilled with site soils or imported non-expansive soils (EI≤21). For drained retaining walls with level backfill, the following parameters may be used for retaining wall design:

Table 2. Retaining Wall Design Earth Pressures (Static, Drained)

Loading Conditions	Equivalent Fluid Density (pcf)	
	Level Backfill	2:1 Backfill
Active	35	55
At-Rest	52	85
Passive*	300*	125 (2:1, sloping down)

* This assumes level condition in front of the wall will remain for the duration of the project, not to exceed 2,000 psf at depth.

Cantilever walls that are designed to yield at least 0.001H, where H is equal to the wall height, may be designed using the active condition. Rigid walls and walls braced at the top should be designed using the at-rest condition, which is expected to be the case for vaults. Passive pressure is used to compute soil resistance to lateral structural movement.

Total depth of retained earth for design of walls and for uplift resistance should be measured as the vertical height of the stem below the ground surface at the wall face for stem design or measured at the heel of the footing for overturning and sliding. A total unit weight of 120 pounds-per-cubic-foot (pcf) may be assumed to calculate weight of compacted fill soil over wall footings, if properly compacted and drained.

3.3.4 Retaining Wall Surcharges:

In addition to the above lateral forces due to retained earth, surcharge due to above grade loads on the wall backfill, such as traffic, should be considered in design of retaining walls. Vertical surcharge loads behind a retaining wall on or in backfill within a 1:1 (horizontal:vertical) plane projection up and out from the retaining wall toe, should be considered as lateral and vertical surcharge. Unrestrained (cantilever) retaining walls should be designed to resist one-third of these surcharge loads applied as a uniform horizontal pressure on the wall. Braced walls should also be designed to resist an additional uniform horizontal-pressure equivalent to one-half of uniform vertical surcharge-loads.

In areas where autos and pickup trucks will drive, we suggest assuming a uniform vertical surcharge of 300 psf, which would result in active and at-rest horizontal surcharges of 100 psf and 150 psf, respectively. This should be doubled in areas of heavy construction traffic (such as concrete trucks, heavy equipment delivery-trucks, etc.). If crane outrigger loads or other point load sources are applied as wall surcharge, this will require additional analyses based on load source and location relative to the wall.

3.3.5 Incremental Seismic Loads - Retaining Structures

Seismic incremental loads need not be added to buried-vaults or retaining walls on the order of (≤) 6-feet deep or less, with level backfill. However, at the discretion of the project Structural Engineer (SE), incremental seismic earth pressures of 14H pounds-per-cubic-foot (pcf), where H is the retaining wall stem height in feet, may be applied for design in addition to static earth and surcharge pressures presented above. This is based on traditional Mononobe-Okabe (1929) equations. Traditionally, this incremental seismic earth pressure has been applied as an inverted

triangle (inverted equivalent fluid pressure), with largest dynamic earth pressure occurring at the top of the wall (upper ground surface). Resultant seismic earth pressure force has traditionally been applied at approximately 0.6H from the bottom of the wall, where H is the wall (stem) height (e.g. Seed and Whitman, 1970). However, recent studies (Sitar, et. al., 2013, UC. Berkeley) suggest a uniform pressure distribution is likely closer to actual lateral seismic loads, so a uniform pressure of 12H applied as a uniform/rectangular pressure distribution can also be considered (based on current research and observations).

3.3.6 Building Slab – Vapor Retarder:

Building slabs should be designed by the structural engineer and constructed on properly compacted subgrade soils. It has been a standard of care to install a moisture-vapor retarder underneath all slabs where moisture condensation is undesirable. Moisture vapor retarders may retard but not totally eliminate moisture vapor movement from the underlying soils up through the slabs. Moisture vapor transmission may be additionally reduced by use of concrete additives. Verdantas Inc. does not practice in the field of moisture vapor transmission evaluation/mitigation. Therefore, we recommend that a qualified person/firm be engaged/ consulted with to evaluate any impact on the proposed construction.

3.4 Corrosivity Evaluation

Sulfate ions in the soil can lower soil resistivity and can be highly aggressive to portland cement concrete by combining chemically with certain constituents of the concrete, principally tricalcium aluminate. This reaction is accompanied by expansion and eventual disruption of the concrete matrix. Potentially high sulfate content could also cause corrosion of the reinforcing steel in concrete. Table below summarizes current standards for concrete exposed to sulfate-containing solutions.

Table 3. Sulfate Concentration and Sulfate Exposure

Sulfate In Water (parts-per-million)	Water-Soluble Sulfate (SO_4) in soil (percentage by weight)	Sulfate Exposure
0-150	0.00 - 0.10	Negligible
150-1,500	0.10 - 0.20	Moderate (Seawater)
1,500-10,000	0.20 - 2.00	Severe
>10,000	Over 2.00	Very Severe

The sulfate content was determined in the laboratory for representative onsite soil sample. The results indicate that the water-soluble sulfate range is less than 0.1 percent by weight, which is considered negligible as per Table 3 above. Based upon the test results, Type II cement or an equivalent may be used.

Many factors can affect corrosion potential of soil including soil moisture content, resistivity, permeability and pH, as well as chloride and sulfate concentration. In general, soil resistivity, which is a measure of how easily electrical current flows through soils, is the most influential factor. Based on the findings of studies presented in ASTM STP 1013 titled “Effects of Soil

Characteristics on Corrosion" (February, 1989), the approximate relationship between soil resistivity and soil corrosiveness was developed as shown in Table below.

Table 4. Relationship between Soil Resistivity and Soil Corrosivity

Soil Resistivity (ohm-cm)	Classification of Soil Corrosiveness
0 to 900	Very Severely Corrosive
900 to 2,300	Severely Corrosive
2,300 to 5,000	Moderately Corrosive
5,000 to 10,000	Mildly Corrosive
10,000 to >100,000	Very Mildly Corrosive

Based on minimum resistivity laboratory test results, the onsite soil is considered ***mildly corrosive***. Ferrous pipe can be protected by polyethylene bags, tape or coatings, di-electric fittings, concrete encasement or other means to separate the pipe from wet onsite soils. Further testing of import and possibly site soil corrosivity could be performed and specific recommendations for corrosion protection may need to be provided by a qualified corrosion engineer.

3.5 Preliminary Pavement Design

Our preliminary pavement design is based on a laboratory derived R-value of 40 and based on subgrade preparation per Section 3.2.3 above and Caltrans Highway Design Manual. For planning and estimating purposes, the pavement sections are calculated based on Traffic Indexes (TI) as indicated in Table below:

Table 5. Asphalt Pavement Sections

General Traffic Condition	Design Traffic Index (TI)	Asphalt Concrete (inches)	Aggregate Base (inches)
Light Traffic / Parking Stalls	4.5	3.0	4.0
Truck Access / Driveways	5.5	3.0	5.25

Appropriate Traffic Index (TI) should be selected or verified by the project civil engineer or traffic engineering consultant and appropriate R-value of the subgrade soils will need to be verified after completion of rough grading to finalize the pavement design. Pavement design and construction should also conform to applicable District and industry standards. The Caltrans pavement section design calculations were based on a pavement life of approximately 20 years with a normal amount of flexible pavement maintenance.

Where applicable, we recommend that a minimum of 6 inches of PCC pavement be used, in high impact load areas or if to be subjected to truck traffic. The PCC pavement may be placed directly on a compacted subgrade with an R-Value of 30 or higher. The PCC pavement should be adequately reinforced to prevent shrinkage cracking and have a minimum of 28-day flexural strength of 550 psi (or compressive strength of 3,250 psi). Other requirements of Caltrans Standard Specifications regarding mixing and placing of concrete should be followed.

The upper 12 inches of the subgrade soils should be scarified, moisture-conditioned to near optimum moisture content, compacted to at least 95 percent relative compaction (ASTM D1557) and kept in this condition until the pavement section is constructed. Minimum relative compaction requirements for aggregate base should be 95 percent of the maximum laboratory density as determined by ASTM D1557. If applicable, aggregate base should conform to the "Standard Specifications for Public Works Construction" (Green book) current edition or Caltrans Class 2 aggregate base.

If pavement areas are adjacent to heavily watered landscape areas, some deterioration of the subgrade load bearing capacity may result. Moisture control measures such as deepened curbs or other moisture barrier materials may be used to prevent the subgrade soils from becoming saturated. The use of concrete cutoff or edge barriers should be considered when pavement is planned adjacent to either open (unfinished) or irrigated landscaped areas.

3.6 Slope Construction

Compacted fill or cut slopes up to 15 feet in height at maximum 2:1 (horizontal: vertical) are considered grossly stable for static and pseudostatic conditions. Higher or steeper slopes should be subject to further review and evaluation.

Slope faces are inherently subject to erosion, particularly if exposed to rainfall and storm drainage water. It is recommended that proper erosion control measures be provided in accordance with recommendations of the project Civil Engineer or erosion control specialist.

4. CONSTRUCTION CONSIDERATIONS

4.1 Temporary Cut Slopes

The contractor is responsible for all temporary slopes and trenches excavated at the site and the design of any required temporary shoring. Shoring, bracing and benching should be performed by the contractor in accordance with the current edition of the California Construction Safety Orders, see:

http://www.dir.ca.gov/title8/sb4a6.html

During construction, exposed earth material conditions should be regularly evaluated to verify that conditions are as anticipated. The contractor is responsible for providing the "competent person" required by OSHA standards to evaluate soil conditions. Close coordination between the competent person and geotechnical consultant should be maintained to facilitate construction while providing safe excavations. Existing alluvial soils encountered are classified as OSHA soil Type C. Therefore, unshored temporary cut slopes should be no steeper than 1:1 (horizontal:vertical), for a height no-greater-than (≤) 20 feet (California Construction Safety Orders, Appendix B to Section 1541.1, Table B-1). These recommended temporary cut slopes assume a level ground surface for a distance equal to one-and-a-half (x1.5) the depth of excavation. For steeper temporary slopes, deeper excavations, and/or where slopes terrain exists within close proximity to excavation (<1.5xdepth), appropriate shoring methods or flatter slopes may be required to protect the workers in the excavation and adjacent improvements. Such methods should be implemented by the contractor and approved by the geotechnical consultant.

4.2 Temporary Shoring

If the sloped open cut excavation is not feasible based on requirements above and due to existing structures, excavations for the proposed pipeline should be supported by a temporary shoring system such as cross-braced hydraulic shoring, conventional shields, sheet piles, soldier piles and wood lagging. The choice should be left to the contractor’s judgment since economic considerations and/or the individual contractor’s construction experience may determine which method is more economical and/or appropriate. The contractor and shoring designer should also perform additional geotechnical studies as necessary to refine the means-and-methods of shoring construction.

The support of all adjacent areas (existing structures, etc.) during excavation and construction (including pavements) without distress is the contractor's responsibility. In addition, it should be the contractor’s responsibility to undertake a pre-construction survey with benchmarks and photographs of the adjacent properties. Shoring systems should be designed by a California licensed civil or structural engineer. As preliminary design guidelines, we present the following geotechnical parameters for shoring design. The following lateral earth pressures are recommended for temporary shoring supporting encountered alignment soils with level ground behind the shoring. Passive pressure also may be used to compute lateral soil resistance, if

necessary, for sheet piles. Earth pressures provided are ultimate values and a safety factor should be applied as appropriate.

Table 6. Static Lateral Earth Pressures

Conditions[1]	Static Equivalent Fluid Weight (pcf)
Active (cantilever)	35
At-Rest (braced)	52
Passive[2]	300

1. For temporary excavations only, with level backfill, not including surcharges
2. Passive equivalent fluid pressure may be doubled for isolated soldier piles spaced at least 2½ diameters on-center. Passive resistance should not exceed 3,000 pounds-per-square-foot (psf)

Determination of appropriate design conditions (active or at-rest) depends on shoring flexibility. If a rotation of more than 0.001 radian (0.06 degrees) is allowed, active pressure conditions apply; otherwise, at-rest condition governs.

Surcharge loads (dead or live) should be added to the indicated lateral earth pressures and should be applied uniformly, if such loads are within a horizontal distance that is less-than the exposed shoring height. The corresponding lateral earth pressure will approximately be 33-percent of the vertical surcharge for active conditions, and 50-percent for at-rest conditions. Surcharge pressures from concentrated loads should be evaluated after geometric constraints and loading conditions are determined on individual basis.

4.3 Pre-excavation Survey and Settlement Monitoring

A very important geotechnical concern is to avoid damaging any existing improvements adjacent to excavations. It is recommended that the contractor provide settlement monitoring and contingency plans in case of adjacent settlement-resistive improvements.

4.4 Dewatering during Construction

Based on the results of our exploration, groundwater was not encountered at the explored depths (51.5 feet). If encountered during excavation, groundwater control such as dewatering, will be required to limit instability of the pump cans/pit bottom, and aid in foundation construction and soil backfill. Dewatering or any other suitable method for stabilizing excavation bottom may be selected by the contractor based on actual groundwater conditions encountered and based on the contractor's chosen means-and-methods of construction. The selected method by the contractor should be able to effectively mitigate for bottom heave or stabilize subgrade soils during construction/ backfilling. However, deep groundwater drawdown should be avoided, to reduce the potential for damaging adjacent structures, if applicable. It is recommended that the selected dewatering method should keep groundwater at least 3 feet below bottom of excavation for wet well or underground vault construction. It is also important to consider the uplift forces resulting from the shallow groundwater during post-construction conditions to buried vaults or wet wells.

4.5 Additional Geotechnical Services

Verdantas should review site, grading and foundation plans, when available, and comment further on geotechnical aspects of the project. Geotechnical conclusions and preliminary recommendations should be reviewed and verified by Verdantas during construction and revised accordingly if geotechnical conditions encountered vary from our findings and interpretations. Geotechnical observation and testing during construction should be provided as follows:

- During overexcavation of unsuitable soil,
- During compaction of all fill materials,
- After excavation of all footings and prior to placement of concrete,
- During utility trench backfilling and compaction,
- During pavement construction and when unusual conditions are encountered.

5. LIMITATIONS

This report was necessarily based in part upon data obtained from a limited number of observances, site visits, soil samples, tests, analyses, histories of occurrences, spaced subsurface explorations and limited information on historical events and observations. Such information is necessarily incomplete. The nature of many sites is such that differing characteristics can be experienced within small distances and under various climatic conditions. Changes in subsurface conditions can and do occur over time. This exploration was performed with the understanding that the project as described in Section 1.2 of this report.

This report was prepared for LEE + RO, Inc. based on LEE + RO, Inc. needs, directions, and requirements at the time of our investigation. This report is not authorized for use by, and is not to be relied upon by any party except LEE + RO, Inc., and its successors and assigns as owner of the property, with whom Verdantas, Inc. has contracted for the work. Use of or reliance on this report by any other party is at that party's risk. Unauthorized use of or reliance on this report constitutes an agreement to defend and indemnify Verdantas, Inc. from and against any liability which may arise as a result of such use or reliance, regardless of any fault, negligence, or strict liability of Verdantas, Inc. The client is referred to Appendix D regarding important information on geotechnical engineering studies/reports and their applicability and limitations.

6. REFERENCES

ASCE 7, 2016, Minimum Design Loads for Buildings and Other Structures by Structural Engineering institute.

California Building Code (CBC), 2022, "*California Code of Regulations*," Title 24, Part 2, Vol. 2.

California Geologic Survey (CGS), 2006 Geologic Map of California, of the San Bernardino and Santa Ana 30' X 60' Quadrangles, Southern California, Version 1.0.

California Geologic Survey (CGS), 2018, Earthquake Fault Zones, A guide for Government Agencies, Property Owners / Developers, And Geoscience Practitioners for Assessing Fault Rupture Hazards in California, Department of Conservation, Division of Mines and Geology, Special Publication 42. Revised

California Department of Water Resources (DWR), 2025, Well Completion Report Map Application, https://wdl.water.ca.gov/WaterDataLibrary/Map.aspx

Converse Consultants, 2017, Geotechnical and Geologic Due Diligence Report, Proposed Romoland Booster Pump Station, 1.99-Acre Site at the Southwest Corner of Ethanac Road & Antelope Road Romoland Area, Riverside County, California, Project No. 16-81-253-01, dated August 10, 2017.

Converse Consultants, 2018, Geotechnical Investigation Report, Romoland Booster Pump Station Replacement, Romoland Area, Riverside County, California, Project No. 16-81-253-02, dated October 1, 2018.

Leighton Consulting, Inc., 2021, Geotechnical Exploration, Matthews Booster Pump Station and Pipeline Project, Eastern Municipal Water District (EMWD), Menifee, Riverside County, California, Project No. 12847.001, dated September 27, 2021.

National Center for Earthquake Engineering Research, (NCEER), 1997, Proceedings of the NCEER Workshop of Liquefaction Resistance of Soils, Technical Report NCEER-97-0022, dated December 31.

Public Works Standard, Inc., 2024, Greenbook, *Standard Specifications for Public Works Construction*: BNI Building News, Anaheim, California.

United States Geological Survey, (USGS), 2025, A Web Based Computer Program Published by USGS to Calculate Seismic Hazard Curves and Design Parameters based on ASCE 7-16 Procedures.

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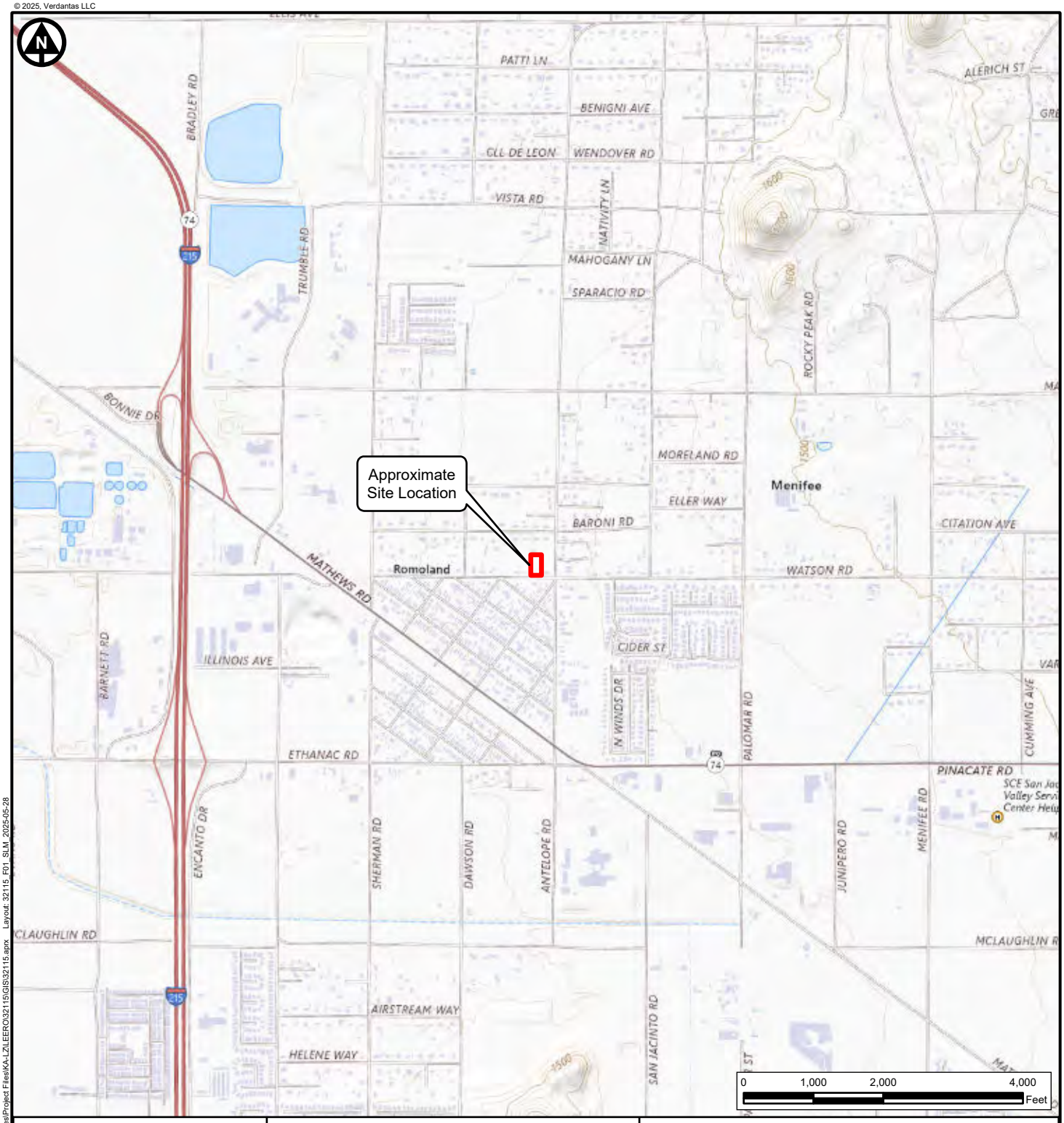

Approximate Site Location

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Sources:
Aerial Imagery: Esri Imagery Web Service dated 2021.

Topographic Map: National Geographic Society Web Service.

Quadrangle: Perris, California

Matthews/Romoland
Booster Pump Station

Site Location Map

Menifee, California

Project Number	32115
Date	05/2025
Author	mmurphy
Scale	1 in = 2,000 ft
Figure	1

Edited: 5/28/2025 File Location: C:\Users\MaryMurphy\OneDrive - Verdantas\Files\Project Files\KA-LZ\LEERO\32115\GIS\32115.aprx Layout: 32115_F01_SLM_2025-05-28

Produced Using Esri's ArcGIS Software

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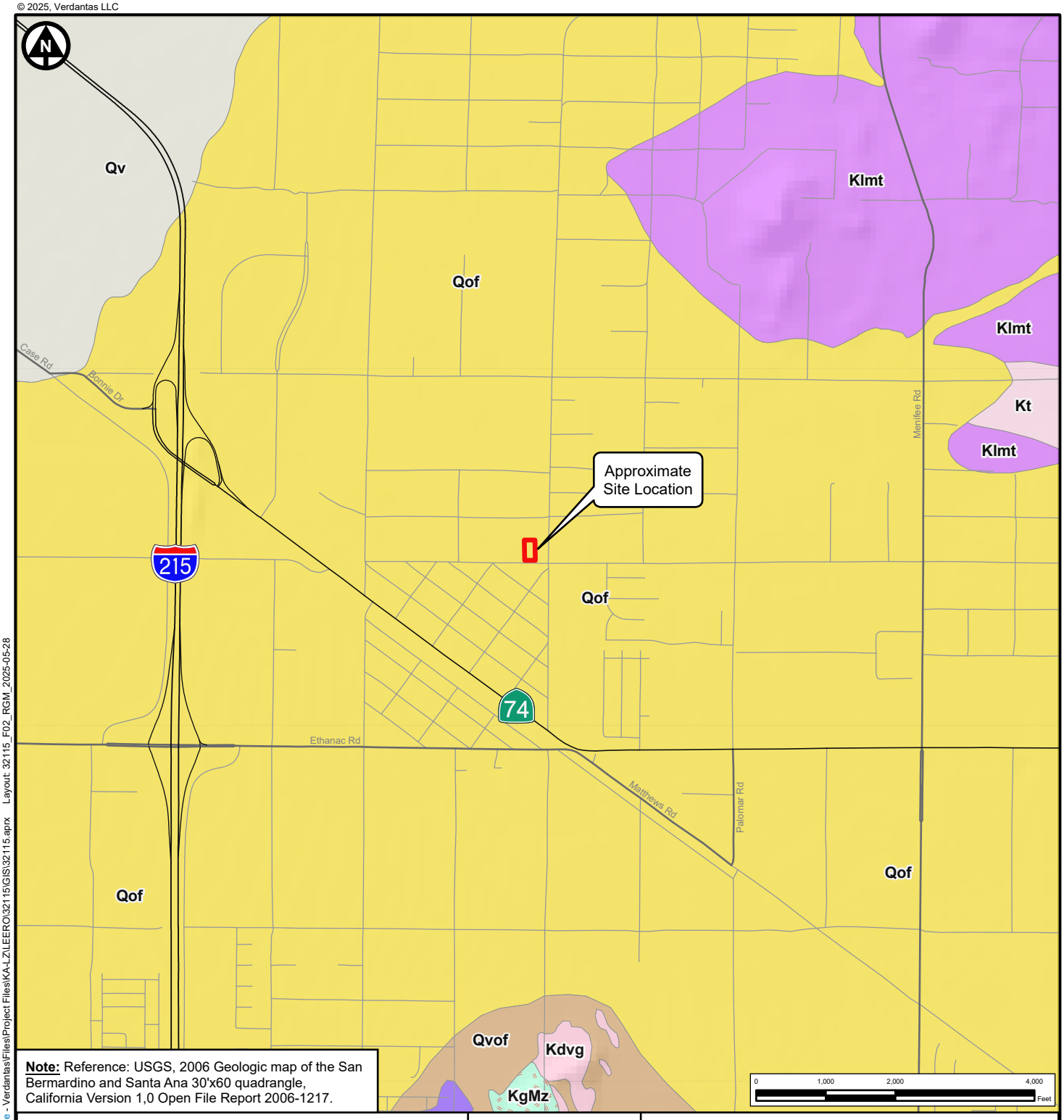

Note: Reference: USGS, 2006 Geologic map of the San Bermardino and Santa Ana 30'x60 quadrangle, California Version 1,0 Open File Report 2006-1217.

- Qv,Very young alluvial-valley deposits
- Kdvg,Domenigoni Valley Pluton
- KgMz,Intermixed Mesozoic schist and Cretaceous granitic rocks
- Kgb,Gabbro, undifferentiated
- Klmt,Lakeview Mountains pluton
- Kt,Tonalite, undifferentiated
- Qof,Old alluvial-fan deposits
- Qvof,Very old alluvial-fan deposits

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Matthews/Romoland
Booster Pump Station

Regional Geology Map

Menifee, California

Project Number	32115
Date	05/2025
Author	mmurphy
Scale	1 in = 2,000 ft
Figure	2

Edited: 5/28/2025 File Location: C:\Users\MaryMurphy\OneDrive - Verdantas\Files\Project Files\KA-LZ\LEERO\32115\GIS\32115.aprx Layout: 32115_F02_RGM_2025-05-28

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Approximate Location of Boring

Approximate Site Location

Note: The aerial photo was acquired through the Esri Imagery Web Service. Aerial photography dated 2021.

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Matthews/Romoland
Booster Pump Station

Regional Geology Map

Menifee, California

Project Number	32115
Date	05/2025
Author	mmurphy
Scale	1 in = 80 ft
Figure	3

Edited: 5/28/2025 File Location: C:\Users\MaryMurphy\OneDrive - Verdantas\Files\Project Files\KA-LZ\LEERO\32115\GIS\32115.aprx Layout: 32115_F03_BLM_2025-05-28

Produced Using Esri's ArcGIS Software

Appendix A

Logs Of Exploratory Borings

GEOTECHNICAL BORING LOG VB-1

Project No.	32115	**Date Drilled**	5-23-25
Project	EMWD Matthews BPS Additional Geotech	**Logged By**	LRM
Drilling Co.	2R Drilling Inc.	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	1456'
Location	See *Figure 3 - Boring Location Map*	**Sampled By**	LRM

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0			B-1				SM	**Artificial Fill (Af)**	MD, EI, CR
1455								SM	@0': SILTY SAND; dark yellowish brown, slightly moist, low plasticity, fine sand, (Max density = 133.2 pcf at 8.2% moisture), (EI = 0).	
									Quaternary Older Fan Deposits (Qof)	
									@0.5': Silty SAND; yellowish brown, slightly moist, fine to medium sand, trace coarse sand, trace pinholes, trace mica specks.	
									@3': moist	
	5			R-1	17 19 26	127	5		@5': dense, trace rootlets, (Settlement = 0.84%).	CO
1450										
	10			R-2	38 50/5"	129	6		@10': very dense, fine to coarse sand, micaceous.	
1445										
	15			S-3	7 16 19				@15': fine to medium sand, weak cementation, trace coarse sand, (Fines = 40%).	-200
1440										
	20			R-4	10 14 29	90	24		@20': dense, olive brown, trace mica.	
1435										
	25			S-5	14 20 24				@25': very dense, yellowish brown, fine sand, homogenous.	
1430										
	30									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG VB-1

Project No.	32115	**Date Drilled**	5-23-25
Project	EMWD Matthews BPS Additional Geotech	**Logged By**	LRM
Drilling Co.	2R Drilling Inc.	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	1456'
Location	See *Figure 3 - Boring Location Map*	**Sampled By**	LRM

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
									This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.	
1425	30			S-6	18 31 50/5"				@30': trace coarse sand, trace percipitate stringers.	
1420	35			S-7	12 24 50				@35': olive brown, fine sand, trace coarse sand. @36.25': white to very light yellowish brown, very fine sand, homogenous.	
1415	40			S-8	19 31 41				@40': olive brown, fine sand, trace coarse sand, trace mica specks, (Fines = 42%).	
1410	45			S-9	10 28 36			ML	@45': Sandy SILT; hard, olive brown, moist, fine sand, trace MnO_2 blebs, low plasticity, grades to Silty SAND, yellowish brown, moist, fine to medium sand, micaceous.	-200
1405	50			S-10	7 13 25				@50': hard, olive brown, moist, fine sand, low plasticity, trace MnO_2 specks.	
									TOTAL DEPTH = 51.5 FEET **NO GROUNDWATER ENCOUNTERED** **BACKFILLED WITH SOIL CUTTINGS**	
1400	55									
	60									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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*** * * This log is a part of a report by Leighton and should not be used as a stand-alone document. * * ***

GEOTECHNICAL BORING LOG VB-2

Project No.	32115	**Date Drilled**	5-23-25
Project	EMWD Matthews BPS Additional Geotech	**Logged By**	LRM
Drilling Co.	2R Drilling Inc.	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	1455'
Location	See *Figure 3 - Boring Location Map*	**Sampled By**	LRM

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
									This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.	
1455	0			B-1				SM	**Artificial Fill (Af)**	SA, RV
								SM	@0': SILTY SAND; dark yellowish brown, slightly moist, low plasticity, fine sand, (Gravel = 1%, Fines = 38%), (R-value = 40).	
				R-1	17 19 31	124	3		**Quaternary Older Fan Deposits (Qof)** @0.5': Silty SAND; yellowish brown, slightly moist, fine to medium sand, trace coarse sand, trace pinholes, trace mica specks. @2.5': dense, moist, slightly disturbed.	
1450	5			R-2	13 16 21	125	5		@ 5': dark yellowish brown, (Settlement = 0.90%).	CO
				R-3	15 26 36	121	4		@7.5': very dense, light yellowish brown grades to dark brown, fine to coarse sand, more medium to coarse sand than above.	
1445	10			R-4	19 31 50/5"	128	8		@10': reddish brown, MnO_2 spotting, moderate cementation.	
				S-5	7 10				@12.5': medium dense, olive brown, fine to coarse sand, MnO_2.	
					10			SC	@13.5': Clayey SAND; medium dense, reddish brown, moist, fine to medium sand.	
1440	15			R-6	15 50/5"			SM	@15': Silty SAND; very dense, reddish brown, moist, fine sand, trace medium sand, trace decomposed rootlets, trace pinholes.	
1435	20			S-7	9 15 26				@20': pale yellowish brown, very fine sand, trace percipitate strigers, trace decomposed rootlets.	
1430	25			S-8	17 37 50/5"				@25': olive brown, fine sand, micaceous.	
									TOTAL DEPTH = 26.5 FEET **NO GROUNDWATER ENCOUNTERED** **BACKFILLED WITH SOIL CUTTINGS**	
1425	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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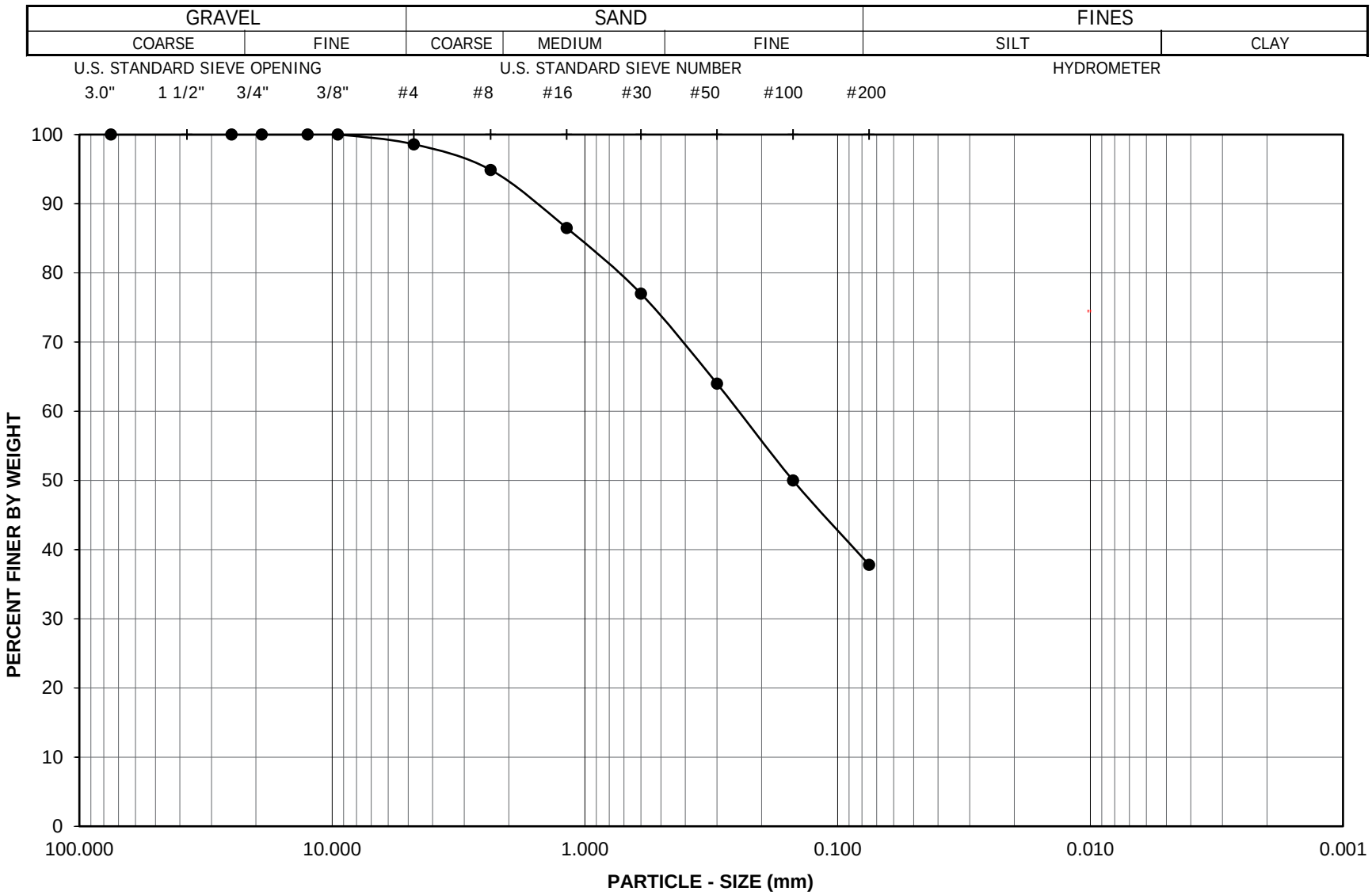
*** * * This log is a part of a report by Leighton and should not be used as a stand-alone document. * * ***

Appendix B

Geotechnical Laboratory Testing Results



Project Name: EMWD Matthews BPS Additional Geotech

Project No.: 041.0000032115

Boring No.: VB-2 Sample No.: B-1

Depth (feet): 0 - 5.0 Soil Type : SM

Soil Identification: Silty Sand (SM), Dark Yellowish Brown.

GR:SA:FI : (%) 1 : 61 : 38

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PARTICLE - SIZE DISTRIBUTION ASTM D 6913

Jun-25

Boring No.	VB-1	VB-1						
Sample No.	S-3	S-9						
Depth (ft.)	15.0	45.0						
Sample Type	SPT	SPT						
Soil Classification	SM	SM						
Soak Time (min)	10	10						
Moisture Correction								
Wet Weight of Soil + Container (gm.)	1092.6	1255.4						
Dry Weight of Soil + Container (gm.)	1038.1	1113.1						
Weight of Container (gm)	281.3	279.5						
Moisture Content (%)	7.2	17.1						
Container No.:	L	AF						
Sample Dry Weight Determination								
Weight of Sample + Container (gm.)	1038.1	1113.1						
Weight of Container (gm.)	281.3	279.5						
Weight of Dry Sample (gm.)	756.8	833.6						
Container No.:	L	AF						
After Wash								
Dry Weight of Sample + Container (gm)	737.0	760.6						
Weight of Container (gm)	281.3	279.5						
Dry Weight of Sample (gm)	455.7	481.1						
% Passing No. 200 Sieve	**40**	**42**						
% Retained No. 200 Sieve	60	58						

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PERCENT PASSING
No. 200 SIEVE
ASTM D 1140

Project Name: EMWD Matthews BPS
Project No.: 041.0000032115
Client Name: Eastern Municipal Water District
Tested By: OMH Date: 06/02/25

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MODIFIED PROCTOR COMPACTION TEST

ASTM D 1557

Project Name:	EMWD Matthews BPS Additional Geotech	Tested By:	G. Stearns	Date:	06/03/25
Project No.:	041.0000032115	Input By:	M. Vinet	Date:	06/05/25
Boring No.:	VB-1	Depth (ft.):	0 - 5.0		
Sample No.:	B-1				
Soil Identification:	Silty Sand (SM), Dark Yellowish Brown.				

Preparation Method: [X] Moist [ ] Dry

[X] Mechanical Ram [ ] Manual Ram

Mold Volume (ft³) 0.03350 *Ram Weight = 10 lb.; Drop = 18 in.*

TEST NO.	1	2	3	4	5	6
Wt. Compacted Soil + Mold (g)	5435	5584	5682	5647		
Weight of Mold (g)	3491	3491	3491	3491		
Net Weight of Soil (g)	1944	2093	2191	2156		
Wet Weight of Soil + Cont. (g)	1780.6	1522.3	1462.2	1398.2		
Dry Weight of Soil + Cont. (g)	1720.8	1450.0	1372.1	1295.4		
Weight of Container (g)	279.5	280.2	276.8	277.5		
Moisture Content (%)	4.1	6.2	8.2	10.1		
Wet Density (pcf)	127.9	137.7	144.2	141.9		
Dry Density (pcf)	122.8	129.7	133.2	128.9		

Maximum Dry Density (pcf) **133.2** **Optimum Moisture Content (%)** **8.2**

PROCEDURE USED

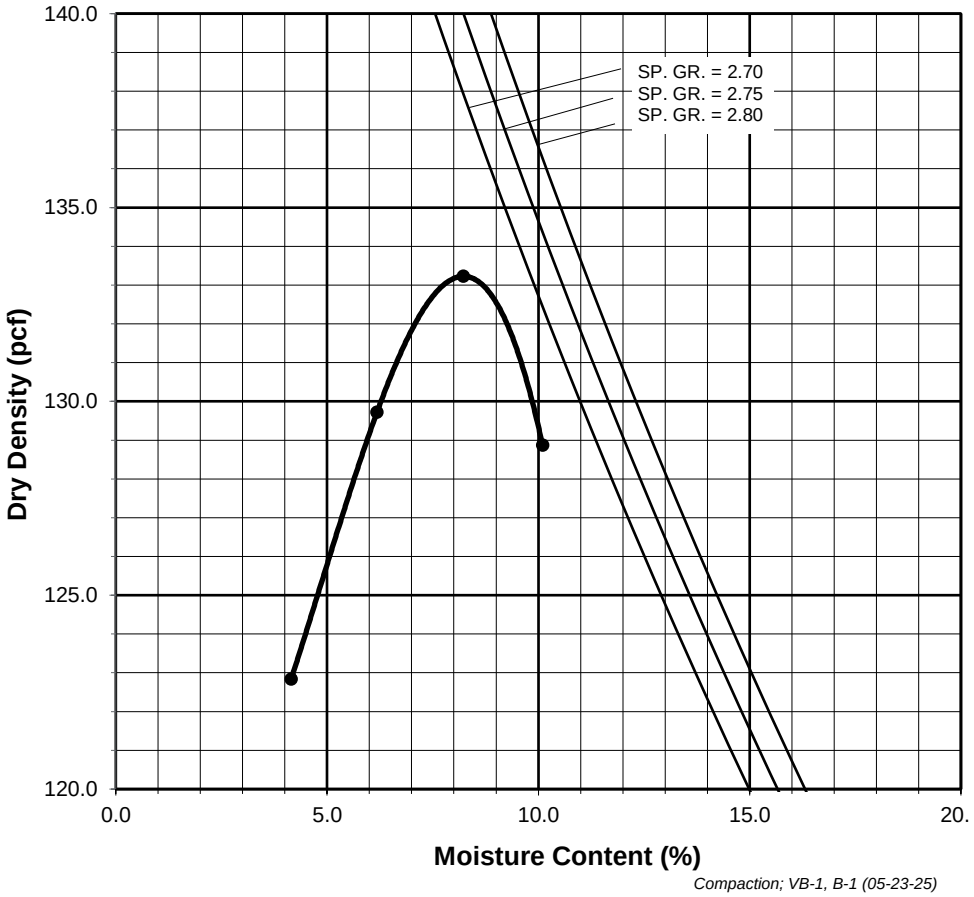
[X] **Procedure A**
Soil Passing No. 4 (4.75 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if +#4 is 20% or less

[ ] **Procedure B**
Soil Passing 3/8 in. (9.5 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
Use if +#4 is >20% and +3/8 in. is 20% or less

[ ] **Procedure C**
Soil Passing 3/4 in. (19.0 mm) Sieve
Mold : 6 in. (152.4 mm) diameter
Layers : 5 (Five)
Blows per layer : 56 (fifty-six)
Use if +3/8 in. is >20% and +¾ in. is <30%

Particle-Size Distribution:
[ ]
GR:SA:FI

Atterberg Limits:
[ ]
LL,PL,PI



Compaction; VB-1, B-1 (05-23-25)

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EXPANSION INDEX of SOILS

ASTM D 4829

Project Name:	EMWD Matthews BPS Additional Geotech	Tested By:	G. Stearns	Date:	6/3/25
Project No. :	041.0000032115	Checked By:	M. Vinet	Date:	6/5/25
Boring No.:	VB-1	Depth:	0 - 5.0		
Sample No. :	B-1	Location:	N/A		
Sample Description:	Silty Sand (SM), Dark Yellowish Brown.				

Dry Wt. of Soil + Cont. (gm.)	1466.0
Wt. of Container No. (gm.)	0.0
Dry Wt. of Soil (gm.)	1466.0
Weight Soil Retained on #4 Sieve	9.3
Percent Passing # 4	99.4

MOLDED SPECIMEN	Before Test	After Test
Specimen Diameter (in.)	4.01	4.01
Specimen Height (in.)	1.0000	0.9980
Wt. Comp. Soil + Mold (gm.)	622.4	640.9
Wt. of Mold (gm.)	198.7	198.7
Specific Gravity (Assumed)	2.70	2.70
Container No.	12	12
Wet Wt. of Soil + Cont. (gm.)	349.0	640.9
Dry Wt. of Soil + Cont. (gm.)	326.8	392.3
Wt. of Container (gm.)	49.0	198.7
Moisture Content (%)	8.0	12.7
Wet Density (pcf)	127.8	133.7
Dry Density (pcf)	118.3	118.6
Void Ratio	0.425	0.422
Total Porosity	0.298	0.297
Pore Volume (cc)	61.7	61.3
Degree of Saturation (%) [S meas]	**50.9**	**81.4**

SPECIMEN INUNDATION in distilled water for the period of 24 h or expansion rate < 0.0002 in./h.

Date	Time	Pressure (psi)	Elapsed Time (min.)	Dial Readings (in.)
6/3/25	12:30	1.0	0	0.5000
6/3/25	12:40	1.0	10	0.5000
	Add Distilled Water to the Specimen			
6/4/25	8:00	1.0	1160	0.4980
6/4/25	9:00	1.0	1220	0.4980

Expansion Index (EI meas) =	((Final Rdg - Initial Rdg) / Initial Thick.) x 1000	-2.0
Expansion Index (Report) =	Nearest Whole Number or Zero (0) if Initial Height is > than Final Height	**0**

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One-Dimensional Swell or Settlement Potential of Cohesive Soils
(ASTM D 4546) -- Method 'B'

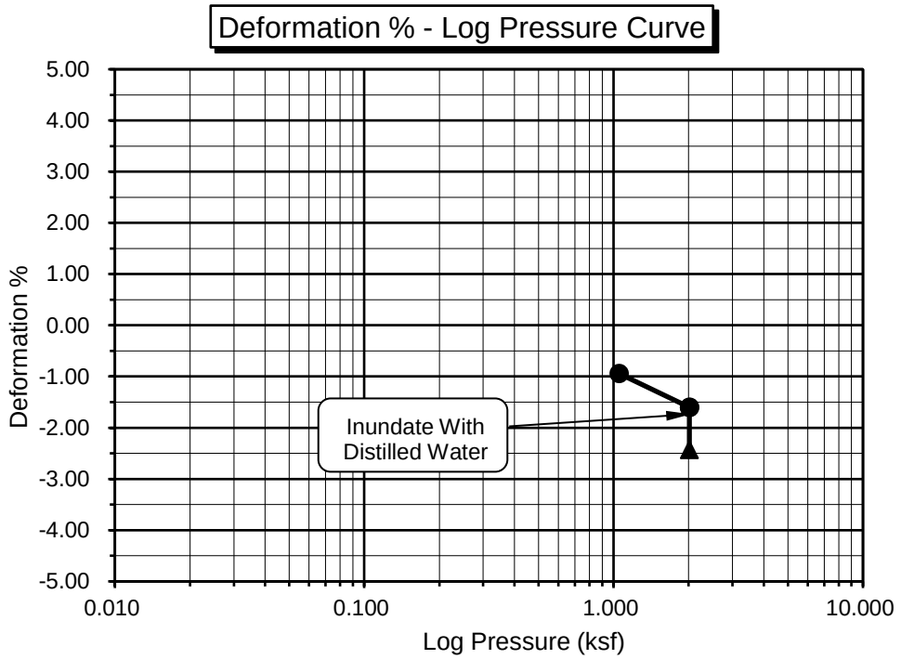
Project Name: EMWD Matthews BPS Additional Geotech Tested By: OMH Date: 6/2/25
Project No.: 041.0000032115 Checked By: M. Vinet Date: 6/6/25
Boring No.: VB-1 Sample Type: IN SITU
Sample No.: R-1 Depth (ft.) 5.0
Sample Description: Silty Sand (SM), Dark Yellowish Brown.
Source and Type of Water Used for Inundation: Arrowhead (Distilled)
** Note: Loading After Wetting (Inundation) not Performed Using this Test Method.

Initial Dry Density (pcf):	126.9
Initial Moisture (%):	5.5
Initial Height (in.):	1.0000
Initial Dial Reading (in):	0.0000
Inside Diameter of Ring (in):	2.416

Final Dry Density (pcf):	130.1
Final Moisture (%) :	10.6
Initial Void ratio:	0.3279
Specific Gravity (assumed):	2.70
Initial Degree of Saturation (%):	45.5

Pressure (p) (ksf)	Final Reading (in)	Apparent Thickness (in)	Load Compliance (%)	Swell (+) Settlement (-) % of Sample Thickness	Void Ratio	Corrected Deformation (%)
1.050	0.0094	0.9906	0.00	-0.94	0.3154	-0.94
2.013	0.0160	0.9840	0.00	-1.60	0.3067	-1.60
H2O	0.0243	0.9757	0.00	-2.43	0.2957	-2.43

Percent Swell / Settlement After Inundation = **-0.84**



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One-Dimensional Swell or Settlement Potential of Cohesive Soils
(ASTM D 4546) -- Method 'B'

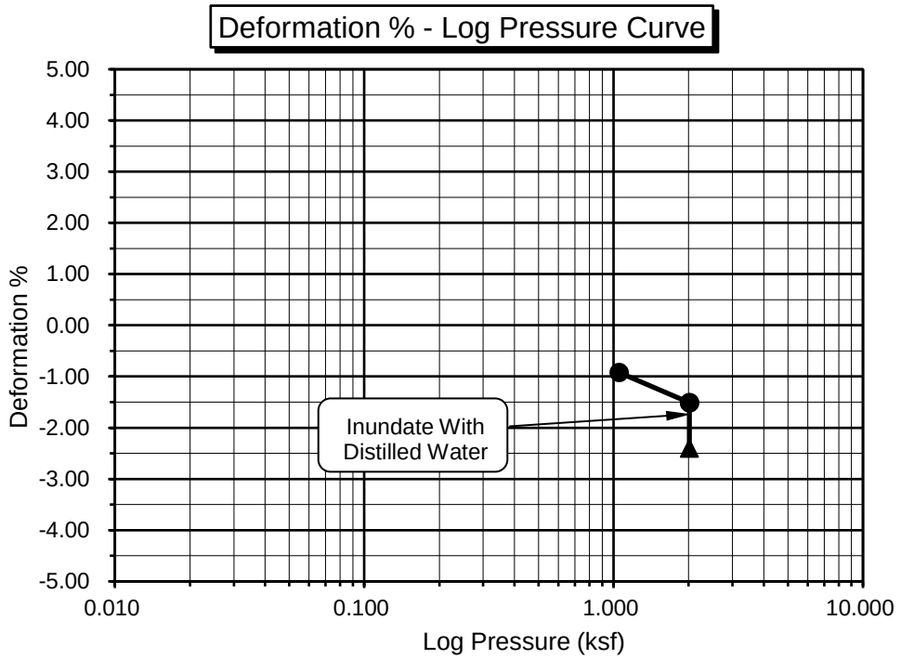
Project Name: EMWD Matthews BPS Additional Geotech Tested By: OMH Date: 6/2/25
Project No.: 041.0000032115 Checked By: M. Vinet Date: 6/6/25
Boring No.: VB-2 Sample Type: IN SITU
Sample No.: R-2 Depth (ft.) 5.0
Sample Description: Silty Sand (SM), Dark Yellowish Brown.
Source and Type of Water Used for Inundation: Arrowhead (Distilled)
** Note: Loading After Wetting (Inundation) not Performed Using this Test Method.

Initial Dry Density (pcf):	125.4
Initial Moisture (%):	5.9
Initial Height (in.):	1.0000
Initial Dial Reading (in):	0.0000
Inside Diameter of Ring (in):	2.416

Final Dry Density (pcf):	128.5
Final Moisture (%) :	11.6
Initial Void ratio:	0.3439
Specific Gravity (assumed):	2.70
Initial Degree of Saturation (%):	46.4

Pressure (p) (ksf)	Final Reading (in)	Apparent Thickness (in)	Load Compliance (%)	Swell (+) Settlement (-) % of Sample Thickness	Void Ratio	Corrected Deformation (%)
1.050	0.0092	0.9908	0.00	-0.92	0.3315	-0.92
2.013	0.0151	0.9849	0.00	-1.51	0.3236	-1.51
H2O	0.0240	0.9760	0.00	-2.40	0.3116	-2.40

Percent Swell / Settlement After Inundation = **-0.90**



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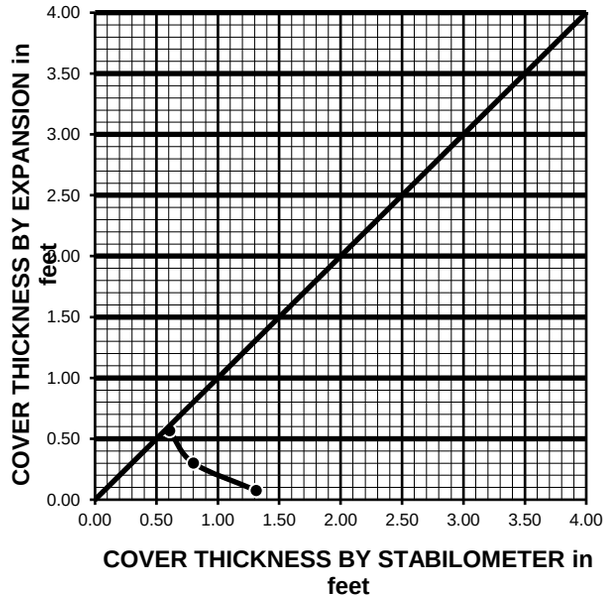
R-VALUE TEST RESULTS
ASTM D 2844

Project Name:	EMWD Matthews BPS Additional Geotech	Date:	6/2/25
Project Number:	041.0000032115	Technician:	GMS/OMH
Boring Number:	VB-2	Depth (ft.):	0 - 5.0
Sample Number:	B-1		
Sample Description:	Silty Sand (SM), Dark Yellowish Brown.	Sample Location:	N/A

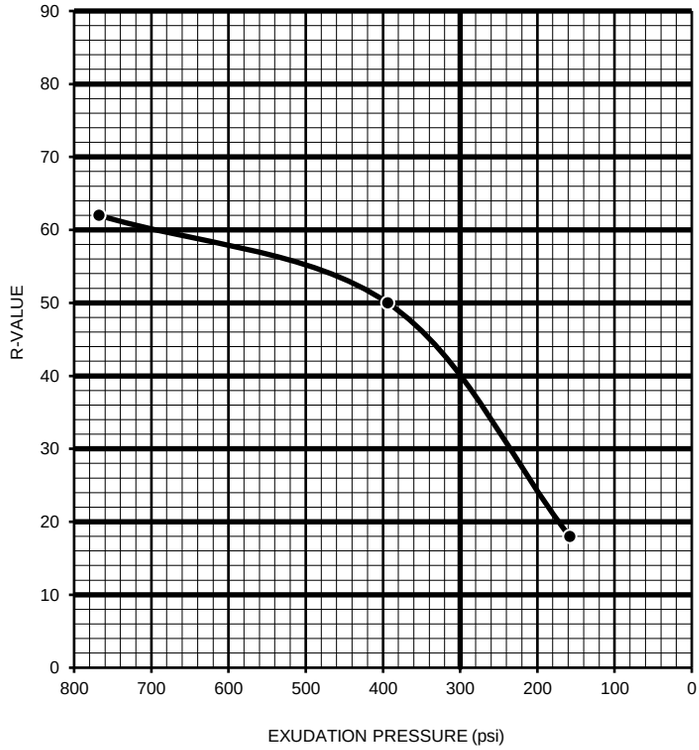
TEST SPECIMEN	A	B	C
MOISTURE AT COMPACTION %	8.4	9.5	11.6
HEIGHT OF SAMPLE, Inches	2.50	2.45	2.51
DRY DENSITY, pcf	119.6	118.0	116.6
COMPACTOR AIR PRESSURE, psi	150	135	95
EXUDATION PRESSURE, psi	768	394	158
EXPANSION, Inches x 10exp-4	15	8	2
STABILITY Ph 2,000 lbs (160 psi)	43	59	116
TURNS DISPLACEMENT	4.13	4.23	4.23
R-VALUE UNCORRECTED	62	50	18
R-VALUE CORRECTED	62	50	18

DESIGN CALCULATION DATA	a	b	c
GRAVEL EQUIVALENT FACTOR	1.0	1.0	1.0
TRAFFIC INDEX	5.0	5.0	5.0
STABILOMETER THICKNESS, ft.	0.61	0.80	1.31
EXPANSION PRESSURE THICKNESS, ft.	0.57	0.30	0.08

EXPANSION PRESSURE CHART



EXUDATION PRESSURE CHART



R-VALUE BY EXPANSION:	63
R-VALUE BY EXUDATION:	40
EQUILIBRIUM R-VALUE:	40

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TESTS for SULFATE CONTENT
CHLORIDE CONTENT and pH of SOILS

Project Name: EMWD Matthews BPS Additional Geotech Tested By : OMH Date: 06/04/25

Project No. : 041.0000032115 Data Input By: M. Vinet Date: 06/05/25

Boring No.	VB-1			
Sample No.	B-1			
Sample Depth (ft)	0 - 5.0			
Soil Identification:	Silty Sand (SM)			
Wet Weight of Soil + Container (g)	100.00			
Dry Weight of Soil + Container (g)	100.00			
Weight of Container (g)	0.00			
Moisture Content (%)	0.00			
Weight of Soaked Soil (g)	100.00			

SULFATE CONTENT, DOT California Test 417, Part II

Beaker No.	1			
Crucible No.	1			
Furnace Temperature (°C)	850			
Time In / Time Out	Timer			
Duration of Combustion (min)	45			
Wt. of Crucible + Residue (g)	25.0394			
Wt. of Crucible (g)	25.0362			
Wt. of Residue (g) (A)	0.0032			
PPM of Sulfate (A) x 41150	131.68			
PPM of Sulfate, Dry Weight Basis	**132**			

CHLORIDE CONTENT, DOT California Test 422

ml of Extract For Titration (B)	30			
ml of AgNO3 Soln. Used in Titration (C)	0.6			
PPM of Chloride (C -0.2) * 100 * 30 / B	40			
PPM of Chloride, Dry Wt. Basis	**40**			

pH TEST, DOT California Test 643

pH Value	**7.50**			
Temperature °C	21.0			

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SOIL RESISTIVITY TEST

DOT CA TEST 643

Project Name:	EMWD Matthews BPS Additional Geotech		Tested By :	OMH	Date: 06/04/25
Project No. :	041.0000032115		Data Input By:	M. Vinet	Date: 06/05/25
Boring No.:	VB-1		Depth (ft.) :	0 - 5.0	
Sample No. :	B-1				

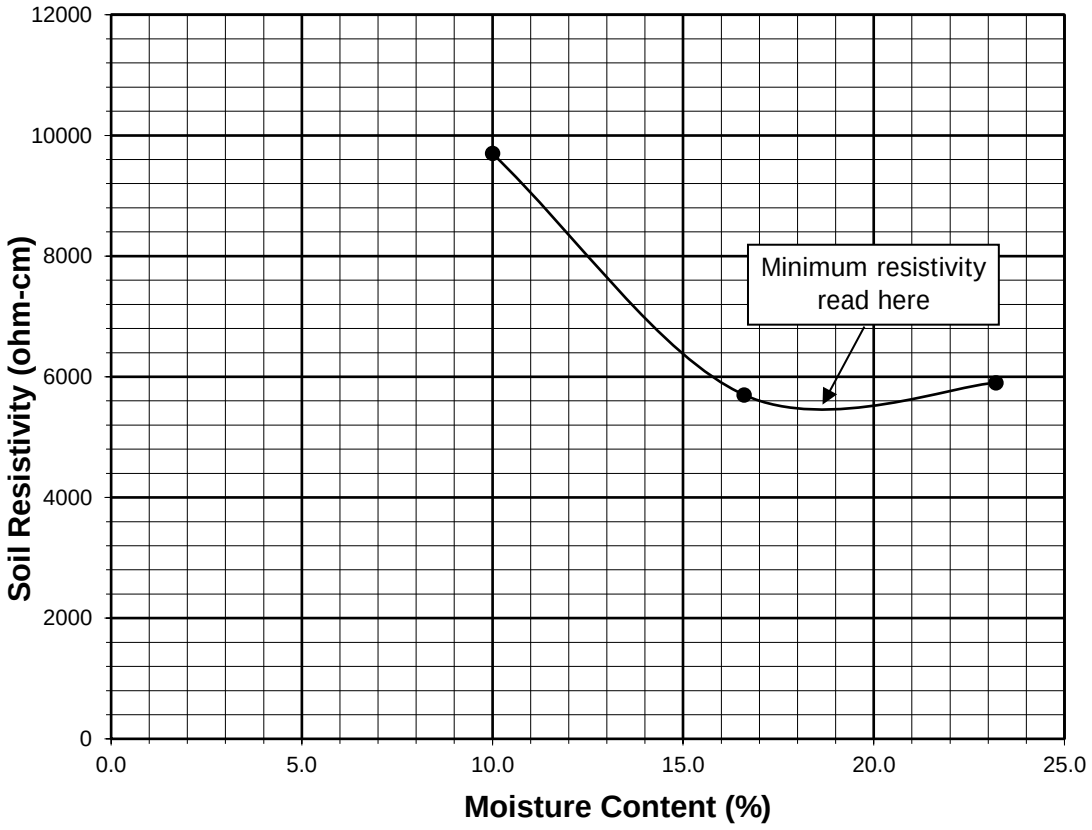
Soil Identification:* Silty Sand (SM)

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	50	10.00	9700	9700
2	83	16.60	5700	5700
3	116	23.20	5900	5900
4				
5				

Moisture Content (%) (MCi)	0.00
Wet Wt. of Soil + Cont. (g)	100.00
Dry Wt. of Soil + Cont. (g)	100.00
Wt. of Container (g)	0.00
Container No.	A
Initial Soil Wt. (g) (Wt)	500.00
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
5400	**18.5**	**132**	**40**	**7.50**	**21.0**



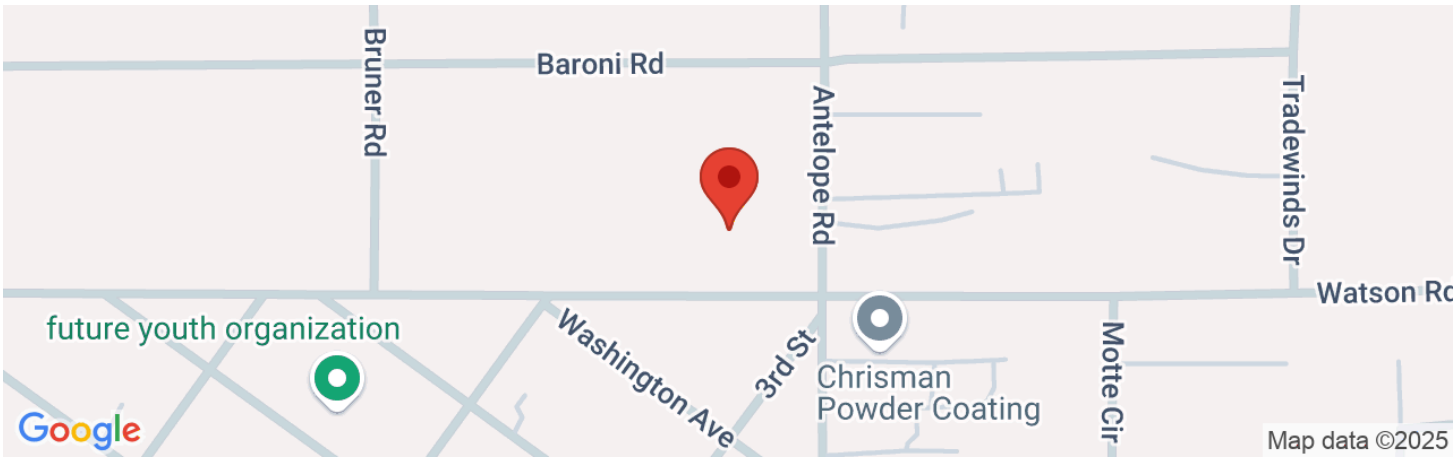
Appendix C

Site-Specific Seismic Analysis

Announcement
ASCE 7-22 is now available.

Matthews BPS

Latitude, Longitude: 33.7508, -117.1727



Date	5/28/2025, 9:26:49 AM
Design Code Reference Document	ASCE7-16
Risk Category	IV
Site Class	D

Type	Value	Description
S_S	1.431	MCE_R ground motion. (for 0.2 second period)
S_1	0.533	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.431	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	0.954	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.5	MCE_G peak ground acceleration
F_{PGA}	1.1	Site amplification factor at PGA
PGA_M	0.55	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	1.431	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	1.533	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.5	Factored deterministic acceleration value. (0.2 second)
S1RT	0.533	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.581	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.6	Factored deterministic acceleration value. (1.0 second)
PGAd	0.5	Factored deterministic acceleration value. (Peak Ground Acceleration)

Type	Value	Description
PGA_{UH}	0.607	Uniform-hazard (2% probability of exceedance in 50 years) Peak Ground Acceleration
C_{RS}	0.934	Mapped value of the risk coefficient at short periods
C_{R1}	0.916	Mapped value of the risk coefficient at a period of 1 s
C_V	1.386	Vertical coefficient

DISCLAIMER

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U.S. Geological Survey - Earthquake Hazards Program

Unified Hazard Tool

Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the U.S. Seismic Design Maps web tools (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

Please also see the new USGS Earthquake Hazard Toolbox for access to the most recent NSHMs for the conterminous U.S. and Hawaii.

Input

Edition

Dynamic: Conterminous U.S. 2014 (u…

Spectral Period

Peak Ground Acceleration

Latitude

Decimal degrees

33.7508

Time Horizon

Return period in years

2475

Longitude

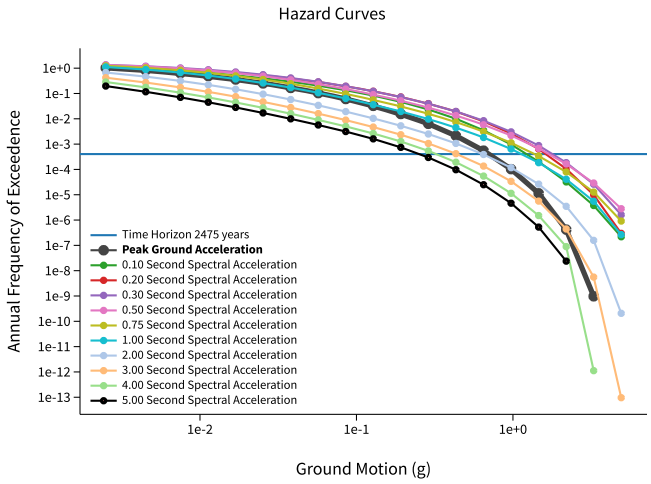
Decimal degrees, negative values for western longitudes

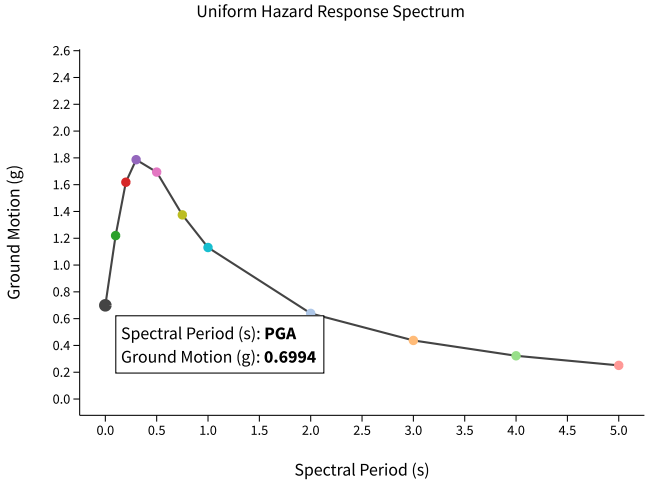
-117.1727

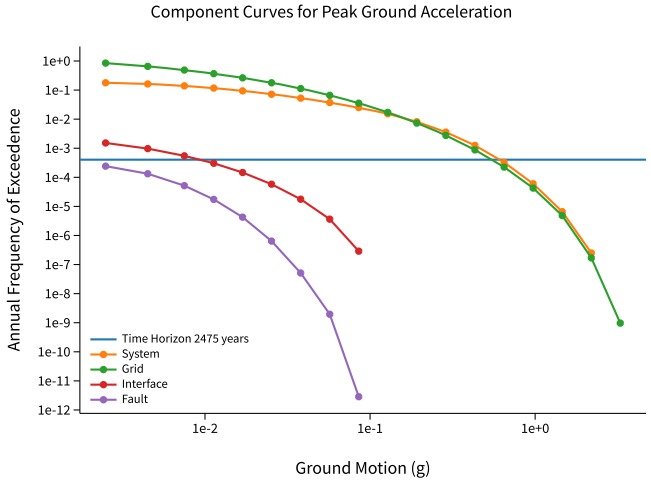
Site Class

259 m/s (Site class D)

Hazard Curve





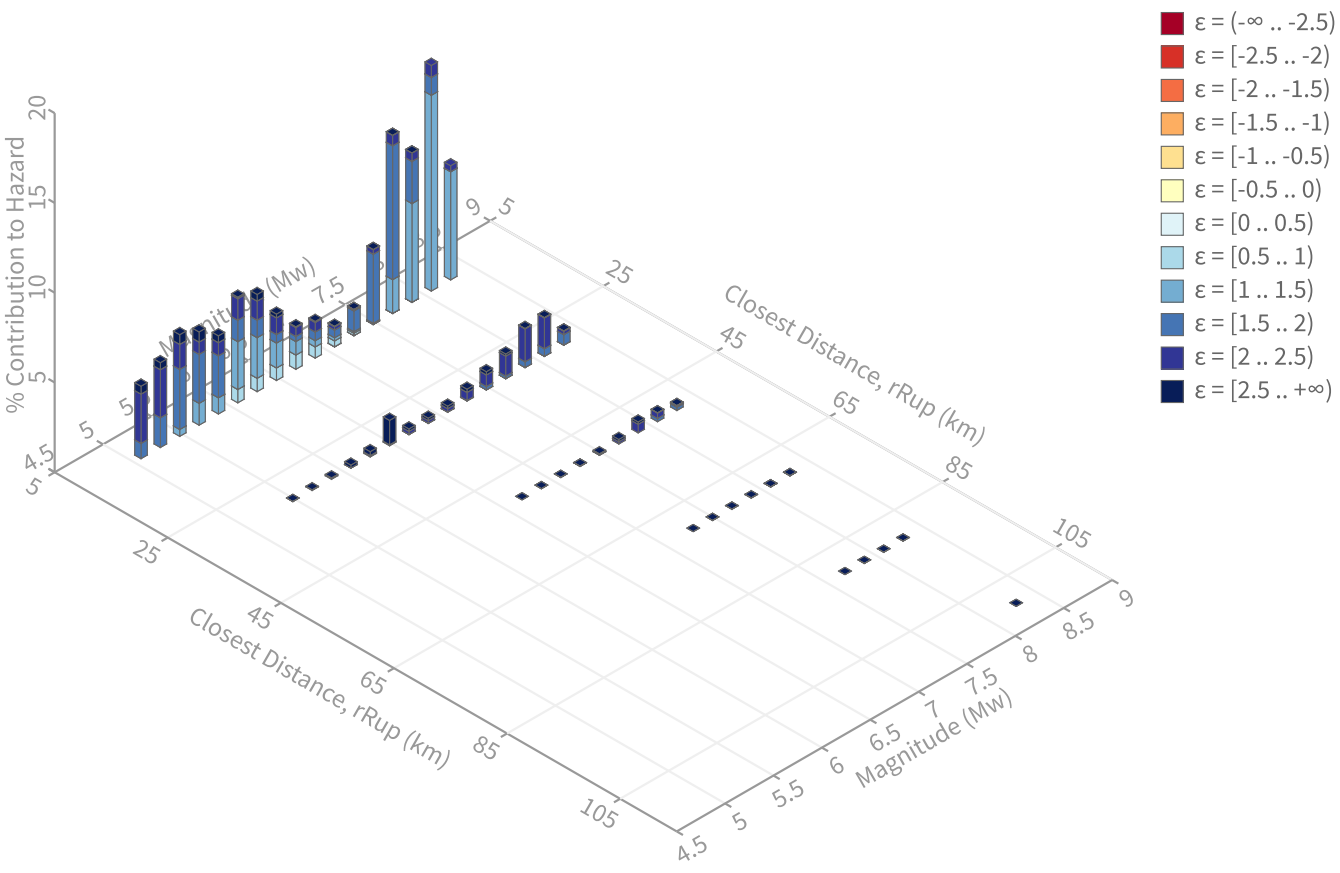


View Raw Data

Deaggregation

Component

Total



Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr^{-1}
PGA ground motion: 0.69941309 g

Recovered targets

Return period: 3118.6458 yrs
Exceedance rate: 0.000320652 yr^{-1}

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.09 %

Mean (over all sources)

m: 6.99
r: 16.29 km
ε_0: 1.72 σ

Mode (largest m-r bin)

m: 8.1
r: 17.02 km
ε_0: 1.39 σ
Contribution: 12.56 %

Mode (largest m-r-ε_0 bin)

m: 8.11
r: 17.02 km
ε_0: 1.33 σ
Contribution: 10.91 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

ε0: [-∞ .. -2.5)
ε1: [-2.5 .. -2.0)
ε2: [-2.0 .. -1.5)
ε3: [-1.5 .. -1.0)
ε4: [-1.0 .. -0.5)
ε5: [-0.5 .. 0.0)
ε6: [0.0 .. 0.5)
ε7: [0.5 .. 1.0)
ε8: [1.0 .. 1.5)
ε9: [1.5 .. 2.0)
ε10: [2.0 .. 2.5)
ε11: [2.5 .. +∞]

Deaggregation Contributors

Source Set ↳ Source	Type	r	m	ε_0	lon	lat	az	%
UC33brAvg_FM32	System							29.09
San Jacinto (Stepovers Combined) [1]		17.01	7.98	1.45	117.033°W	33.851°N	49.26	17.18
Elsinore (Stepovers Combined) [1]		18.15	7.52	1.73	117.312°W	33.636°N	225.26	4.45
San Andreas (San Bernardino S) [3]		38.80	7.97	2.18	117.011°W	34.073°N	22.62	2.58
UC33brAvg_FM31	System							28.94
San Jacinto (Stepovers Combined) [1]		17.01	7.98	1.45	117.033°W	33.851°N	49.26	17.24
Elsinore (Stepovers Combined) [1]		18.15	7.49	1.74	117.312°W	33.636°N	225.26	4.33
San Andreas (San Bernardino S) [3]		38.80	7.97	2.18	117.011°W	34.073°N	22.62	2.56
UC33brAvg_FM31 (opt)	Grid							21.00
PointSourceFinite: -117.173, 33.809		7.77	5.83	1.54	117.173°W	33.809°N	0.00	4.78
PointSourceFinite: -117.173, 33.809		7.77	5.83	1.54	117.173°W	33.809°N	0.00	4.78
PointSourceFinite: -117.173, 33.827		9.22	5.83	1.74	117.173°W	33.827°N	0.00	3.61
PointSourceFinite: -117.173, 33.827		9.22	5.83	1.74	117.173°W	33.827°N	0.00	3.61
UC33brAvg_FM32 (opt)	Grid							20.98
PointSourceFinite: -117.173, 33.809		7.77	5.83	1.54	117.173°W	33.809°N	0.00	4.78
PointSourceFinite: -117.173, 33.809		7.77	5.83	1.54	117.173°W	33.809°N	0.00	4.78
PointSourceFinite: -117.173, 33.827		9.22	5.83	1.74	117.173°W	33.827°N	0.00	3.61
PointSourceFinite: -117.173, 33.827		9.22	5.83	1.74	117.173°W	33.827°N	0.00	3.61

Appendix D

GBA Important Information About Your Geotechnical Report

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

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APPENDIX D

PALEONTOLOGICAL RESOURCES ASSESSMENT

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CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: May 8, 2025

TO: Joseph Broadhead, Principal Water Resource Specialist, Eastern Municipal Water District

FROM: Kelly Vreeland, M.S., Senior Paleontologist

SUBJECT: Paleontological Analysis of the Menifee and Watson Road II Booster Pump Station and Pipeline Project, Menifee, Riverside County, California

INTRODUCTION

This memorandum was prepared to ensure that the Matthews Booster Pump Station Project (project) in Menifee, Riverside County, California, is in compliance with all applicable State and local regulations regarding paleontological resources, as well as the standards of the Society of Vertebrate Paleontology (SVP, 2010). The applicable regulations and requirements include the California Environmental Quality Act (CEQA): Public Resources Code (PRC) Division 13, Chapter 2.6; the *State CEQA Guidelines*: California Code of Regulations, Title 14, Chapter 3, Appendix G; PRC §5097.5; and the Open Space and Conservation Element of the City's General Plan (City of Menifee, 2013). The Eastern Municipal Water District (EMWD) is the Lead Agency under CEQA.

PROJECT DESCRIPTION AND LOCATION

The Eastern Municipal Water District (EMWD) proposes construction of two new booster pump stations (BPS) within one building on one site, "Watson Road II BPS" and "Menifee BPS," decommissioning/removal of the existing Romoland BPS, and construction of approximately 1.85 miles of transmission pipeline. The new Watson Road II and Menifee BPSs would be constructed within the same building on a vacant parcel located west of the Antelope Road/Watson Road intersection. Once constructed, the new BPS would be fitted with a new 36-inch diameter pipeline to connect it back to the existing Perris Valley South Pressure Zone located within the intersection of Antelope Road and Ethanac Road. This new 36-inch pipeline would serve both the Watson Road II and Menifee BPSs. A new 30-inch diameter transmission main would be constructed within Watson Road to connect the new Watson Road II BPS to the existing Watson BPS located approximately one third of a mile east of the Watson Road and Menifee Road intersection.

The proposed project site extends into Sections 1, 2, 10, 11, 12, 14 and 15 of Township 5 South, Range 3 West, San Bernadino Base Line/Meridian, as depicted on the United States Geological Survey (USGS) *Perris, Calif.* and *Romoland, Calif.* 7.5 minute topographic quadrangles (Figure 1 [all figures provided in Attachment B]). The proposed project site is located within the city of Menifee,

Riverside County. The combined BPS site is located on an approximately 1.96-acre site west of Antelope Road, on the north side of Watson Road (Assessor's Parcel Numbers [APNs] 329-050-049 and 329-050-048). The existing Romoland BPS is located on a 0.17-acre parcel on the west side of Antelope Road between Highway 74 and Case Road (APN 329-141-005). The proposed pipelines would be constructed within approximately 1.85 miles of public roadway within Antelope Road and Watson Road (approximately 0.90 acre).

Project Components

The proposed project includes: (1) construction of the Watson Road II BPS and Menifee BPS, (2) decommissioning and demolition of the existing Romoland BPS, and (3) pipeline work within City roadways. The new BPSs would include an approximately 12,600 square-foot block wall building, piping, electrical/power system, transformer, security lighting and perimeter block wall. The existing Romoland BPS would remain in operation until the new BPSs are constructed, after which it would be decommissioned and removed.

The project also includes installation of approximately 1.85 miles of 30-inch and 36-inch diameter transmission pipelines within Antelope Road north from the existing Romoland BPS to Watson Road, and within Watson Road from the new BPS to the existing Watson BPS approximately one third of a mile east of the Watson Road and Menifee Road intersection. These pipelines are hereafter referred to as the "Matthews Transmission Pipeline," as the pipeline originally connected close to Matthews Road. Within Antelope Road, a portion of the 36-inch pipeline would be installed using jack and bore technology[1] in order to avoid conflict with the existing railroad tracks and Highway 74. Below are descriptions of each project component.

Booster Pump Stations

Menifee and Watson Road II BPS Site

The proposed combined BPS building would be two-story, above-grade structure, with shallow reinforced concrete continuous footings, solid grouted and reinforced concrete masonry unit (CMU) walls, and steel roof framing. The building would measure approximately 180 feet long by 70 feet wide, for a total square footage of approximately 12,600 square feet. The building's height would be approximately 27 feet. The proposed building would consist of two separate pumping rooms, an electrical room, a generator room, a stairwell, and a restroom. The restroom would be designed to accommodate a single occupant and would be compliant with the Americans with Disabilities Act (ADA).

The proposed Watson Road II BPS would initially support 3 pumps (2 duty and 1 stand-by) with the potential for installation of one additional pump for a total of 4 pumps (3 duty and 1 stand-by). The

[1] Jack and bore is a trenchless construction method, involving the use of hydraulic jacks to push pipes through the ground while removing soil to minimize disruption at the ground surface. It requires excavation of entry and exit pits at the beginning and end of pipeline installation to accommodate the equipment and personnel.

Menifee BPS would initially support 2 pumps (1 duty and 1 stand-by) with the potential installation of one additional pump for a total of 3 pumps (2 duty and 1 stand-by).

In addition to the proposed building, the site would also include a variety of associated equipment, including electrical equipment, piping/valving, antenna tower, HVAC equipment (air conditioning, evaporative coolers, exhaust fans/blowers) and site lighting and security. A 1,500-kW standby, emergency diesel generator would be installed within the proposed building with the exhaust piped for release outside of the building. Generator exhaust would be passed through a silencer and particulate filter prior to release. An external diesel fuel storage tank would be installed outside the building to provide sufficient fuel storage to meet the EMWD's requirement that the emergency generator can run continuously for 24 hours.

Exterior site lighting would be installed at the site via a combination of building-mounted lighting ("wall pack" lights) and pole-mounted site lights. The exterior pole-mounted lights would be manually controlled by a hand–cranked timer. The site lighting levels would be a cutoff design to keep illumination within the property and not spill over to the neighboring properties or interfere with drivers on adjacent roadways.

The proposed BPS site would be accessed via two separate driveways directly from Watson Road. Each driveway would have a 25-foot-wide slide gate to allow for ingress and egress of District vehicles. In accordance with District standards, these access driveways would be a minimum of 30-foot length between the public road sidewalk and the front of the site for vehicle staging prior to site entry. This vehicle staging area would allow vehicles to safely enter the site without impeding or causing hazardous roadway or other situations in the public right-of-way. The design would also ensure the driveway is paved with a minimum of 3-inch asphalt concrete over 5.25-inches of Class II base in conformance with design requirements. The proposed gates would also open parallel to the new CMU walls.

The site would be secured via an 8-foot-high CMU perimeter wall with 8-foot-high automated driveway gates with card readers/sensor loops for secured access. Closed circuit television (CCTV) security cameras would be located along entrances and target locations desired by EMWD.

Landscaping would be installed along the street frontage and beyond the proposed fence line to screen the proposed Southern California Edison (SCE) facility from view and blend the Proposed Project into its residential setting.

Construction would require excavation of up to 12-15 feet deep, and re-compaction for construction of the building foundation, slab, and pump can structures. Construction would require approximately 2,100 cubic yards of cut material and approximately 1,100 cubic yards of fill material. Approximately 1,000 cubic yards of material would be exported off the project site for disposal at the nearest landfill or appropriate disposal site. Trenching for new piping would require approximately 2,900 cubic yards of cut material and approximately 2,200 cubic yards of fill material for a total of approximately 700 cubic yards of material exported off the project site. Trenches would be backfilled with native soil.

Romoland BPS Site

Following construction of the new BPS site, the existing approximately 560-square foot Romoland BPS would be decommissioned and removed. Removal would include site excavation to an approximate 8-foot depth for the removal of the BPS building, and associated piping, valving, pumps, engines, engines, HVAC, appurtenances, etc. Existing piping (ranging from 12 inches to 30 inches in diameter) associated with the Romoland BPS would be abandoned in place by filling with cellular grout. With the exception of items to be salvaged back to the EMWD, the debris would be hauled to an appropriate disposal facility. Soil would be brought to the site to fill in the cavities created by the removal of the below-grade portion of the BPS building to restore the site to a relatively level grade. Demolition of the existing Romoland BPS would require approximately 200 cubic yards of cut material and approximately 240 cubic yards of fill material. As such, approximately 240 cubic yards of fill material would need to be imported to the project site.

Construction staging for the booster pump stations may occur at the existing Watson BPS site, the proposed BPS site off Watson, or existing EMWD property at the corner of Ethanac Road and Antelope Road. Construction staging would be confined to existing disturbed areas. Access to the project site would likely be via Highway 74 and I-215. Once construction activities are complete, staging areas would be returned to existing conditions.

Matthews Transmission Pipeline

The 36-inch diameter pipeline would begin at the existing Romoland BPS and travel within Antelope Road north to Watson Road then west within Watson Road to the new BPS station. The 30-inch-diameter pipeline would extend from the new BPS station site eastward and connect to the 1720L PZ near the existing Watson BPS. Different sections of the pipeline would be located within paved and non-paved portions of either public, Riverside County Transportation Commission, or California Department of Transportation right-of-way, or within an existing EMWD easement.

The proposed pipeline would be installed primarily via open trench construction with a trench width of 5 feet and a typical maximum trench depth of approximately 9 feet. Sections of trench may extend deeper if it becomes necessary to route them beneath existing utility infrastructure.

Some of the pipeline would be installed via trenchless technology (i.e., jack and bore). Jack and bore would be utilized to install pipeline beneath existing railroad tracks and State Route 74 to minimize surface disruption, and in the stretch extending through the Watson Road/Menifee Road intersection to avoid existing gas utilities (providing a safer option than traditional open trench construction). Jack and bore installation would require excavation of boring pits (approximately 35 feet long by 12 feet wide) and receiving pits (approximately 12 feet long by 12 feet wide or 12 feet long by 27 feet wide). The proposed boring pits would be located on Antelope Road, just south of the Ethanac Road/Antelope Road intersection; proposed receiving pits would be located on Antelope Road just north of State Route 74. Boring depths are anticipated to extend at least 9 feet below ground surface and could extend between 12 and 20 feet below ground surface.

Portions of the proposed transmission pipeline would be installed via trenchless technology (e.g., jack and bore). From approximately Station 10+00 to Station 14+60, the proposed 36-inch pipeline

would be installed beneath the existing railroad tracks and State Route 74 via jack and bore to minimize surface disruption. Jack and bore installation at this location would require excavation of boring pits approximately 35-feet long by 12 feet wide (420 square feet) and receiving pits approximately 12 feet long by 12 feet wide (144 square feet) and 12 feet long by 27 feet wide (324 square feet). The proposed boring pits would be located on Antelope Road, just south of the Ethanac Road/Antelope Road intersection; proposed receiving pits would be located on Antelope Road just north of State Route 74. In addition, approximately 400 feet of the proposed pipeline extending through the Watson Road/Menifee Road intersection would also be installed via jack and bore in order to avoid the existing gas utilities within the roadway intersection. Jack and bore installation at this location would require boring pits approximately 45-feet long by 12 feet wide (420 square feet) and receiving pits approximately 12 feet long by 27 feet wide (324 square feet). The proposed boring pits would be located along Watson Road west and east of the Menifee Road/Watson Road intersection. Boring depths are anticipated to extend at least 9 feet below ground surface and could extend between 12 and 20 feet below ground surface.

Construction staging for the proposed pipeline would occur at the existing Watson BPS site, the proposed BPS site off Watson, or existing EMWD property at the corner of Ethanac Road and Antelope Road. Temporary laydown/staging areas for equipment and materials would also likely occur in the paved roadway or along roadway right-of-way. Access to the project site would likely be via Highway 74 and I-215. Once construction activities are complete, staging areas would be returned to existing conditions.

METHODS

LSA examined geologic maps of the project site and reviewed relevant geological and paleontological literature to determine which geologic units are present in the project site and whether fossils have been recovered in the project site or from similar geologic units elsewhere in the region. Additionally, a fossil locality search was conducted through the Natural History Museum of Los Angeles County (NHMLAC) to determine the status and extent of previously recorded paleontological resources within and surrounding the project site. On February 2, 2022, a pedestrian field survey of the old and new pump stations as well as the roads connecting them was conducted. A supplemental field survey was conducted on October 13, 2025 of the new proposed BPS site.

RESULTS

Literature Review

The project is at the northern end of the Peninsular Ranges Geomorphic Province, a 900-mile long northwest-southeast-trending structural block that extends from the Transverse Ranges in the north to the tip of Baja California in the south and includes the Los Angeles Basin (California Geological Survey, 2002; Norris and Webb, 1976). This province is characterized by mountains and valleys that trend in a northwest-southeast direction, roughly parallel to the San Andreas Fault (Norris and Webb, 1976; Sharp, 1976). The total width of the province is approximately 225 miles, extending from the Colorado Desert in the east, across the continental shelf, to the Southern Channel Islands (i.e., Santa Barbara, San Nicolas, Santa Catalina, and San Clemente) (Sharp, 1976). It contains extensive pre-Cenozoic (more than 66 million years ago [Ma]) igneous and metamorphic rock

covered by limited exposures of Cenozoic (less than 66 Ma) sedimentary deposits (Norris and Webb, 1976).

Within this province, the project is located on the Perris Block, a fault-bounded structural block that extends from the southern foot of the San Gabriel and San Bernardino Mountains southeast to the vicinity of Bachelor Mountain and Polly Butte (Morton and Miller, 2006; Kenney, 1999). It is bounded on the northeast by the San Jacinto Fault and on the southwest by the Elsinore Fault Zone (Morton and Miller, 2006).

Geologic mapping by Morton and Miller (2006) indicates the project site is underlain entirely by Old Alluvial Fan Deposits, which are late to middle Pleistocene (11,700–774,000 years ago) in age (Figure 2). Although not mapped by Morton and Miller (2006), Artificial Fill is also likely present at the surface of the project site where it was placed for previous development of roads and landscaping. These geologic units and their relative paleontological sensitivities are described in more detail below. The dates for the geologic time intervals are based on the *International Chronostratigraphic Chart* prepared by the International Commission on Stratigraphy (Cohen et al., 2024).

Artificial Fill

Artificial Fill consists of sediments that have been removed from one location and transported to another location by human activity, rather than by natural means. The transportation distance can vary from a few feet to many miles, and composition is dependent on the source and purpose. Artificial Fill will sometimes contain modern debris, such as asphalt, wood, bricks, concrete, metal, glass, plastic, or plant material, and may contain fossils. Any fossils encountered in Artificial Fill have been removed from their original location and are thus out of stratigraphic context. Therefore, they are not considered important for scientific study. As such, Artificial Fill has no paleontological sensitivity

Old Alluvial Fan Deposits

The Old Alluvial Fan Deposits formed during the late to middle Pleistocene (11,700–774,000 years ago) from sediments that were eroded from the mountains and carried to lower elevations by rivers and streams (Morton and Miller, 2006). They are found at the mouths of canyons, along the sides of hills that flank river and stream valleys, and within the valleys themselves. These deposits are composed of moderately to well consolidated mixtures of silt, sand, and gravel (Morton and Miller, 2006). They have been dissected by erosional gullies and show some soil development (Morton and Miller, 2006).

These deposits span the latest two North American Land Mammal Ages (NALMAs): the Rancholabrean (11,700–240,000 years ago) and the Irvingtonian (240,000–1.8 million years ago) (Bell et al., 2004; Sanders et al., 2009). Fossils are known in similar Rancholabrean and Irvingtonian deposits from excavations for roads, housing developments, and quarries, as well as scientific investigations in the County and the southern California area (Jefferson, 1991a, 1991b; Miller, 1971; Pajak et al., 1996; Reynolds and Reynolds, 1991; Springer et al., 2009). These fossils include mammoths, mastodons, horses, bison, camels, saber-toothed cats, coyotes, deer, and sloths, as well as smaller animals like rodents, rabbits, birds, reptiles, and fish. As such, these deposits are considered to have high paleontological sensitivity.

Fossil Locality Search

The fossil locality search conducted by the NHMLAC indicated that no fossil localities are present within the boundaries of the project site. However, this search noted records of five fossil localities nearby from geologic deposits of similar Pleistocene age to those within the project site (e.g., the Old Alluvial Fan Deposits). The closest fossil locality, LACM VP 6059, located just east-southeast of Lake Elsinore yielded remains of Camel (Camelidae) while the next closest locality, LACM IP 437 located on the west side of Castile Canyon, north of the Soboba Indian Reservation, yielded invertebrate remains of insect (*Sobobapteron kirkbaye*) and brachiopod (*Terebratalia hemphili*). Slightly further away, LACM VP 7261 located at Skinner Reservoir produced remains of elephant (Proboscidea) and ungulate (Ungulata), LACM VP 1207 located to the east of a sewage disposal plant 1 mile north-northwest of Corona yielded remains of an unknown bovine (Bovidae), and LACM VP 7811 situated west of Orchard Park in Chino Valley produced fossil remains of whip snake (*Masticophis*). A copy of the fossil locality search results from the NHMLAC is included in Attachment C.

Field Survey

On February 2, 2022, an initial pedestrian field survey was conducted by LSA Paleontologist Jacob Briewer, M.Sc., of the old and new pump stations as well as the roads connecting them was conducted. Visibility was very poor (approximately 5 percent) due to limited access by the fence as well as trash, construction equipment, and paving.

The location for the proposed new Matthews booster station consists of a flat lot containing construction equipment enclosed by a fence. Visibility was very poor (approximately 5 percent) due to limited access by the fence as well as trash, construction equipment, and paving. Where visible, the sediments consisted of light tan coarse-grained sand with sparse imported gravel.

The current Romoland booster station was flat and consisted of the small booster station, itself surrounded by a fence, as well as a billboard and vacant lot to the northwest. Visibility around the Romoland booster station was fair (approximately 50 percent) owing to vegetation, trash, and some gravel covering the ground surface. Where visible, sediments consisted of medium tan silty sand.

The sites of the other two booster stations at the eastern and northern ends of the project were likewise flat with only their respective booster stations occupying them. Visibility at both was generally poor (approximately 10-20 percent) due to extensive paving and gravel as well as coverage by vegetation and trash. Where visible, sediments at both sites consisted of light gray to tan sand with sparse pebbles and gravel. No paleontological resources were noted during the initial survey.

On October 13, 2025, LSA Archaeologist Matt Behrend, who is cross trained to identify paleontological resources, performed a supplemental survey of the new proposed BPS site, located just north of Watson Road and west of Antelope Road. Seasonal grasses and Russian thistle were prevalent throughout the updated project site, resulting in poor surface visibility at the time of survey. No paleontological resources were identified during the supplemental survey.

CONCLUSIONS AND RECOMMENDATIONS

The project site contains Artificial Fill, which has no paleontological sensitivity, and Old Alluvial Fan Deposits, which have high paleontological sensitivity. Development of this project is expected to extend into paleontologically sensitive sediments of the Old Alluvial Fan Deposits and has the potential to impact scientifically significant paleontological resources. Therefore, in order to mitigate potential impacts to these resources, LSA recommends the following mitigation measures:

PALEO-1 A paleontologist who meets the qualifications of established by the Society of Vertebrate Paleontology (SVP) shall be retained to develop a Paleontological Resources Impact Mitigation Program (PRIMP) for this project. The PRIMP shall be consistent with the standards of the SVP and include the methods that will be used to protect paleontological resources that may exist within the project site, as well as procedures for monitoring, fossil preparation and identification, curation into a repository, and preparation of a report at the conclusion of grading.

PALEO-2 Excavation and grading activities in deposits with high paleontological sensitivity (i.e., Old Alluvial Fan Deposits) shall be monitored by a qualified paleontological monitor following a PRIMP. No monitoring is required for excavations in deposits with no paleontological sensitivity (i.e., Artificial Fill). If paleontological resources are encountered during the course of ground disturbance, the paleontological monitor shall have the authority to temporarily redirect construction away from the area of the find. In the event that paleontological resources are encountered when a paleontological monitor is not present, work in the immediate area of the find shall be redirected, and the paleontologist or paleontological monitor shall be contacted to assess the find for scientific significance. If determined to be scientifically significant, the fossil shall be collected from the field.

PALEO-3 Collected resources shall be prepared to the point of identification, identified to the lowest taxonomic level possible, cataloged, and curated into the permanent collections of a museum repository. At the conclusion of the monitoring program, a report of findings shall be prepared to document the results of the monitoring program.

Implementation of Mitigation Measures PALEO-1 through PALEO-3 will ensure that project impacts on paleontological resources will be reduced to a level that is less than significant.

Attachments: A: References
B: Figure 1: Project Location and Regional Vicinity Map
Figure 2: Geology Map
C: Fossil Locality Search Results from the Natural History Museum of Los Angeles County

ATTACHMENT A

REFERENCES

Bell, Christopher J., Ernest L. Lundelius, Jr., Anthony D. Barnosky, Russell W. Graham, Everett H. Lindsay, Dennis R. Ruez, Jr., Holmes A. Semken, Jr., S. David Webb, and Richard J. Zakrzewski
2004 The Blancan, Irvingtonian, and Rancholabrean Land Mammal Ages. In M.O. Woodburne, ed., *Late Cretaceous and Cenozoic Mammals of North America*. pp. 232-314.

California Geological Survey
2002 California Geomorphic Provinces. *California Geologic Survey Note* 36. California Department of Conservation.

Cohen, K.M., S.C. Finney, P.L. Gibbard, and J.X. Fan
2022 The ICS International Chronostratigraphic Chart. Updated February 2022. Episodes 36: 199-204

Jefferson, George T.
1991a A Catalogue of Late Quaternary Vertebrates from California: Part One: Non-marine Lower Vertebrate and Avian Taxa. *Natural History Museum of Los Angeles County Technical Reports* No. 5, Los Angeles.

1991b A Catalogue of Late Quaternary Vertebrates from California: Part Two: Mammals. *Natural History Museum of Los Angeles County Technical Reports* No. 7, Los Angeles.

Kenney, Miles D.
1999 *Emplacement, Offset History, and Recent Uplift of Basement within the San Andreas Fault System, Northeastern San Gabriel Mountains.* Unpublished Ph.D. Dissertation, University of Oregon. 279 pp.

Miller, Wade E.
1971 Pleistocene Vertebrates of the Los Angeles Basin and Vicinity (Exclusive of Rancho La Brea). *Los Angeles County Museum of Natural History Bulletin, Science*: No. 10.

Morton, Douglas M., and Fred K. Miller
2006 *Geologic Map of the San Bernardino and Santa Ana 30-minute by 60-minute quadrangles, California*. Digital preparation by Pamela M. Cosette and Kelly R. Bovard. Prepared by the United States Geological Survey (USGS) in cooperation with the California Geological Survey. USGS Open File Report 2006-1217. Map Scale 1:100,000.

Norris, R.M., and R.W. Webb
1976 *Geology of California*. John Wiley and Sons Inc., New York. 379 pp.

Pajak, Alois F., Jr., Eric Scott, and Christopher J. Bell
1996 *A Review of the Biostratigraphy of Pliocene and Pleistocene Sediments in the Elsinore Fault Zone, Riverside County, California*. PaleoBios 17(2-4):28-49.

Reynolds, R.E., and R.L. Reynolds
1991 The Pleistocene Beneath our Feet: Near-surface Pleistocene Fossils in Inland Southern California Basins. In M.O. Woodburne, R.E. Reynolds, and D.P. Whistler, eds., Inland Southern California: The Last 70 Million Years. *San Bernardino County Museum Special Publication* 38(3 and 4): 41–43.

Sanders, A. E., Weems, R. E., & Albright III, L. B.
2009 Formalization of the Middle Pleistocene 'Ten Mile Hill Beds' in South Carolina with evidence for placement of the Irvingtonian-Rancholabrean boundary. *Papers on Geology, Vertebrate Paleontology, and Biostratigraphy in Honor of Michael O. Woodburne*. 363-370 pp.

Sharp, R.P.
1976 *Geology: Field Guide to Southern California*. 2nd ed. Kendall/Hunt Publishing Company. 181 pp.

Society of Vertebrate Paleontology (SVP)
2010 Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. SVP. Impact Mitigation Guidelines Revision Committee. 11 pp.

Springer, Kathleen, Eric Scott, J. Christopher Sagebiel, and Lyndon K. Murray
2009 The Diamond Valley Lake Local Fauna: Late Pleistocene Vertebrates from Inland Southern California. In L.B. Albright, III, ed. Papers in Geology, Vertebrate Paleontology, and Biostratigraphy in Honor of Michael O. Woodburne, *Museum of Northern Arizona Bulletin* 65, pp. 217–236.

United States Geological Survey (USGS)
1979a *Perris, California* 7.5-minute topographic quadrangle. Published 1967, photorevised 1979. United States Geological Survey, Denver, Colorado.

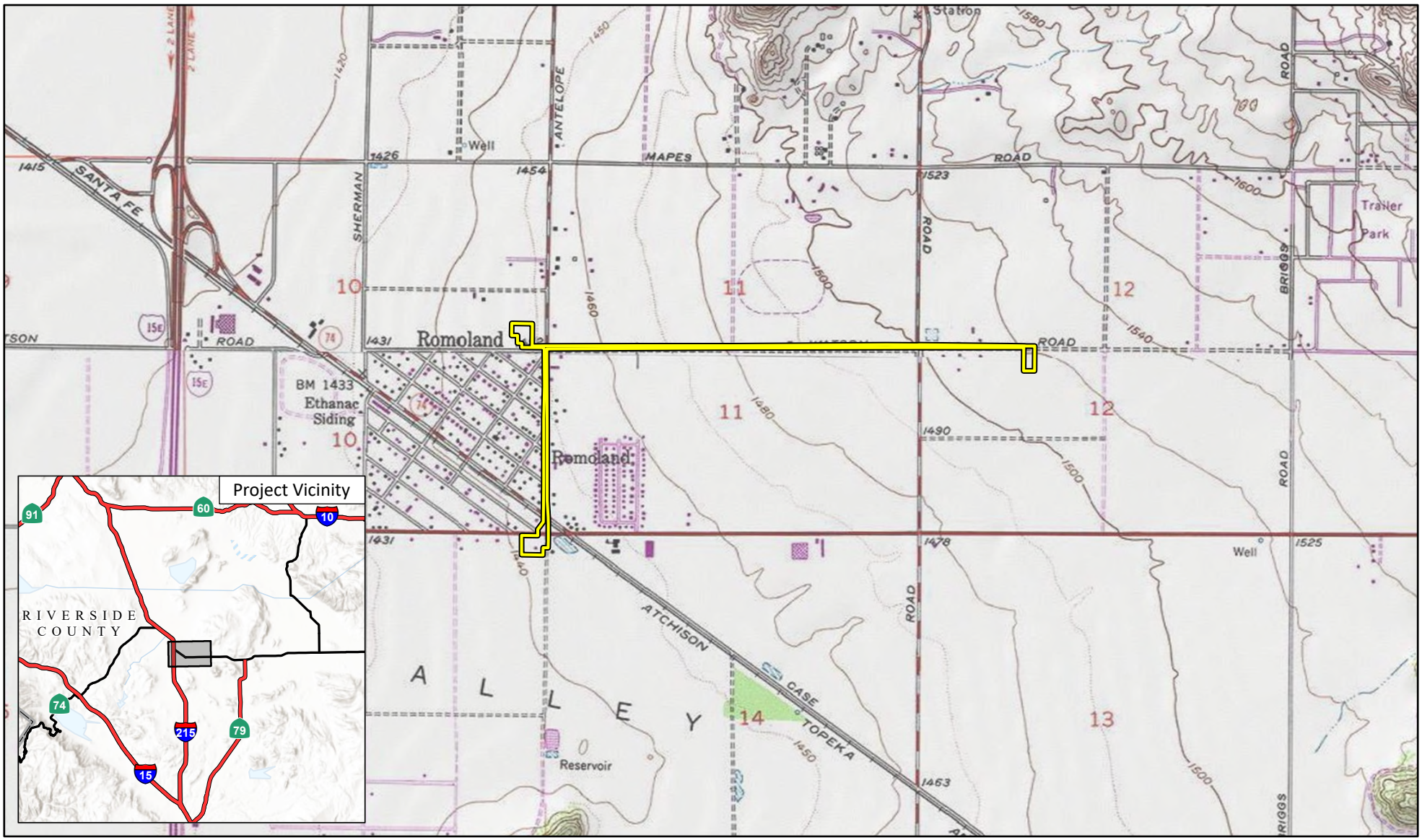
1979b *Romoland, California* 7.5-minute topographic quadrangle. Published 1953, photorevised 1981. United States Geological Survey, Denver, Colorado.

ATTACHMENT B

FIGURES

Figure 1: Project Location and Regional Vicinity Map

Figure 2: Geology Map



LSA

FIGURE 1

Menifee and Watson Road II Booster Pump Station (BPS) and Pipeline Project
Biological Assessment Report
Project Location and Vicinity

SOURCE: USGS 7.5' Quad - *Perris (1979)* and *Romoland (1979)*, CA

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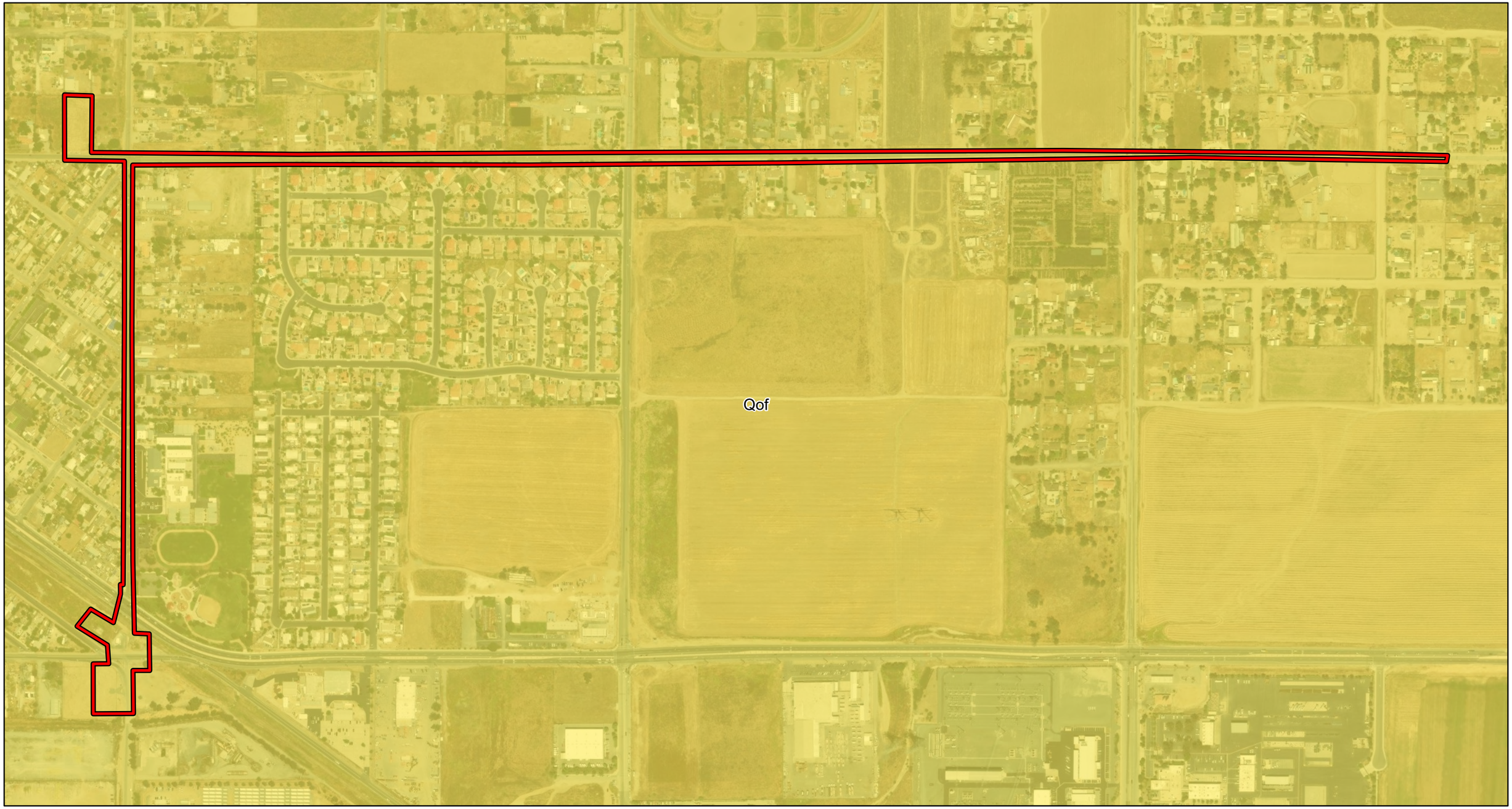

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Project Boundary

Geology

Old alluvial-fan deposits

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SOURCE: Maxar

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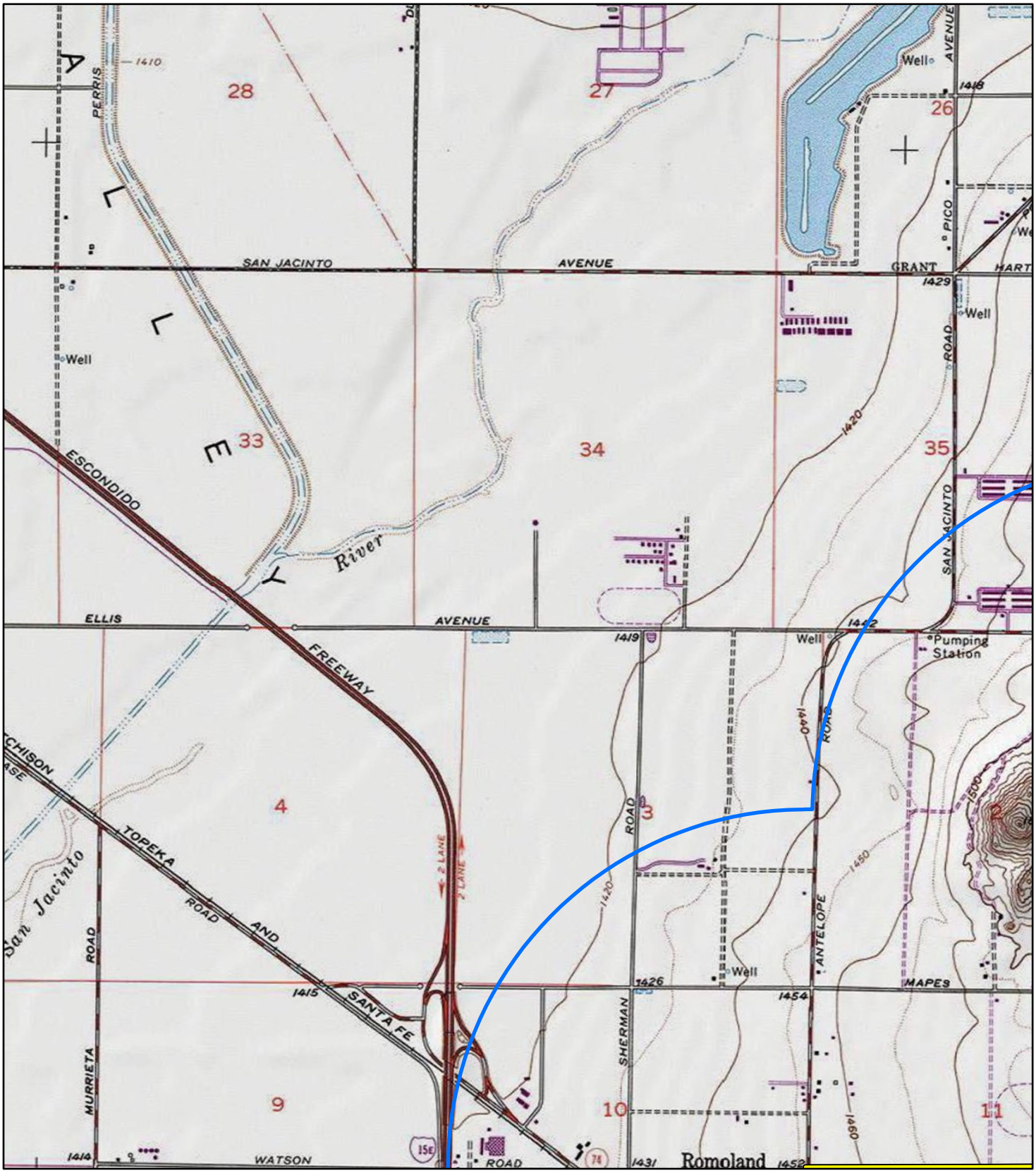
FIGURE 2

Matthews Booster Pump Station and Transmission Line Project

Geology Map

ATTACHMENT C

FOSSIL LOCALITY SEARCH RESULTS FROM THE NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY



LSA

Project area

1-Mile Radius of Project Area

N

0 1000 2000

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SOURCE: USGS 7.5' Quad - *Romoland (1979)*, CA

Matthews Pump Station Project

Fossil Locality Search

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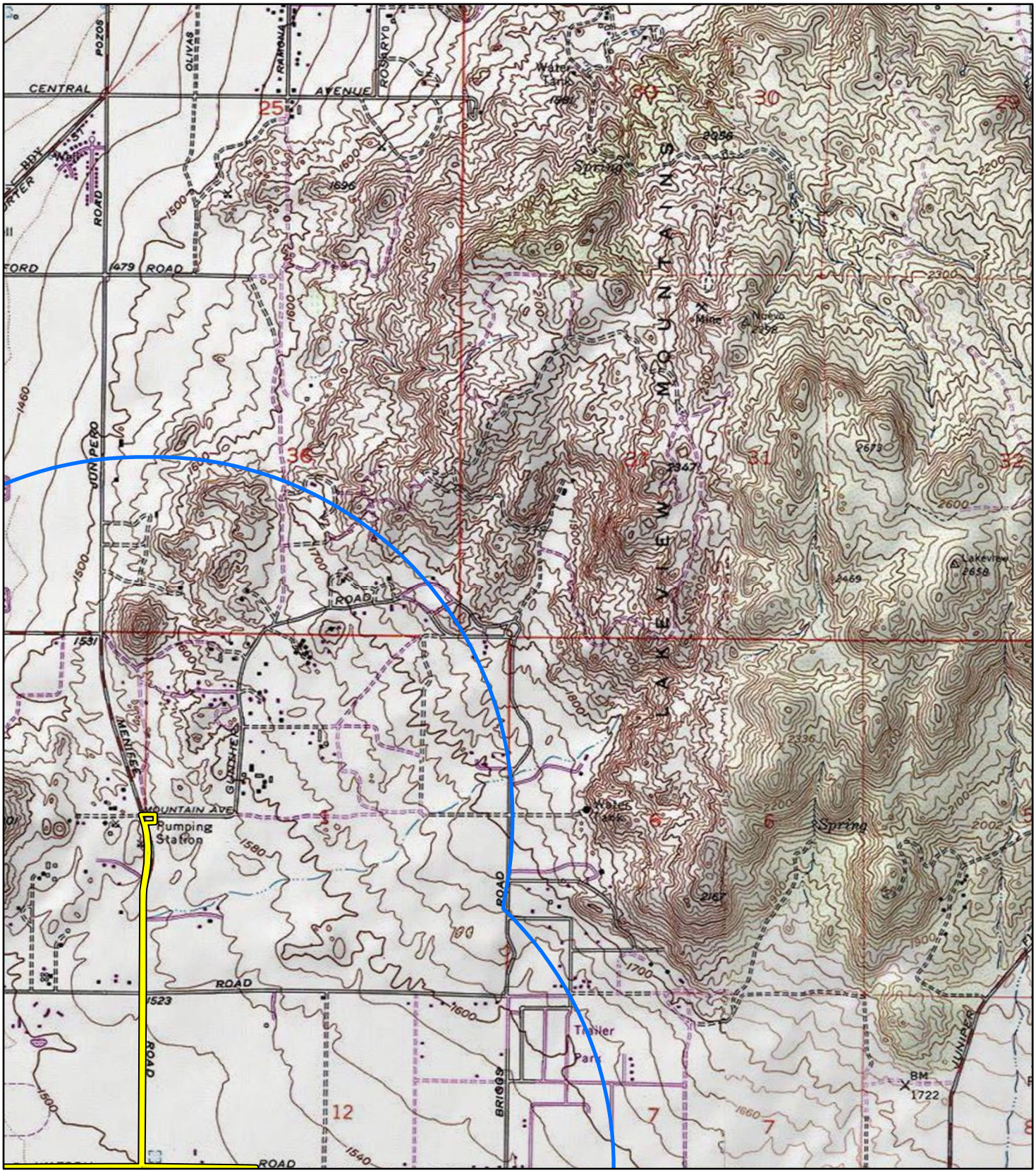

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Project area

1-Mile Radius of Project Area

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Matthews Pump Station Project

Fossil Locality Search

SOURCE: USGS 7.5' Quad - *Romoland (1979)*, CA

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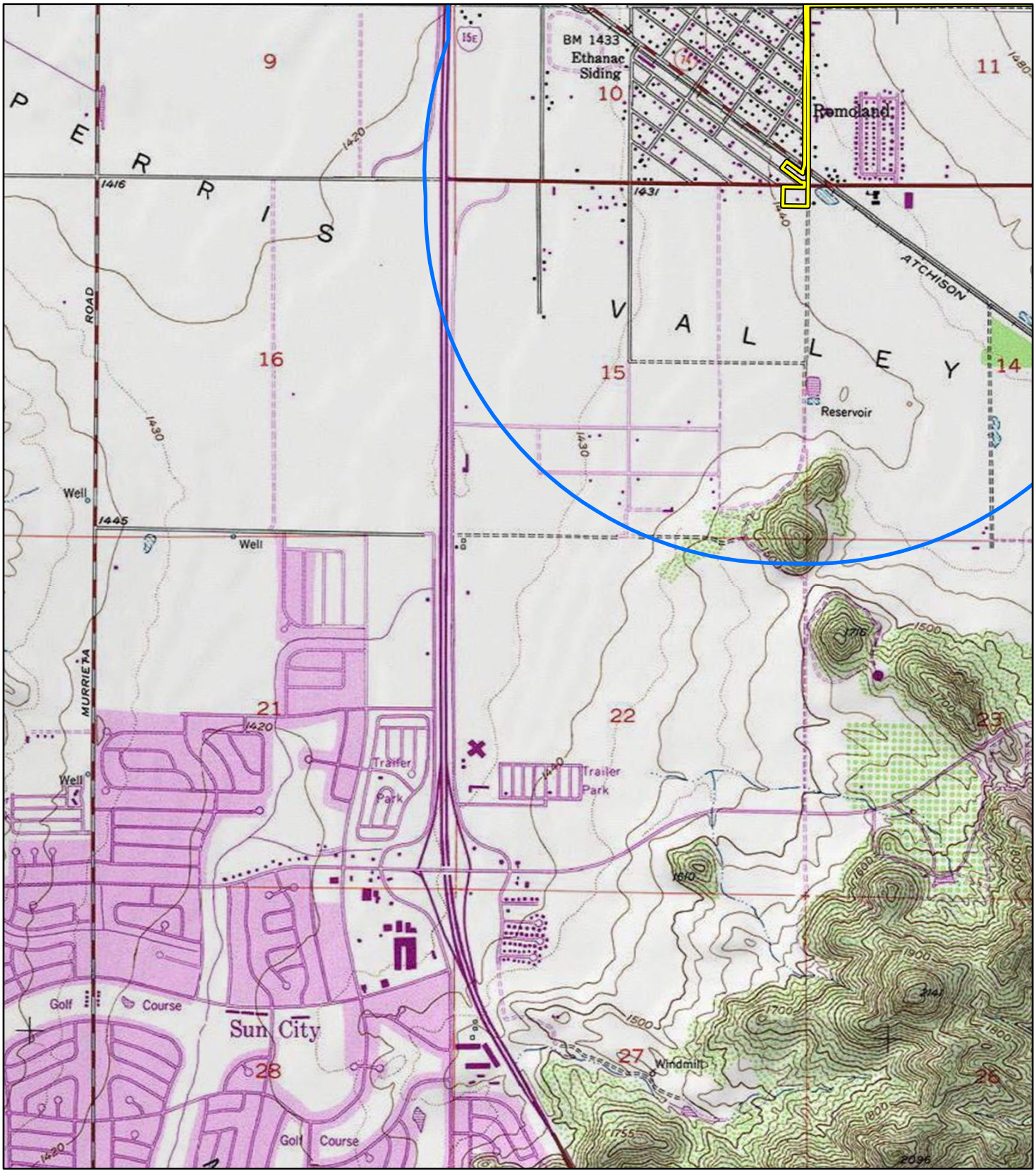

LSA

Project area

1-Mile Radius of Project Area

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Matthews Pump Station Project

Fossil Locality Search

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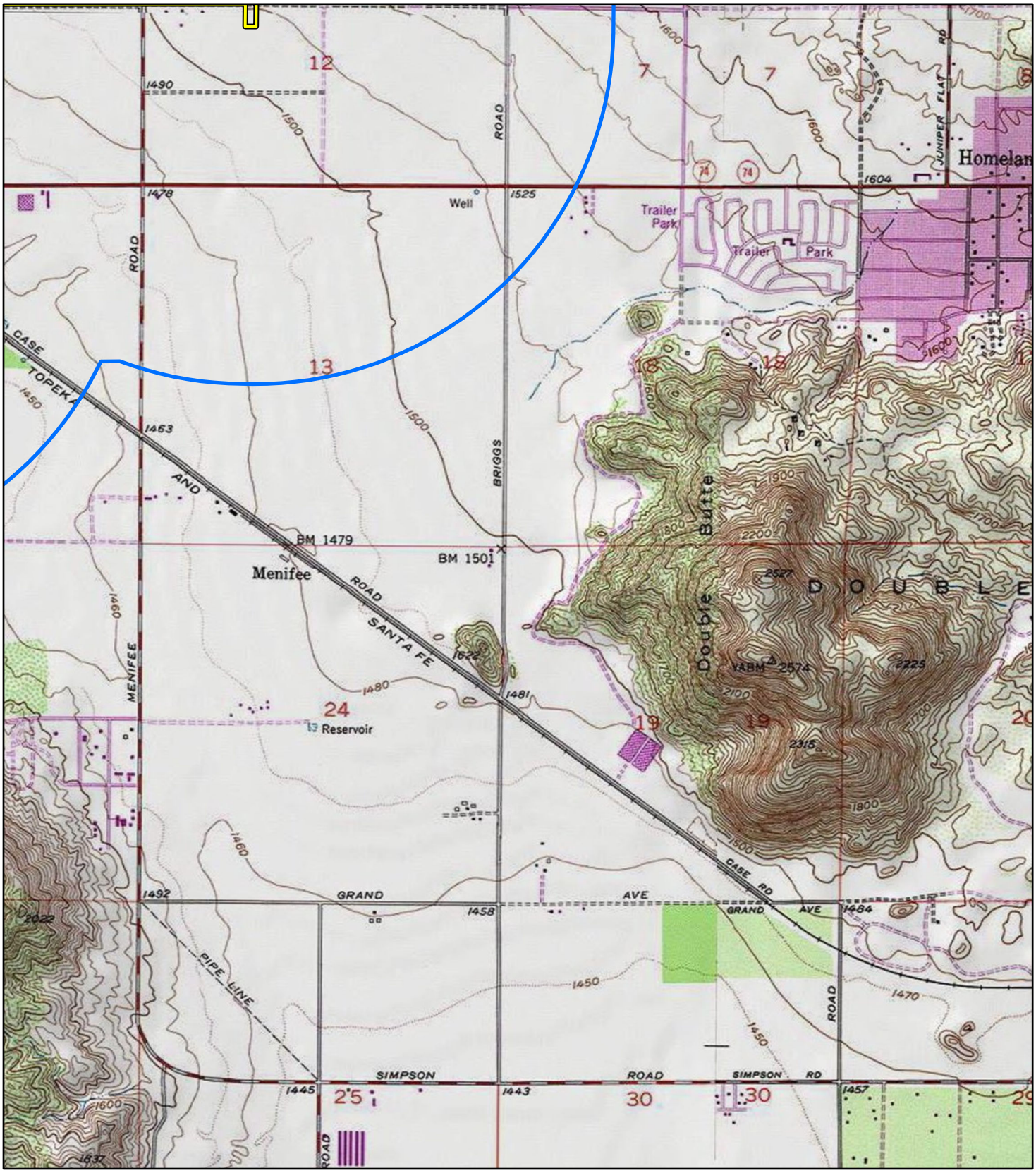

Matthews Pump Station Project

Fossil Locality Search

SOURCE: USGS 7.5' Quad - *Romoland (1979)*, CA

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APPENDIX E

ASBESTOS AND LEAD-BASED PAINT SURVEY REPORTS

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Appendix G - Converse Consultants - Asbestos and Lead-Based Paint Survey Report

CONVERSE CONSULTANTS

Asbestos and Lead-Based Paint Survey Report

Romoland Booster Pump Station
27990 Ethanac Road
Romoland, California

Converse Project No. 16-16-198-01

March 7, 2018

Prepared For:

Atkins Global
3570 Carmel Mountain Road, Suite 300
San Diego, California 92130

Prepared By:

Converse Consultants
2021 Rancho Drive
Suite 1
Redlands, California 92373

Converse Consultants
Geotechnical Engineering, Environmental & Groundwater Science, Inspection & Testing Services

March 7, 2018

Mr. Jeffrey Endersby, PE
Project Director
Atkins Global
3570 Carmel Mountain Road, Suite 300
San Diego, California 92130

Subject: **ASBESTOS and LEAD-BASED PAINT SURVEY REPORT**
Romoland Booster Pump Station (BPS)
27990 Ethanac Road
Romoland, California
Converse Project No. 16-16-198-01

Mr. Endersby:

Converse Consultants (Converse) is pleased to submit the following *Asbestos and Lead-Based Paint Survey Report.* The report summarizes the activities and the results of survey that was conducted at the referenced property (Property).

We appreciate the opportunity to be of service. Should you have any questions or comments regarding this report, please contact George Paler at (626) 930-1258 or Norman Eke at (626) 930-1260.

Sincerely,

CONVERSE CONSULTANTS

George Paler
Certified Asbestos Consultant #93-1136
CDPH Certified Lead Inspector/Assessor # I-1487
Project Environmental Scientist

Norman Eke
Certified Asbestos Consultant #96-2093
Managing Officer

Dist: 1/Addressee via Electronic Mail

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Appendix A Certifications

Appendix B Asbestos
Analytical Report, Chain of Custody Documentation & Sample Location Map

Appendix C Lead-Base Paint
XRF Logs

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Definitions

Asbestos-Containing Material (ACM): The United States Environmental Protection Agency (EPA) has defined an ACM to be any substance containing more than one percent (1%) asbestos by weight.

Asbestos-Containing Construction Material (ACCM): The California Environmental Protection Agency (Cal/EPA) defines an ACCM as any substance containing one-tenth of one percent (0.1%) to one percent (1%) asbestos by weight.

Class I Non-friable ACM: A material containing more than one percent (1%) asbestos and that when dry, can be broken, crumbled, pulverized or reduced to powder in the course of demolition or renovation activities. Class I Non-friable ACMs include, but are not limited to, fractured or crushed asbestos cement products, transite materials, roofing felts and tiles, mastics, and resilient floor coverings.

Class II Non-friable ACM: A material containing more than one percent (1%) asbestos and that is neither friable nor Class I non-friable.

Friable ACM: A material containing more than one percent (1%) asbestos and that when dry, can be crumbled, pulverized or reduced to powder by hand pressure.

Lead-Based Paint (LBP): The Department of Housing and Urban Development (HUD) has defined a LBP as containing a lead concentration greater than 1.0 milligrams per centimeter squared (mg/cm^2); 5,000 parts per million; or 0.5 percent by weight.

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Executive Summary

This report presents the results of the Converse Consultants (Converse) Asbestos and Lead-Based Paint survey completed at the Romoland Booster Pump Station (BPS) in the City of Romoland, Riverside, California (herein referred to as the Property). The purpose of the survey was to identify suspect asbestos-containing materials (ACMs) and lead-based paints (LBPs) prior to demolition activities at the Property.

The work was completed by environmental professionals and has been performed in accordance with our proposal dated October 31, 2016. Our work consisted of the following tasks:

- Performed a destructive survey of the property structure(s).
- Collected bulk samples of suspect ACMs and submitted samples to a State-certified laboratory for analysis.
- Performed testing of suspect LBPs.
- Preparation of this report.
- Converse completed the survey on February 21, 2018.

Laboratory analysis for asbestos did not detect asbestos in the suspect materials sampled.

Suspect gaskets associated with the blue water piping system were unobserved as the gaps between pipe fittings were too narrow. Approximately 22 ACM gaskets may be present within the piping system. Gaskets on the water pipe fittings are assumed to be present and asbestos-containing until such time as they can be sampled and evaluated for asbestos content.

A lead concentration greater than 1.0 mg/cm^2 was detected in the following components:

- Grey paint on metal engine components located inside the BPS at the north side. The paint is intact.
- Tan paint on the metal door frame to the office located at the southwest side of the interior of the BPS. The paint is intact.

The paints were observed in good conditions (intact). If at the time of demolition, the LBPs are still in good condition, no abatement or paint stabilization will be necessary. If the LBPs are in damaged conditions at the time of demolition, the peeling, delaminating, and/or flaking LBPs will need to be stabilized prior to demolition activities.

All paint stabilization must be performed by a DPH licensed lead abatement contractor using workers that have undergone the necessary lead training and are DPH certified workers.

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1.0 Purpose and Scope of Services

This report presents the results of the Converse Consultants (Converse) Asbestos and Lead-Based Paint survey completed at the Romoland Booster Pump Station (BPS) in the City of Romoland, Riverside, California (herein referred to as the Property). The purpose of the survey was to identify suspect asbestos-containing materials (ACMs) and lead-based paints (LBPs) prior to demolition activities at the Property.

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- Collected bulk samples of suspect ACMs and submitted samples to a State-certified laboratory for analysis.
- Performed testing of suspect LBPs.
- Preparation of this report.
- Converse completed the survey on February 21, 2018.

The survey was completed by, and under the supervision, of the following Converse employees:

- George Paler, Cal-OSHA Certified Asbestos Consultant, #93-1136; DPH Certified Lead Inspector/Assessor, #I-1487

Copies of applicable certifications have been provided in Appendix A.

All bulk asbestos samples were submitted to the LA Testing Laboratory located at 520 Mission Street in the City of South Pasadena, California. LA Testing is accredited by AIHA, NVLAP, and the State of California. Copies of the laboratory certificates are provided in Appendix A.

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2.0 Sampling Methodology

2.1 Asbestos

Prior to sampling, Converse visually surveyed the interior and exterior of the structure for presumed asbestos-containing materials and homogeneous areas (areas that have uniform color, texture, and appearance) in the building. Suspect materials were divided into friable and non-friable materials and placed in one of the following EPA categories:

- Surfacing Materials (sprayed or troweled-on materials)
- Thermal Systems Insulations (materials generally applied to various mechanical systems)
- Miscellaneous Materials (any materials which do not fit in the above categories)

Our sampling methodology followed the general guidelines for bulk asbestos sampling as presented in Section 40, Part 763 (AHERA) of the Code of Federal Regulations (CFR) and extended to public buildings by ASHARA in 1994. Converse collected bulk samples of the following suspect materials.

- Gravel roof core
- Black felt roofing and tar
- Roof parapet core – grey rolled roofing
- Grey roof mastic
- 2x2-foot white, cellulose ceiling tiles
- Window putty
- Engine exhaust apron insulation
- Exhaust system gaskets

2.2 LBP

Prior to sampling, Converse visually surveyed the interior and exterior of the building for painted building components. Our sampling methodology generally followed the “Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing” published by the Department of Housing and Urban Development (HUD) in 1995.

Converse used an x-ray fluorescence (XRF) device to measure lead content in painted surfaces. The detection level for lead was set at 1.0 mg/cm² as defined by the State of California and the U.S. EPA. Converse surveyed the following interior and exterior components:

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- Doors and associated components
- Walls
- Stairs and associated components
- Pipes and fittings
- Electrical conduits
- Engines and components
- Cabinets
- Ceilings
- Window components
- HVAC components
- Traffic paint
- Roof vents and ladder

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3.0 Discussion of Survey Results

3.1 Asbestos

The bulk asbestos samples were submitted to LA Testing located in South Pasadena, California. The asbestos samples were analyzed for asbestos content by EPA Test Method 600/R-93/116.

Provided in the following table is a summary of the bulk asbestos sample results. The laboratory analytical reports, sample location maps, and chain-of-custody documentation are included in Appendix B. Table 1 also includes Converse's observations regarding materials sampled and observed.

Table 1 – Summary of Asbestos Results & Observations

Sample No.	Building Material	Percent Asbestos	Comments
27990 Ethanac Road - BPS			
R-01 – R-03	Gravel roof core	None Detected	Located on the roof. Gravel and tar over black roofing felt over cellulose (non-suspect interior roofing insulation).
R-04 – R-06	Black felt roofing and tar	None Detected	Located on top of metal roof pads.
R-07 – R-09	Roof parapet core – grey rolled roofing	None Detected	Grey rolled roofing felt at parapets around the perimeter of the roof. The metal roof flashing was unpainted, and the flashing joint compound is non-suspect silicone sealer.
R-10 – R-12	Grey roof mastic	None Detected	Mastic at bases of metal vents at roof line and at parapet seams. Non-suspect silicone sealer also at base of vents and metal roof "boxes".
13 - 15	2x2-foot white, cellulose acoustic ceiling tiles	None Detected	The interior ceiling is completely made up of this ceiling tile except for the lower Office which has a concrete ceiling. Cellulose roofing insulation above the ceiling tiles. The tiles are laid in and held in place by metal ceiling trusses. No mastic observed.
16 - 17	Window putty	None Detected	Located on the exterior side of the eight (8) windows on the building.

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Table 1 – Summary of Asbestos Results & Observations

Sample No.	Building Material	Percent Asbestos	Comments
18 - 21	Engine exhaust apron insulation	None Detected	Insulation on engine exhausts, runs from both engines through the east wall to exterior manifolds. Same material at both engines. The HVAC round duct at the southeast side of the interior has non-suspect silicone sealer at joints.
22 - 24	Exhaust system gaskets	None Detected	Located at engine exhaust system pipe joints and at the exterior manifolds.

Suspect gaskets associated with the blue water piping system were unobserved as the gaps between pipe fittings were too narrow. Approximately 22 ACM gaskets may be present within the piping system. Gaskets on the water pipe fittings are assumed to be present and asbestos-containing until they can be sampled and evaluated for asbestos content.

The sample location map, analytical reports and chain of custody documentation are provided in Appendix B.

3.2 LBP

Based on the XRF readings, lead concentrations greater than 1.0 mg/cm^2 were detected in the following materials:

Table 2 – Summary of LBPs

Building Component	Paint Color	Lead Content (mg/cm^2)	Comments
Metal engine components	Grey	5.4	Located on the engine at the northside of the building only. The paint on the other engine (blue) does not contain lead above 1.0 mg/cm^2. The grey paint on the engine is intact.
Metal door frame	Tan	1.3	Located at the entrance to the office at the southwest side. The paint is intact.

All other tested components contained lead concentration less than 1.0 mg/cm^2. The XRF logs are provided in Appendix C.

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4.0 Conclusions and Recommendations

4.1 Asbestos

Laboratory analysis for asbestos did not detect asbestos in the suspect materials sampled. However, suspect gaskets associated with the blue water piping system were unobserved as the gaps between pipe fittings were too narrow. Approximately 22 ACM gaskets may be present within the piping system. Gaskets on the water pipe fittings are assumed to be present and asbestos-containing until such time as they can be sampled and evaluated for asbestos content.

In the event that sampling, and analysis indicate that asbestos is present in the water pipe gaskets, they must be abated prior to demolition of the structure. The abatement must be performed by a Cal/OSHA licensed asbestos abatement contractor using methods in accordance with Title 8 of California Code of Regulations (CCR) 1529 and South Coast Air Quality Management District Rule 1403. The materials identified as an ACCM may be disposed of as construction debris but will still require abatement by a licensed abatement company.

Converse further recommends that asbestos abatement procedures be monitored by an independent Certified Asbestos Consultant knowledgeable in asbestos abatement procedures.

4.2 LBP

A lead concentration greater than 1.0 mg/cm^2 was detected in the following components:

- Grey paint on metal engine components located inside the BPS at the north side. The paint is intact.
- Tan paint on the metal door frame to the office located at the southwest side of the interior of the BPS. The paint is intact.

The paints were observed in good conditions (intact). If at the time of demolition, the LBPs are still in good condition, no abatement or paint stabilization will be necessary. If the LBPs are in damaged conditions at the time of demolition, the peeling, delaminating, and/or flaking LBPs will need to be stabilized prior to demolition activities.

All paint stabilization must be performed by a DPH licensed lead abatement contractor using workers that have undergone the necessary lead training and are DPH certified workers.

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Converse further recommends that the lead stabilization activities be monitored by an independent third party or consultant knowledgeable in lead stabilization and abatement procedures and is at a minimum, a DPH certified Lead Project Monitor.

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5.0 Reliance and Limitations

This report is for the sole benefit and exclusive use of Atkins Global in accordance with the terms and conditions attached to our proposal under which these services have been provided. Its preparation has been in accordance with generally accepted environmental practices. No other warranty, either express or implied, is made. The Scope of Services associated with the report was designed solely in accordance with the objectives, schedule, budget, and risk-management preferences of Atkins Global.

This report should not be regarded as a guarantee that further ACMs or LBPs, beyond that which could be detected within the scope of this project, is present at the Property. It is not possible to absolutely confirm that no hazardous materials and/or substances exist at the Property. If none are identified as part of a limited scope of work, such a conclusion should not be construed as a guaranteed absence of such materials, but merely the results of the evaluation of the property at the time of the survey. Also, events may occur after the Property visit, which may result in contamination of the Property. Additional information, which was not found or available to Converse at the time of report preparation, may result in a modification of the conclusions and recommendations presented.

Any reliance on this report by Third Parties shall be at the Third Party's sole risk. Should Atkins Global wish to identify any additional relying parties not previously identified, a completed *Application of Authorization to Use* (see following page of this report) must be submitted to Converse Consultants.

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Converse Consultants

Geotechnical Engineering, Environmental & Groundwater Science, Inspection & Testing Services

Application for Authorization to Use

TO: Converse Consultants
2021 Rancho Drive, Suite 1
Redlands, California 92373

Project Title & Date: _____

Project Address: _____

FROM: (Please identify name & address of person/entity applying for permission to use the referenced report.)

_____

_____

_____

Applicant _____ hereby applies for permission to use the referenced report in order to:

_____

_____

_____

Applicant wishes or needs to use the referenced report because:

_____

_____

_____

Applicant also understands and agrees that the referenced document is a copyrighted document and shall remain the sole property of Converse Consultants. Unauthorized use or copying of the report is strictly prohibited without the express written permission of Converse Consultants. *Applicant* understands and agrees that Converse Consultants may withhold such permission at its sole discretion or grant such permission upon agreement to Terms and Conditions, such as the payment of a re-use fee, amongst others.

Applicant Signature: _____

Applicant Name (print): _____

Title: _____

Date: _____

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Figures

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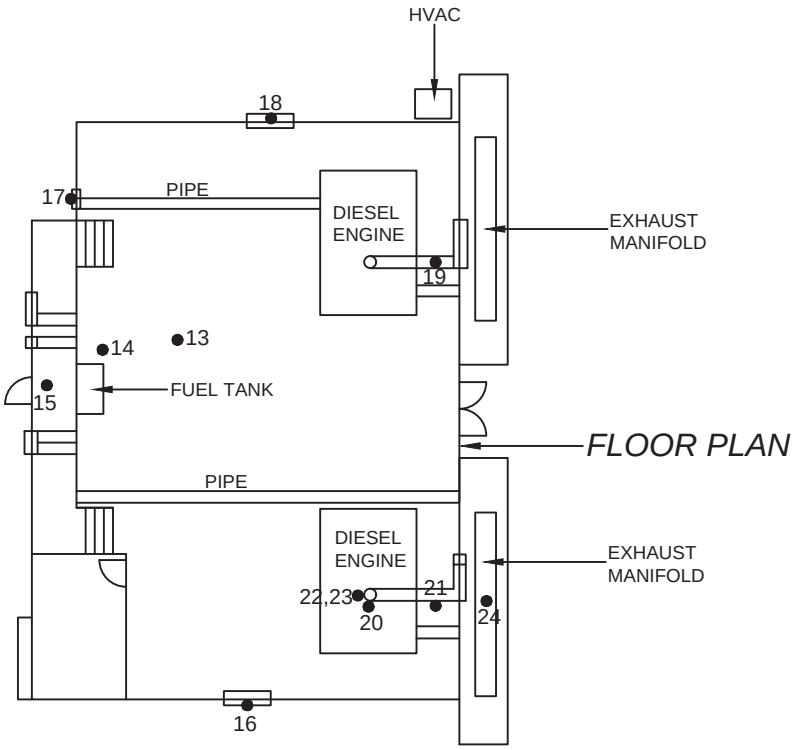

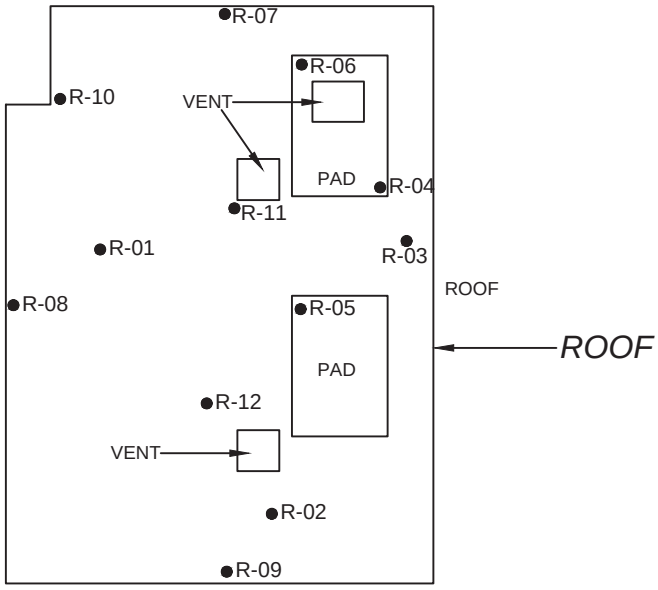

KEY

R-01 ● ROOF SAMPLE LOCATION

13 ● BULK SAMPLE LOCATION

NOT TO SCALE

SAMPLE LOCATION MAP

Converse Consultants

EMWD BOOSTER PUMP STATION
27990 ETHANAC ROAD
ROMOLAND, CALIFORNIA

Project No.
16-16-198-01

Drawing No.
1

Certifications

Appendix A

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STATE OF CALIFORNIA
Edmund G. Brown, Jr. *Governor*

DEPARTMENT OF INDUSTRIAL RELATIONS
Division of Occupational Safety and Health
Asbestos Unit
2424 Arden Way, Suite 495
Sacramento, CA 95825-2417
(916) 574-2993 Office (916) 483-0572 Fax
http://www.dir.ca.gov/dirdatabases.html actu@dir.ca.gov

307281136C 72 79

Converse Consultants
George John Paler
717 S. Myrtle Ave.
Monrovia CA 91016

September 26, 2017

Dear Certified Asbestos Consultant or Technician:

Enclosed is your certification card. **To maintain your certification, you must abide by the rules printed on the back of the certification card.**

Your certification is valid for a period of one year. If you wish to renew your certification, you must apply for renewal at least 60 days before the expiration date shown on your card. [8 CCR 341.15(h)(1)].

Please hold and do not send copies of your required AHERA refresher renewal certificates to our office until you apply for renewal of your certification.

Certificates must be kept current if you are actively working as a CAC or CSST. The grace period is only for those who are not actively working as an asbestos consultant or site surveillance technician.

Please contact our office at the above address, fax number or email; of any changes in your contact/mailing information within 15 days of the change.

Sincerely,

Jeff Ferrell
Senior Safety Engineer

Attachment: Certification Card

cc: File

State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

George John Paler
Name
Certification No. 93-1136
Expiration 11/19/18

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180-7189.8 of the Business and Professions Code.

Renewal – Card Attached (Revised 10/24/2012)

Mr. George J. Paler
Converse Consultants
717 S. Myrtle Ave
Monrovia, California 91016

State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Norman S Eke
Name

Certification No. 96-2093

Expires on 03/07/19

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200232-0

LA Testing

South Pasadena, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2017-07-01 through 2018-06-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

NVLAP® National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

LA Testing
520 Mission Street
South Pasadena, CA 91030
Mr. Jerry Drapala Ph.D.
Phone: (323) 254-9960 Fax: (323) 254-9982
Email: jdrapala@latesting.com
http://www.latesting.com

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 200232-0

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA -- Appendix E to Subpart E of Part 763 -- Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code	*Description*
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

For the National Voluntary Laboratory Accreditation Program

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

Interim

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

EMSL Analytical, Inc.

South Pasadena, CA

520 Mission Street

South Pasadena, CA 91030

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site inspection, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **2283**

Expiration Date: **12/31/2018**

Effective Date: **1/1/2018**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

EMSL Analytical, Inc.
South Pasadena, CA
520 Mission Street
South Pasadena, CA 91030
Phone: (800) 303-0047

Certificate No. 2283
Expiration Date 12/31/2018
INTERIM

Field of Testing: 101 - Microbiology of Drinking Water			
101.010	001	Heterotrophic Bacteria	SM9215B
101.050	001	Total Coliform P/A	SM9223B (Colilert)
101.050	002	E. coli P/A	SM9223B (Colilert)
101.050	003	Total Coliform (Enumeration)	SM9223B (Colilert)
Field of Testing: 103 - Toxic Chemical Elements of Drinking Water			
103.301	001	Asbestos	EPA 100.2
Field of Testing: 107 - Microbiology of Wastewater			
107.010	001	Heterotrophic Bacteria	SM9215B
107.080	002	Fecal Coliform (Enumeration)	SM9222D-1997
Field of Testing: 114 - Inorganic Chemistry of Hazardous Waste			
114.130	001	Lead	EPA 7420
Field of Testing: 121 - Bulk Asbestos Analysis of Hazardous Waste			
121.010	001	Bulk Asbestos	EPA 600/M4-82-020
Field of Testing: 126 - Microbiology of Recreational Water			
126.040	001	Fecal Coliform (Enumeration)	SM9222D-1997
126.080	001	Enterococci	Enterolert

As of 12/14/2017, this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

Asbestos

Analytical Report,
Chain of Custody Documentation, &
Sample Location Map

Appendix B

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LA Testing

520 Mission Street South Pasadena, CA 91030

Tel/Fax: (323) 254-9960 / (323) 254-9982

http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order:	321804322
Customer ID:	32CONV56
Customer PO:	
Project ID:	

Attention:	George Paler	**Phone:**	(626) 930-1258
	Converse Consultants	**Fax:**	(626) 930-1212
	717 S Myrtle Avenue	**Received Date:**	02/21/2018 5:25 PM
	Monrovia, CA 91016	**Analysis Date:**	02/28/2018
		Collected Date:	02/21/2018

Project: 16-16-198-01 EMWD/BPS Replacement

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
R-01-Felts *321804322-0001*	Roof-W.side - Gravel roof cove	Black Fibrous Heterogeneous	30% Glass	70% Non-fibrous (Other)	None Detected
R-01-Fibrous Material *321804322-0001A*	Roof-W.side - Gravel roof cove	Brown Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
R-02-Shingle *321804322-0002*	Roof-S.side - Gravel roof cove	Gray/Black Fibrous Heterogeneous	20% Glass	80% Non-fibrous (Other)	None Detected
R-02-Felts *321804322-0002A*	Roof-S.side - Gravel roof cove	Black Fibrous Homogeneous	30% Glass	70% Non-fibrous (Other)	None Detected
R-02-Fibrous Material *321804322-0002B*	Roof-S.side - Gravel roof cove	Brown Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
R-03-Felts *321804322-0003*	Roof-E.side - Gravel roof cove	Black Fibrous Homogeneous	10% Cellulose 15% Glass	75% Non-fibrous (Other)	None Detected
R-03-Fibrous Material *321804322-0003A*	Roof-E.side - Gravel roof cove	Brown Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
R-04-Felts *321804322-0004*	Roof pads-E.side - Black felt roofing & tar	Black Fibrous Heterogeneous	30% Glass	70% Non-fibrous (Other)	None Detected
R-04-Tar *321804322-0004A*	Roof pads-E.side - Black felt roofing & tar	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
R-05-Felts *321804322-0005*	Roof pads-center - Black felt roofing & tar	Black Fibrous Homogeneous	30% Glass	70% Non-fibrous (Other)	None Detected
R-05-Tar *321804322-0005A*	Roof pads-center - Black felt roofing & tar	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
R-06-Felt *321804322-0006*	Roof pads-N.side - Black felt roofing & tar	Black Fibrous Homogeneous	15% Glass	85% Non-fibrous (Other)	None Detected
R-06-Tar *321804322-0006A*	Roof pads-N.side - Black felt roofing & tar	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
R-07-Shingle *321804322-0007*	Roof parapets-N.side - Roof parapet core-grey rolled roofing	White/Black Fibrous Heterogeneous	20% Glass	80% Non-fibrous (Other)	None Detected
R-07-Tar *321804322-0007A*	Roof parapets-N.side - Roof parapet core-grey rolled roofing	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
R-07-Felt *321804322-0007B*	Roof parapets-N.side - Roof parapet core-grey rolled roofing	Black Fibrous Homogeneous	30% Glass	70% Non-fibrous (Other)	None Detected

Report amended: 03/05/2018 14:44:43 Replaces initial report from: 02/28/2018 16:37:32 Reason Code: Client-Change to Sample ID

LA Testing

520 Mission Street South Pasadena, CA 91030

Tel/Fax: (323) 254-9960 / (323) 254-9982

http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order:	321804322
Customer ID:	32CONV56
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
R-08-Shingle *321804322-0008*	Roof parapets-W.side - Roof parapet core-grey rolled roofing	White/Black Fibrous Homogeneous	20% Glass	80% Non-fibrous (Other)	None Detected
R-08-Tar *321804322-0008A*	Roof parapets-W.side - Roof parapet core-grey rolled roofing	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
R-08-Felt *321804322-0008B*	Roof parapets-W.side - Roof parapet core-grey rolled roofing	Black Fibrous Homogeneous	30% Glass	70% Non-fibrous (Other)	None Detected
R-09-Shingle *321804322-0009*	Roof parapets-S.side - Roof parapet core-grey rolled roofing	Gray/Black Fibrous Heterogeneous	10% Glass	90% Non-fibrous (Other)	None Detected
R-09-Felts *321804322-0009A*	Roof parapets-S.side - Roof parapet core-grey rolled roofing	Black Fibrous Homogeneous	15% Glass	85% Non-fibrous (Other)	None Detected
R-10 *321804322-0010*	Roof- parapet,NW corner - Grey roof mastic	Gray/Black Non-Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
R-11 *321804322-0011*	Roof- vent base corner N. center - Grey roof mastic	Gray/Black Non-Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
R-12 *321804322-0012*	Roof-roof patch, center - Grey roof mastic	Gray/Black Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
13 *321804322-0013*	Ceiling-W.center - 2x2' White cellulose ceiling tile	Brown/White Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
14 *321804322-0014*	Ceiling-W.side - 2x2' White cellulose ceiling tile	Brown/White Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
15 *321804322-0015*	Ceiling-W. side above entrance - 2x2' White cellulose ceiling tile	Brown/White Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
16 *321804322-0016*	Exterior-S. side - Window putty	Tan/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
17 *321804322-0017*	Exterior-NW. side - Window putty	Tan/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
18 *321804322-0018*	Exterior-N. side - Window putty	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
19 *321804322-0019*	N. engine, E,side - Engine exhust apron sulation	Gray/White Fibrous Homogeneous	95% Glass	5% Non-fibrous (Other)	None Detected
20 *321804322-0020*	S. engine, W,side - Engine exhust apron sulation	Gray/White Fibrous Heterogeneous	90% Glass	10% Non-fibrous (Other)	None Detected
21 *321804322-0021*	S. engine, E,side - Engine exhust apron sulation	White Fibrous Homogeneous	95% Glass	5% Non-fibrous (Other)	None Detected
22 *321804322-0022*	Interior S. engine - Exhaust system gasket	Silver Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
23 *321804322-0023*	Interior S. engine - Exhaust system gasket	Silver Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Report amended: 03/05/2018 14:44:43 Replaces initial report from: 02/28/2018 16:37:32 Reason Code: Client-Change to Sample ID

LA Testing

520 Mission Street South Pasadena, CA 91030

Tel/Fax: (323) 254-9960 / (323) 254-9982

http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order:	321804322
Customer ID:	32CONV56
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
24 *321804322-0024*	Exterior S. main fold (white,square) - Exhaust system gasket	White/Beige Fibrous Homogeneous	98% Glass	2% Non-fibrous (Other)	None Detected

Analyst(s)

Humberto Espinoza (25)

Julie Vong (11)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by LA Testing South Pasadena, CA NVLAP Lab Code 200232-0, CA ELAP 2283

Report amended: 03/05/2018 14:44:43 Replaces initial report from: 02/28/2018 16:37:32 Reason Code: Client-Change to Sample ID

OrderID: 321804322

Asbestos Chain of Custody

LA Testing Order Number *(Lab Use Only)*:

#321804322

LA TESTING
520 MISSION STREET
S. PASADENA, CA 91030
PHONE: (323) 254-9960
FAX: (323) 254-9982

Company : Converse Consultants		**LA Testing-Bill to:** ☒ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*	
Street: 717 S Myrtle Avenue			
City: Monrovia	**State/Province: CA**	**Zip/Postal Code: 91061**	**Country: USA**
Report To (Name): George Paler		**Fax #:**	
Telephone #: (626) 807-3416		**Email Address: gpaler@converseconsultants.com**	
Project Name/Number: 16-16-198-01 EMWD/BPS Replacement			
Please Provide Results: ☐ Fax ☒ Email	**Purchase Order:**	**U.S. State Samples Taken:**	

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☒ 1 Week ☐ 2 Week

**For TEM Air 3 hours through 6 hours, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with LA Testing's Terms and Conditions located in the Analytical Price Guide.*

PCM - Air
- ☐ NIOSH 7400
- ☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
- ☒ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198.6 NOB (non-friable-NY)
- ☐ NIOSH 9002 (<1%)

TEM – Air ☐ **4-4.5hr TAT (AHERA only)**
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec. 2.5

TEM – Water: EPA 100.2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
- ☐ PLM CARB 435 - A (0.25% sensitivity)
- ☐ PLM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - C (0.01% sensitivity)
- ☐ EPA Protocol (Semi-Quantitative)
- ☐ EPA Protocol (Quantitative)

Other:
- ☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group**

Samplers Name:	**Samplers Signature:**

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
	See Attached		

Client Sample # (s): - **Total # of Samples:**

Relinquished (Client): [signature] **Date:** 2/21/18 **Time:** 17:20

Received (Lab): T. Fogg (WI) **Date:** 2-21-18 **Time:** 5:25pm

Comments/Special Instructions:

Page 1 of _____ pages

Controlled Document – Asbestos COC – R2 – 1/12/2010

Converse Consultants

717 S. Myrtle Avenue
Monrovia, CA 91016-3422
Tel.: (626) 930-1200
Fax: (626) 930-1212

#321804322

BULK SAMPLE LOG

Project Name: EMWD/BPS Replacement Collected By: GJP

Project No.: 16-16-198-01 Date: 2/21/18

HOMOGENEOUS MATERIAL: Gravel Roof Core

Sample Number	Location	Area Sq. Ft.	Condition
R-01	Roof - W. side	~600	Good
R-02	- S. side		
R-03	- E. side		

Friability:	Friable	Non-Friable	
Potential for Contact with Material:	High	Moderate	Low
Influence of Vibration:	High	Moderate	Low
Potential for Air Erosion:	High	Moderate	Low
Damage Assessment:	Good	Damaged	Significantly Damaged

COMMENTS: Gravel & tar over black felt roofing over cellulose.

CHAIN OF CUSTODY

Relinquished By: [signature] George Paler Time: 17:20 Date: 2/21/18
Received By: Time: Date:
Relinquished By: Time: Date:
Received By: Time: Date:

#321804322

Converse Consultants

717 S. Myrtle Avenue
Monrovia, CA 91016-3422
Tel.: (626) 930-1200
Fax: (626) 930-1212

BULK SAMPLE LOG

Project Name: EMWD/BPS Replacement Collected By: GJP

Project No.: 16-16-198-01 Date: 2/21/18

HOMOGENEOUS MATERIAL: Black Felt Roofing & Tar

Sample Number	Location	Area Sq. Ft.	Condition
R-04	Roof Pads - E. Side	~150	Good
R-05	- Center		
R-06	- N. Side		

Friability:	Friable	(Non-Friable)	
Potential for Contact with Material:	High	Moderate	Low
Influence of Vibration:	High	Moderate	Low
Potential for Air Erosion:	High	Moderate	Low
Damage Assessment:	(Good)	Damaged	Significantly Damaged

COMMENTS: Black roofing on top of metal pads

CHAIN OF CUSTODY

Relinquished By: George Porter Time: 17:20 Date: 2/21/18
Received By: _____ Time: _____ Date: _____
Relinquished By: _____ Time: _____ Date: _____
Received By: _____ Time: _____ Date: _____

Page 2 of 8

Converse Consultants

717 S. Myrtle Avenue
Monrovia, CA 91016-3422
Tel.: (626) 930-1200
Fax: (626) 930-1212

#321804322

BULK SAMPLE LOG

Project Name: EMWD/BPS Replacement Collected By: GJP

Project No.: 16-16-198-01 Date: 2/21/18

HOMOGENEOUS MATERIAL: Roof Parapet Core - Grey Rolled Roofing

Sample Number	Location	Area Sq. Ft.	Condition
R-07	Roof Parapets - N. side	~200	Good
R-08	- W. side		
R-09	- S. side		

Friability:	Friable	(Non-Friable)	
Potential for Contact with Material:	High	Moderate	Low
Influence of Vibration:	High	Moderate	Low
Potential for Air Erosion:	High	Moderate	Low
Damage Assessment:	(Good)	Damaged	Significantly Damaged

COMMENTS: Unpainted metal flashing. Concrete substrate

CHAIN OF CUSTODY

Relinquished By: [signature] George Pale Time: 17:20 Date: 2/21/18
Received By: _____ Time: _____ Date: _____
Relinquished By: _____ Time: _____ Date: _____
Received By: _____ Time: _____ Date: _____

Converse Consultants

#321804322

717 S. Myrtle Avenue
Monrovia, CA 91016-3422
Tel.: (626) 930-1200
Fax: (626) 930-1212

BULK SAMPLE LOG

Project Name: EMWD/BPS Replacement Collected By: GJP

Project No.: 16-16-198-01 Date: 2/21/18

HOMOGENEOUS MATERIAL: Grey Roof Mastic

Sample Number	Location	Area Sq. Ft.	Condition
R-10	Roof - Parapet, NW corner	~50	Good
R-11	- Vent base corner, N. center		
R-12	- roof patch, center		

Friability:	Friable	(Non-Friable)	
Potential for Contact with Material:	High	Moderate	Low
Influence of Vibration:	High	Moderate	Low
Potential for Air Erosion:	High	Moderate	Low
Damage Assessment:	(Good)	Damaged	Significantly Damaged

COMMENTS: Roof flashing compound is non-suspect silicone. Non-suspect silicone also at base of roof vent boxes (metal portion). Mastic around bases of metal vents at roof line. Mastic also at parapet seams and as roof patching.

CHAIN OF CUSTODY

Relinquished By: George Fuller Time: 17:20 Date: 2/21/18
Received By: _____ Time: _____ Date: _____
Relinquished By: _____ Time: _____ Date: _____
Received By: _____ Time: _____ Date: _____

#321804322 717 S. Myrtle Avenue
Monrovia, CA 91016-3422
Tel.: (626) 930-1200
Fax: (626) 930-1212

Converse Consultants

BULK SAMPLE LOG

Project Name: EMWD/BPS Replacement Collected By: GJP

Project No.: 16-16-198-01 Date: 2/21/18

HOMOGENEOUS MATERIAL: 2x2' White, Cellulose Ceiling Tile

Sample Number	Location	Area Sq. Ft.	Condition
13	Ceiling - W. center	~600	Good
14	- W. side		
15	- W. side above entrance		

Friability:	Friable	(Non-Friable)	
Potential for Contact with Material:	High	Moderate	Low
Influence of Vibration:	High	Moderate	Low
Potential for Air Erosion:	High	Moderate	Low
Damage Assessment:	(Good)	Damaged	Significantly Damaged

COMMENTS: The interior ceiling is completely made up of this type of ceiling tile except for the lower level office which has a concrete ceiling. Cellulose roofing insulation above the ceiling tile. Tiles are laid in - no mastic observed. Fastened in place by metal ceiling trusses.

CHAIN OF CUSTODY

Relinquished By: George Parker Time: 17:20 Date: 2/21/18
Received By: _____ Time: _____ Date: _____
Relinquished By: _____ Time: _____ Date: _____
Received By: _____ Time: _____ Date: _____

Converse Consultants

#321804328

717 S. Myrtle Avenue
Monrovia, CA 91016-3422
Tel.: (626) 930-1200
Fax: (626) 930-1212

BULK SAMPLE LOG

Project Name: EMWD/BPS Replacement Collected By: GJP

Project No.: 16-16-198-01 Date: 2/21/18

HOMOGENEOUS MATERIAL: Window PUTTY

Sample Number	Location	Area Sq. Ft.	Condition
16	Exterior - S. side	8 Windows ~10 SF	Good
17	- NW side		
18	- N. side		

Friability:	Friable	(Non-Friable)	
Potential for Contact with Material:	High	Moderate	Low
Influence of Vibration:	High	Moderate	Low
Potential for Air Erosion:	High	Moderate	Low
Damage Assessment:	(Good)	Damaged	Significantly Damaged

COMMENTS: 8 windows - all have putty

CHAIN OF CUSTODY

Relinquished By: George Paler Time: 17:20 Date: 2/21/18
Received By: _____ Time: _____ Date: _____
Relinquished By: _____ Time: _____ Date: _____
Received By: _____ Time: _____ Date: _____

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717 S. Myrtle Avenue
Monrovia, CA 91016-3422
Tel.: (626) 930-1200
Fax: (626) 930-1212

BULK SAMPLE #302 321804322

Project Name: EMWD/BPS Replacement Collected By: GJP

Project No.: 16-16-198-01 Date: 2/21/18

HOMOGENEOUS MATERIAL: Engine exhaust apron insulation

Sample Number	Location	Area Sq. Ft.	Condition
19	N. engine, E. side	~24 lf 4" Diam	Good
20	S. engine, W. side	↓	↓
21	S. engine, E. side	↓	↓

Friability:	(Friable)	Non-Friable	
Potential for Contact with Material:	High	Moderate	(Low)
Influence of Vibration:	High	(Moderate)	Low
Potential for Air Erosion:	High	Moderate	(Low)
Damage Assessment:	(Good)	Damaged	Significantly Damaged

COMMENTS: N. side engine running - runs from both engines through wall to exterior manifold. Same material at both engines.
HVAC round duct has non-suspect joint compound (silicone)

CHAIN OF CUSTODY

Relinquished By: George Porter Time: 17:20 Date: 2/21/18
Received By: _____ Time: _____ Date: _____
Relinquished By: _____ Time: _____ Date: _____
Received By: _____ Time: _____ Date: _____

#321804322

Converse Consultants
717 S. Myrtle Avenue
Monrovia, CA 91016-3422
Tel.: (626) 930-1200
Fax: (626) 930-1212

BULK SAMPLE LOG

Project Name: EMWD/BPS Replacement Collected By: GJP

Project No.: 16-16-198-01 Date: 2/21/18

HOMOGENEOUS MATERIAL: Exhaust System Gaskets

Sample Number	Location	Area Sq. Ft.	Condition
22	Interior S. engine	~10 inside ~~60~~ outside	Good
23	↓	↓	↓
24	Exterior, S. Manifold (White, square)	↓	↓

Friability:	Friable	~~Non-Friable~~	
Potential for Contact with Material:	High	Moderate	Low
Influence of Vibration:	High	Moderate	Low
Potential for Air Erosion:	High	Moderate	Low
Damage Assessment:	Good	Damaged	Significantly Damaged

COMMENTS: Blue water piping gaskets were unobserved - the fittings were too tight, no gaps
* Water pipe gaskets are assumed to be present & ACM ~ 22 gaskets may be present, ~1-2' diam. Exhaust system gaskets at interior & exterior fitting joints - difficult access, very narrow gaps. the gaskets to the exhaust system appear homogeneous except for 2 white fibrous gaskets at each of 2 exterior manifolds (square).

CHAIN OF CUSTODY

Relinquished By: George Pinter Time: 17:20 Date: 2/21/18
Received By: _____ Time: _____ Date: _____
Relinquished By: _____ Time: _____ Date: _____
Received By: _____ Time: _____ Date: _____

Lead-Base Paint

XRF Logs

Appendix C

Converse Project No.16-16-198-01
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Date of Inspection: 2/21/18
Inspector: George Paler
CDPH No. I-1487

XRF Summary Table
27990 Ethanac Road
Romoland, CA

Analyzer: Niton XLp 702A
Units: mg/cm^2
Action Level: 1.0 mg/cm^2

Reading No	Component	Substrate	Side	Condition	Color	Room	Results	PbC	PbC Error
1			SHUTTER_CAL					0.68	0
2			CALIBRATE				Null	1.1	0.3
3			CALIBRATE				Null	1.1	0.1
4			CALIBRATE				Positive	1.1	0.1
5			CALIBRATE				Positive	1.1	0.1
6			CALIBRATE				Null	< LOD	1.05
7			CALIBRATE				Positive	1	0.1
8	DOOR	METAL	WEST	INTACT	BEIGE	INTERIOR	Negative	< LOD	0.27
9	DOOR FRAME	METAL	WEST	INTACT	BEIGE	INTERIOR	Negative	< LOD	0.45
10	WALL	CEMENT BLOCK	WEST	INTACT	BEIGE	INTERIOR	Negative	< LOD	0.03
11	STAIRS	METAL	WEST	FAIR	TAN	INTERIOR	Negative	< LOD	0.75
12	HANDRAIL	METAL	WEST	INTACT	YELLOW	INTERIOR	Negative	< LOD	0.75
13	WALL	CONCRETE	WEST	INTACT	BEIGE	INTERIOR	Negative	< LOD	0.09
14	STAIR SUPPORTS	METAL	WEST	INTACT	TAN	INTERIOR	Negative	0.8	0.1
15	CABINET	WOOD	WEST	FAIR	TAN	INTERIOR	Negative	< LOD	0.03
16	FUEL TANK	METAL	WEST	FAIR	WHITE	INTERIOR	Negative	< LOD	0.03
17	WATER PIPES	METAL	NORTH	INTACT	LT BLUE	INTERIOR	Negative	< LOD	0.04
18	WATER PIPES	METAL	NORTH	INTACT	LT BLUE	INTERIOR	Negative	< LOD	0.03
19	WATER PIPES	METAL	NORTH	INTACT	LT BLUE	INTERIOR	Negative	< LOD	0.03
20	BOX	METAL	NORTH	INTACT	BLUE	INTERIOR	Negative	< LOD	0.03
21	PIPES	METAL	EAST	INTACT	YELLOW	INTERIOR	Negative	< LOD	0.03
22	WALL	CONCRETE	NORTH	INTACT	BEIGE	INTERIOR	Negative	< LOD	0.09
23	WALL	CEMENT BLOCK	NORTH	INTACT	BEIGE	INTERIOR	Negative	< LOD	0.03
24	***ENGINE***	***METAL***	***NORTH***	***INTACT***	***GRAY***	***INTERIOR***	***Positive***	***5.4***	***3.5***
25	WALL	CONCRETE	NORTH	INTACT	BEIGE	INTERIOR	Negative	< LOD	0.03
26	WALL	CEMENT BLOCK	NORTH	INTACT	BEIGE	INTERIOR	Negative	< LOD	0.03
27	DOOR FRAME	METAL	EAST	INTACT	BEIGE	INTERIOR	Negative	< LOD	0.56
28	DOOR GRATE	METAL	EAST	INTACT	BEIGE	INTERIOR	Negative	< LOD	0.03
29	CONDUIT	METAL	EAST	INTACT	BEIGE	INTERIOR	Negative	< LOD	0.77
30	PIPE	METAL	EAST	INTACT	GREEN	INTERIOR	Negative	< LOD	0.03
31	WATER PIPES	METAL	SOUTH	INTACT	LT BLUE	INTERIOR	Negative	< LOD	0.03
32	WATER PIPE FLANGE	METAL	SOUTH	INTACT	LT BLUE	INTERIOR	Negative	< LOD	0.03
33	ENGINE	METAL	SOUTH	INTACT	DK BLUE	INTERIOR	Negative	< LOD	0.12
34	FITTINGS	METAL	SOUTH	INTACT	GRAY	INTERIOR	Negative	< LOD	1.9

Date of Inspection: 2/21/18
Inspector: George Paler
CDPH No. I-1487

XRF Summary Table
27990 Ethanac Road
Romoland, CA

Analyzer: Niton XLp 702A
Units: mg/cm^2
Action Level: 1.0 mg/cm^2

Reading No	Component	Substrate	Side	Condition	Color	Room	Results	PbC	PbC Error
35	FITTINGS	METAL	SOUTH	INTACT	GRAY	INTERIOR	Null	< LOD	1.05
36	FITTINGS	METAL	SOUTH	INTACT	GRAY	INTERIOR	Null	< LOD	0.12
37	FITTINGS	METAL	SOUTH	INTACT	GRAY	INTERIOR	Negative	< LOD	1.23
38	ENGINE	METAL	SOUTH	INTACT	DK BLUE	INTERIOR	Negative	< LOD	0.03
39	PIPE	METAL	SOUTH	INTACT	RED	INTERIOR	Negative	< LOD	0.03
40	WALL	CONCRETE	SOUTH	INTACT	BEIGE	INTERIOR	Negative	< LOD	0.05
41	WALL	CEMENT BLOCK	SOUTH	INTACT	BEIGE	INTERIOR	Negative	< LOD	0.13
42	DOOR	METAL	NORTH	INTACT	TAN	OFFICE	Negative	< LOD	0.45
43	***DOOR FRAME***	***METAL***	***NORTH***	***INTACT***	***TAN***	***OFFICE***	***Positive***	***1.3***	***0.2***
44	CABINET	WOOD	WEST	INTACT	TAN	OFFICE	Negative	< LOD	0.12
45	ELEC. PANEL	METAL	SOUTH	INTACT	GRAY	OFFICE	Negative	< LOD	0.03
46	WALL	CONCRETE	SOUTH	INTACT	BEIGE	OFFICE	Negative	< LOD	0.03
47	WALL	CEMENT BLOCK	SOUTH	INTACT	BEIGE	OFFICE	Null	< LOD	0.03
48	WALL	CEMENT BLOCK	SOUTH	INTACT	BEIGE	OFFICE	Negative	< LOD	0.03
49	WALL	CEMENT BLOCK	NORTH	INTACT	BEIGE	OFFICE	Negative	< LOD	0.04
50	CEILING	CONCRETE		INTACT	BEIGE	OFFICE	Negative	< LOD	0.05
51	WINDOW CASE	METAL	WEST	INTACT	BEIGE	OFFICE	Null	< LOD	0.03
52	WINDOW CASE	METAL	WEST	INTACT	BEIGE	OFFICE	Negative	< LOD	0.03
53	CEILING	CELLULOSE		INTACT	BEIGE	INTERIOR	Null	< LOD	0.05
54	CEILING	CELLULOSE		INTACT	BEIGE	INTERIOR	Negative	< LOD	0.05
55	WALL	CEMENT BLOCK	WEST	INTACT	BEIGE	EXTERIOR	Null	< LOD	0.03
56	WINDOW CASE	METAL	WEST	INTACT	BEIGE	EXTERIOR	Negative	< LOD	0.03
57	WALL	CEMENT BLOCK	WEST	INTACT	BEIGE	EXTERIOR	Negative	< LOD	0.03
58	WINDOW SILL	CEMENT BLOCK	WEST	INTACT	BEIGE	EXTERIOR	Negative	< LOD	0.03
59	WINDOW CASE	METAL	NORTH	INTACT	BEIGE	EXTERIOR	Negative	< LOD	0.03
60	PIPE	METAL	NORTH	INTACT	GRAY	EXTERIOR	Negative	< LOD	0.03
61	PIPE	METAL	NORTH	INTACT	YELLOW	EXTERIOR	Negative	< LOD	0.03
62	TRAFFIC PAINT	CONCRETE	NORTH	INTACT	YELLOW	EXTERIOR	Negative	< LOD	0.03
63	AC FRAME	METAL	NORTH	INTACT	BEIGE	EXTERIOR	Negative	< LOD	0.03
64	AC UNIT	METAL	NORTH	INTACT	TAN	EXTERIOR	Negative	< LOD	0.03
65	RETAINING WALL	CEMENT BLOCK	EAST	INTACT	BEIGE	EXTERIOR	Negative	< LOD	0.03
66	WALL	CEMENT BLOCK	EAST	INTACT	BEIGE	EXTERIOR	Negative	< LOD	0.03
67	DOOR	METAL	EAST	INTACT	BEIGE	EXTERIOR	Negative	< LOD	0.33
68	WALL	CEMENT BLOCK	SOUTH	INTACT	BEIGE	EXTERIOR	Negative	< LOD	0.03

Date of Inspection: 2/21/18
Inspector: George Paler
CDPH No. I-1487

XRF Summary Table
27990 Ethanac Road
Romoland, CA

Analyzer: Niton XLp 702A
Units: mg/cm^2
Action Level: 1.0 mg/cm^2

Reading No	Component	Substrate	Side	Condition	Color	Room	Results	PbC	PbC Error
69	WINDOW SILL	CEMENT BLOCK	SOUTH	INTACT	BEIGE	EXTERIOR	Negative	< LOD	0.09
70	WINDOW CASE	METAL	SOUTH	INTACT	BEIGE	EXTERIOR	Negative	< LOD	0.03
71	LADDER	METAL	SOUTH	INTACT	SILVER	EXTERIOR	Negative	< LOD	0.03
72	PANEL	METAL	SOUTH	INTACT	GRAY	EXTERIOR	Negative	< LOD	0.03
73	DOOR	METAL	WEST	INTACT	BEIGE	EXTERIOR	Negative	< LOD	0.54
74	TRAFFIC PAINT	WOOD	WEST	PEELING	YELLOW	EXTERIOR	Negative	< LOD	0.53
75	TRAFFIC PAINT	CONCRETE	WEST	INTACT	YELLOW	EXTERIOR	Negative	< LOD	0.03
76	HANDRAIL	METAL	SOUTH	INTACT	SILVER	ROOF	Negative	< LOD	0.03
77	VENT	METAL	NORTH	INTACT	BEIGE	ROOF	Negative	< LOD	0.05
78	VENT 2	METAL	NORTH	INTACT	BEIGE	ROOF	Negative	< LOD	0.03
79			CALIBRATE				Negative	0.9	0.1
80			CALIBRATE				Positive	1.3	0.3
81			CALIBRATE				Positive	1.1	0.1

Appendix K:

Asbestos & Lead Paint Survey

Converse Consultants
Geotechnical Engineering, Environmental & Groundwater Science, Inspection & Testing Services

June 6, 2025

Mr. Amritendu Maji, PE
Lee & Ro
1199 S. Fullerton Road
City of Industry, California 91748

Subject: **SUPPLEMENTAL ASBESTOS & LEAD-BASED PAINT SURVEY REPORT**
Romoland Booster Pump Station
27990 Ethanac Road
Romoland, California 92585
Converse Project No. 16-16-198-03

Mr. Maji:

Provided is our report of the *Asbestos & Lead-Based Paint (LBP) Survey* completed on May 15, 16, and 28, 2025, for the referenced site. Our work, which was a destructive survey (excluding gaskets on live pipes), was completed in general accordance with our revised Agreement for Environmental Consulting dated January 16, 2024. This report supplements our report dated March 7, 2018.

The Scope of Services was completed by, or under the supervision, of the following Converse employees:

Name	Asbestos Cert. No.	CDPH Cert. No.	Project Responsibility	Contact Number
Norman Eke (NSE)	CAC #96-2093	--	Project Management Report QA/QC	626-930-1260
Rodney Stansfield (RDS)	CAC #97-2309	Inspector/Assessor #4397	ASB Inspection & Sampling LBP Inspection & Sampling Report Generation	714-333-8222

All bulk asbestos samples were submitted to and analyzed by the following laboratory:

- Eurofins Built Environment Testing (800-651-4802)
  931 Corporate Center Drive
  Pomona, CA 91768
  NVLAP #600282-0

All bulk lead paint samples were submitted to and analyzed by the following laboratory:

- Enviro-Chem, Inc. (909) 590-5905
  1214 E. Lexington Avenue
  Pomona, CA 91706
  California ELAP #1555

Copies of applicable staff and laboratory certifications have been attached to this letter.

ASBESTOS

Prior to sampling, Converse visually surveyed the interior and exterior of the structure for suspect asbestos-containing materials (ACMs) and homogeneous areas (areas that have uniform color, texture, and appearance) that had not previously been sampled and analyzed for asbestos content in March of 2018. The

remaining suspect materials were divided into friable (crushable to dust) and non-friable materials, and placed in one of the following Environmental Protection Agency (EPA) categories:

- Surfacing Materials (sprayed or troweled-on materials)
- Thermal Systems Insulations (materials generally applied to various mechanical systems)
- Miscellaneous Materials (any materials which do not fit in the above categories)

The strategy for the collection of asbestos samples was in general accordance with the EPA guidance document *"Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials"*, EPA 560/5-85-030a, October 1985, 40 CFR 763 (AHERA); *National Exposure Standards for Hazardous Air Pollutants (NESHAP)*, 40 CFR Part 61; and South Coast Air Quality Management District, *Rule 1403, Asbestos Emissions From Demolition/Renovation Activities*, Amended October 5, 2007.

Bulk samples were collected of the following types of materials:

- CMU Grout
- Concrete floor slab
- Concrete Walls

This survey was a comprehensive pre-demolition survey; however, some well-hidden (or buried) suspect materials may have escaped evaluation. All layers of suspect building materials (to joist or frame level), as well as above plenums, or other concealed spaces, have been evaluated. Gaskets on active pipes are assumed to be ACMs as they could not be tested.

The bulk samples were analyzed by Polarized Light Microscopy (PLM) in accordance with EPA Test Method 600/R-93/116. A summary of the types of suspect materials sampled along with the analytical results is presented in the following table.

Note: All asbestos samples have a prefix of "B" (for "bulk") on the chain of custody documentation as well as the lab report.

Table 1 – Suspect Materials Sampled & Analytical Results

Sample No.	Suspect Material	% Asbestos Detected	Fri or NF Material	I or D Condition	SF
01 – 03	CMU grout	ND	NF	I	1,130
	Comments: Upper walls (interior and exterior), and Office (Control Room) walls.				
04 – 06	Concrete floor slab	ND	NF	I	550
	Comments: Floors and exterior walkways appear to be homogenous.				
07 – 09	Concrete walls	ND	NF	I	750
	Comments: Lower walls (below grade)				

Additional Comments:
The building was operational at the time of the survey; therefore, installed gaskets could not be sampled.

All materials were generally in good condition at the time of the survey. No obvious vandalism, fire, renovation, demolition or structural damage was observed.

LEGEND
Fri: Friable Material
ND: None Detected
NF: Non-Friable Material
I: Intact Condition
D: Damaged Condition
SF: Square Footage

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The sampled suspect materials did not contain asbestos.

As the water pumping system was in operation at the time of the survey, Converse was not able to sample or assess installed gaskets. A small set of uninstalled gaskets was observed in the upper (southwest) room, but it is not known if those items are similar to installed gaskets or not. These materials will need to be considered ACMs until they are sampled and analyzed for asbestos content.

If other suspect ACMs are uncovered during demolition activities, those suspect materials should be inspected, sampled, and analyzed for asbestos content. If not sampled and analyzed, these new suspect materials will need to be assumed positive for asbestos.

The analytical report and chain of custody documentation are attached to this letter report. A sample location map is also attached to this letter report.

LEAD-BASED PAINTS (LBPs)

Prior to sampling, Converse visually surveyed the interior and exterior of the building for painted building components. Our sampling methodology generally followed the "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing" published by the Department of Housing and Urban Development (HUD) in 1995. However, similarly painted building components were treated as homogenous throughout the building.

Bulk samples of suspect paint were scraped from various substrates (wood, metal, concrete, etc.) into containers (5 grams or more), and submitted to the laboratory for analysis by CAM Metals (EPA Method 6010B). Results greater than 5,000 milligrams per kilogram (mg/kg) or 5,000 parts per million (ppm) indicate a lead-based paint. Suspect components surveyed and sampled included:

Interior Components	Exterior Components
• Walls and ceilings	• Walls
• Stairs and associated components	• Vents and pipes
• Doors and associated components	• Doors and associated components
• Pump engine components	• Pipes and conduits
• Pipes and conduits	• Wood trim
• Beams and rafters	• Well caps
• Tanks	
• Support brackets	

Provided in Table 2 is a summary of the LBPs detected during this survey. All materials were observed to be in intact condition at the time of the survey.

Table 2 – Summary of LBPs

Building Component & Sample Number	Paint Color	Lead Conc. (ppm)	Comments
Door frame (#P02)	Tan	13,700	Interior: North door of the Office/Control Room, on metal.
Door frame (#P04)	Beige	8,010	Exterior, 3 doors: West center door to Main Room, east center door to Main Room, and southwest door to upper (Oil Storage) room, on metal.
Stair rail (#P14)	Yellow	15,700	Interior: Main Room stairs, on metal.
Stair frame (#P15)	Light Brown	16,900	Interior: Main Room stairs, on metal

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The laboratory analysis report is attached to this letter report. The lab report provides a complete listing of metals that were analyzed for by this method. Note: All paint samples have a prefix of "P" on the chain of custody documentation as well as the lab report.

Movable objects (e.g., the red metal air compressor in the upper/southwest Oil Storage room) were not sampled or analyzed.

If the LBPs are damaged at the time of demolition activities, the LBPs will need to be stabilized first. The stabilization will need to be completed by a CDPH licensed lead abatement contractor using certified workers.

Although other painted materials did not meet the criteria for LBP, concentrations of lead were detected in these materials. Title 8 CCR 1532.1 (Cal/OSHA Lead regulation) may require workers that perform work that disturbs LBPs such as manual demolition, manual scraping, sanding of painted surfaces, etc. to undergo an exposure assessment including, but not limited to, air monitoring of the breathing zone. Other requirements including training and medical surveillance may be necessary per the lead regulation. Employers are responsible for worker exposure in relation to lead.

According to the laboratory results, some of the painted surfaces which were sampled contained other metals which exceeded the Total Threshold Limit Concentration (TTLC) as defined by CCR Title 22, Division 4. These included:

- Sample #P01 - Grey on interior metal pump engines: Zinc
- (Sample #P02) – Tan on interior (Office) metal door frame: Chromium total
- Sample #P07 - Yellow on interior/exterior metal gas pipe: Zinc
- Sample #P09 - Off-white on exterior metal roof vents: Zinc
- (Sample #P14) – Yellow on interior stair rail: Chromium total
- (Sample #P15) – Light brown on interior stairs: Chromium total
- Sample #P017 - Light blue on interior metal pipe: Barium
- Sample #P018 - Dark blue on interior metal pump engines: Copper
- Sample #P019 - Red on interior metal pump engine pipes: Copper

In the event that suspect paints are observed during the demolition activities that were not previously sampled, these paints should be assumed to contain metals in excess of TTLC concentrations until such time that they can be sampled and evaluated for lead content.

CLOSURE

This report is for the sole benefit and exclusive use of Lee & Ro (herein referred to as Client) in accordance with the terms and conditions of our contract under which these services have been provided. Its preparation has been in accordance with generally accepted environmental practices. No other warranty, either express or implied, is made. The Scope of Services associated with the report was designed solely in accordance with the objectives, schedule, budget, and risk-management preferences of Client.

This letter report should not be regarded as a guarantee that no further ACMs or LBPs, beyond that which could be detected within the scope of this survey, are present at the property. Converse makes no warranties or guarantees as to the accuracy or completeness of information provided or compiled by others. It is not possible to absolutely confirm that no ACMs or LBPs exist at the property. If none are identified as part of a limited scope of work, such a conclusion should not be construed as a guaranteed absence of such materials, but merely the results of the evaluation of the property at the time of the survey. Also, events may occur after the survey, which may result in contamination of the property. Additional information, which was not found or available to Converse at the time of report preparation, may result in a modification of the conclusions and recommendations presented.

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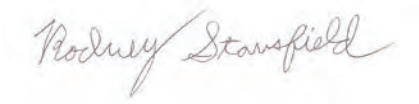
Any reliance on this report by Third Parties shall be at the Third Party's sole risk.
We appreciate the opportunity to be of service to you. If you should have any questions or comments regarding the results, please contact Rodney Stansfield at (714) 333-8222 or Norman Eke at (626) 930-1260.

Sincerely,

CONVERSE CONSULTANTS



Rodney Stansfield, CAC #97-2309
CDPH Lead Inspector/Assessor #4364
Sr. Staff Environmental Scientist

Norman S. Eke
Certified Asbestos Consultant, #96-2093
Managing Officer/COB

Attached: Certifications
Asbestos - Analytical Report & Sample Location Maps
LBPs – Analytical Report.

Copyright 2025 Converse Consultants

Certifications

Converse Staff & Laboratory

Copyright 2025 Converse Consultants

State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Norman S Eke

Name

Certification No. **96-2093**

Expires on **3/7/2026**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq of the Business and Professions Code.

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Eurofins EPK Built Environment Testing - Glendale
1010 North Central Ave., Suite 460
Glendale, CA 91202
Quynh Nguyen
Phone: 800-651-4802
Email: quynh.nguyen@et.eurofinsus.com
www.eurofinsus.com

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 200945-0

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

For the National Voluntary Laboratory Accreditation Program

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
	Lead Inspector/Assessor	LRC-00004397	12/17/2025
	Lead Project Monitor	LRC-00004396	12/17/2025

Rodney Stansfield

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD

State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Rodney Dean Stansfield

Name

Certification No. **97-2309**
Expires on **12/8/2025**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq of the Business and Professions Code.

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 200945-0

Eurofins EPK Built Environment Testing - Glendale

Glendale, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique on ISO/IEC 17025).

2024-07-01 through 2025-06-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

Asbestos

Analytical Report & Chain of Custody
Sample Location Map

Copyright 2025 Converse Consultants

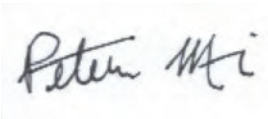
eurofins | Built Environment Testing

Report for:

Mr. Norman Eke
Converse Consultants, Monrovia & Costa Mesa
717 S. Myrtle Avenue
Monrovia, CA 91016

Regarding: Eurofins Built Environment Testing West, LLC
Project: Lee+Ro Romoland / 16-16-183-03; 27990 Ethano C Road, Romoland, CA
EML ID: 4089352

Approved by:



Approved Signatory
Peter Mai

Dates of Analysis:
Asbestos PLM: 05-29-2025

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EB-AS-S-1267)
NVLAP Lab Code 600282-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins Built Environment Testing West, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: Converse Consultants, Monrovia & Costa Mesa
C/O: Mr. Norman Eke
Re: Lee+Ro Romoland / 16-16-183-03; 27990 Ethano
C Road, Romoland, CA

Eurofins Built Environment Testing West, LLC
931 Corporate Center Drive, Pomona, CA 91768
(833) 465-5857 www.eurofinsus.com/Built

Date of Sampling: 05-28-2025
Date of Receipt: 05-29-2025
Date of Report: 05-29-2025

ASBESTOS PLM REPORT

Total Samples Submitted:	9
Total Samples Analyzed:	9
Total Samples with Layer Asbestos Content > 1%:	0

Location: B01, [CMU Grout] Exterior, Southwest Lab ID-Version‡: 20395844-1

Sample Layers	Asbestos Content
Gray Grout	ND
Sample Composite Homogeneity:	Good

Location: B02, [CMU Grout] Interior, West Entry Lab ID-Version‡: 20395845-1

Sample Layers	Asbestos Content
Gray Grout	ND
Sample Composite Homogeneity:	Good

Location: B03, [CMU Grout] Interior, South, Near Office Lab ID-Version‡: 20395846-1

Sample Layers	Asbestos Content
Gray Grout	ND
Sample Composite Homogeneity:	Good

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Converse Consultants, Monrovia & Costa Mesa
C/O: Mr. Norman Eke
Re: Lee+Ro Romoland / 16-16-183-03; 27990 Ethano
C Road, Romoland, CA

Eurofins Built Environment Testing West, LLC
931 Corporate Center Drive, Pomona, CA 91768
(833) 465-5857 www.eurofinsus.com/Built

Date of Sampling: 05-28-2025
Date of Receipt: 05-29-2025
Date of Report: 05-29-2025

ASBESTOS PLM REPORT

Location: B04, [Concrete Floor Slab] Exterior, Southwest, Upper Room Lab ID-Version‡: 20395847-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: B05, [Concrete Floor Slab] Interior, South, Engine Slab Lab ID-Version‡: 20395848-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: B06, [Concrete Floor Slab] Interior, Northwest, Under Stairs Lab ID-Version‡: 20395849-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Converse Consultants, Monrovia & Costa Mesa
C/O: Mr. Norman Eke
Re: Lee+Ro Romoland / 16-16-183-03; 27990 Ethano
C Road, Romoland, CA

Eurofins Built Environment Testing West, LLC
931 Corporate Center Drive, Pomona, CA 91768
(833) 465-5857 www.eurofinsus.com/Built

Date of Sampling: 05-28-2025
Date of Receipt: 05-29-2025
Date of Report: 05-29-2025

ASBESTOS PLM REPORT

Location: B07, [Concrete Wall] Interior, Northwest Lab ID-Version‡: 20395850-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: B08, [Concrete Wall] Interior, East Lab ID-Version‡: 20395851-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: B09, [Concrete Wall] Interior, South Lab ID-Version‡: 20395852-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Converse Consultants, Monrovia & Costa Mesa
C/O: Mr. Norman Eke
Re: Lee+Ro Romoland / 16-16-183-03; 27990 Ethano
C Road, Romoland, CA

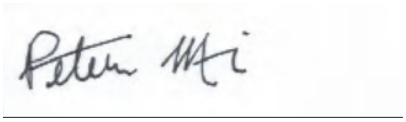
Eurofins Built Environment Testing West, LLC
931 Corporate Center Drive, Pomona, CA 91768
(833) 465-5857 www.eurofinsus.com/Built

Date of Sampling: 05-28-2025
Date of Receipt: 05-29-2025
Date of Report: 05-29-2025

ASBESTOS PLM REPORT

PROJECT ANALYST AND SIGNATORY REPORT

Project Analyst



Analyst: Peter Mai

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

CHAIN OF CUSTODY

www.eurofinsus.com/Built

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

ASBESTOS ANA

REQUESTED SERVICES (Check boxes below)

PCM Air		PLM								Other Requests		
		Bulk						Rock & Soil				
Fiber Count (NIOSH 7400)	OSHA with TWA	Asbestos Bulk PLM	EPA Point Count (200 Point Count)	EPA Point Count (400 Point Count)	EPA Point Count (1000 Point Count)	Gravimetric Point Count (400 Pt Count)	Gravimetric Point Count (1000 Pt Count)	CARB 435 Method (400 Point Count)	CARB 435 Method (1000 Point Count)	Lead Analysis – Flame AA		
☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
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CONTACT INFORMATION

Company:	Converse Consultants	Address:	717 S Myrtle Ave., Monrovia, CA 91016
Contact:	Norman EKe	Special Instructions:	Email-
Phone:	626-930-1260		neke@conserveconsultants.com

PROJECT INFORMATION

Project ID:	Leet Ro Romoland / 16-16-183-03		
Project Address:	27990 Ethanac Road, Romoland, CA		
Project Zip Code:	92585	Sampling Date	05/28/25
PO Number:	16161833	Sampled By:	RDS

TURN AROUND TIME CODES (TAT)

STD – Standard (DEFAULT)

ND – Next Business Day

SD – Same Business Day Rush*

*Please call Client Services for locations with Rush services

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes
B01-B04		B	5 Day	—	5 Day TAT
	See Attached Chains				

SAMPLE TYPE CODES	
A – Air	W – Wipe
B – Bulk	T – Tape
D – Dust	R – Rock
SO – Soil	O – Other:

RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
Rodney Stanfield	05/28/25 1655	Brenda +	5/28/25 4:59 pm

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at: https://www.eurofinsus.com/environment-testing/built-environment/resources/sampling-guides-and-forms/

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Converse Consultants

☐ Monrovia Office
717 S. Myrtle Avenue
Monrovia, CA 91016
(626) 930-1200

☒ Costa Mesa Office
3176 Pullman St., Suite 108
Costa Mesa, CA 92626
(714) 444-9660

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BULK SAMPLE LOG

Project Name: Lee & Ro / Romoland Pump Booster
Project No.: 16-16-198-03
Project Address: 27990 Ethanac Road, Romoland, CA 92585
Date: May 28, 2025
Collected By: ☐ Laura Cattaneo ☐ Norman Eke ☒ Rodney Stansfield
☐ Laura Tanaka ☐ Kaspar Wittlinger ☐ _____

HOMOGENEOUS MATERIAL: CMU Grout

Sample No.	Sample Location/Description	Fri Or NF Material	I or D Condition	~ Area (SF or LF)
B-01	Exterior, SW	NF	I	1,130
B02	Interior, west Entry	↓	↓	↓
B03	↓ , South, near office	↓	↓	↓

Additional Comments: upper walls, office wall

Converse Consultants

☐ Monrovia Office
717 S. Myrtle Avenue
Monrovia, CA 91016
(626) 930-1200

☒ Costa Mesa Office
3176 Pullman St., Suite 108
Costa Mesa, CA 92626
(714) 444-9660

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004089352

BULK SAMPLE LOG

Project Name: Lee & Ro / Romoland Pump Booster
Project No.: 16-16-198-03
Project Address: 27990 Ethanac Road, Romoland, CA 92585
Date: May 28, 2025
Collected By: ☐ Laura Cattaneo ☐ Norman Eke ☒ Rodney Stansfield
☐ Laura Tanaka ☐ Kaspar Wittlinger ☐ _____

HOMOGENEOUS MATERIAL: Concrete Floor Slab

Sample No.	Sample Location/Description	Fri Or NF Material	I or D Condition	~ Area (SF or LF)
B04	Exterior, SW, Upper Room	NF	I	550
B05	Interior, South, Engine Slab	↓	↓	↓
B06	↓ , NW, under stairs	↓	↓	↓

Additional Comments: Floors and walkways similar

Converse Consultants

☐ Monrovia Office
717 S. Myrtle Avenue
Monrovia, CA 91016
(626) 930-1200

☒ Costa Mesa Office
3176 Pullman St., Suite 108
Costa Mesa, CA 92626
(714) 444-9660

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004089352

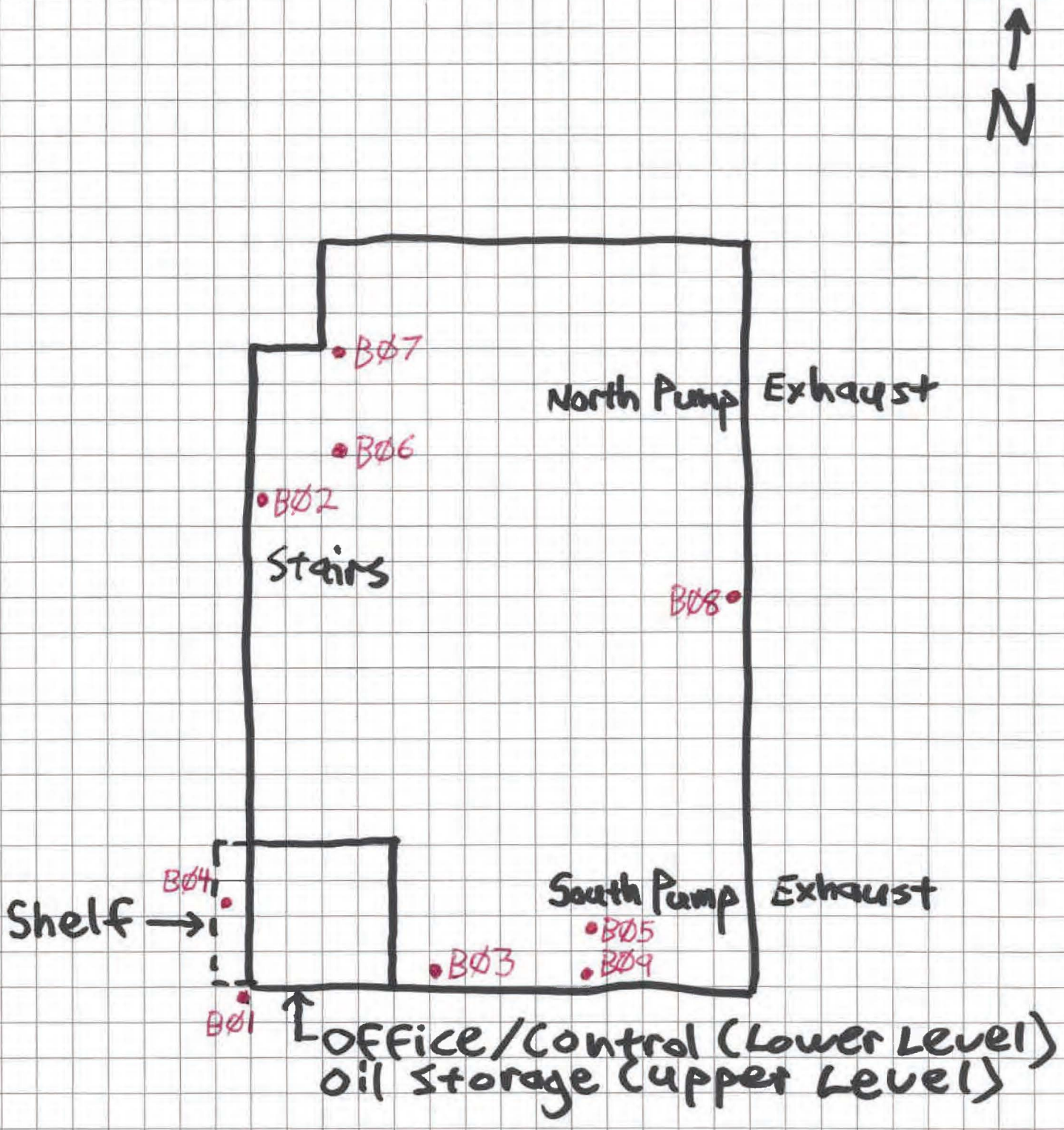
BULK SAMPLE LOG

Project Name: Lee & Ro / Romoland Pump Booster
Project No.: 16-16-198-03
Project Address: 27990 Ethanac Road, Romoland, CA 92585
Date: May 28, 2025
Collected By: ☐ Laura Cattaneo ☐ Norman Eke ☒ Rodney Stansfield
☐ Laura Tanaka ☐ Kaspar Wittlinger ☐ _____

HOMOGENEOUS MATERIAL: Concrete wall

Sample No.	Sample Location/Description	Fri Or NF Material	I or D Condition	~ Area (SF or LF)
B07	Interior, NW	NF	I	750
B08	↓ , East	↓	↓	↓
B09	↓ , South	↓	↓	↓

Additional Comments: Lower walls (UG)



Romoland Booster Pump Station
27990 Ethanac Road
Romoland, CA 92585

16-16-198-03

• = Asbestos Bulk Sample Location

LBP

Analytical Report & Chain of Custody

Copyright 2025 Converse Consultants

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Date: May 22, 2025

Mr. Norman Eke
Converse Consultants
717 S. Myrtle Drive
Monrovia, CA 91016
Tel:(626)930-1260 E-Mail: NEke@ConverseConsultants.com

Project: **Lee & Ro Romoland**
Project No.: **16-16-198-03**
Lab I.D.: **250516-32 through -49**

Dear Mr. Eke:

The **analytical results** for the solid samples, received by our laboratory on May 16, 2025, are attached. The samples were received intact and accompanying chain of custody.

Enviro-Chem appreciates the opportunity to provide you and your company this and other services. Please do not hesitate to call us if you have any questions.

Sincerely,

Pearl Wong
Quality Manager

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or 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 ELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

LABORATORY REPORT

CUSTOMER: **Converse Consultants**
717 S. Myrtle Drive, Monrovia, CA 91016
Tel: (626) 930-1260 E-Mail: NEke@ConverseConsultants.com

PROJECT: **Lee & Ro Romoland** PROJECT No.: **16-16-198-03**
MATRIX: SOLID DATE RECEIVED: 05/16/25
DATE SAMPLED: 05/15/25 DATE ANALYZED: 05/19&20/25
REPORT TO: Mr. NORMAN EKE DATE REPORTED: 05/22/25

SAMPLE I.D.: **P01 (Int. N. Engine, Grey, On Metal)**
LAB I.D.: 250516-32

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	ND	1.0	10	500	15	6010B
Arsenic(As)	ND	0.5	10	500	5.0	6010B
Barium(Ba)	3,540	5.0	10	10,000	100	6010B
Beryllium(Be)	ND	0.5	10	75	0.75	6010B
Cadmium(Cd)	ND	0.5	10	100	1.0	6010B
Chromium Total(Cr)	9.16	0.5	10	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	22.1	1.0	10	8,000	80	6010B
Copper(Cu)	270	1.0	10	2,500	25	6010B
Lead(Pb)	30.2	0.5	10	1,000	5.0	6010B
Mercury(Hg)	0.040	0.01	1	20	0.2	7471A
Molybdenum(Mo)	ND	5.0	10	3,500	350	6010B
Nickel(Ni)	ND	2.5	10	2,000	20	6010B
Selenium(Se)	ND	1.0	10	100	1.0	6010B
Silver(Ag)	ND	1.0	10	500	5.0	6010B
Thallium(Tl)	ND	1.0	10	700	7.0	6010B
Vanadium(V)	ND	5.0	10	2,400	24	6010B
Zinc(Zn)	5,700 ***	0.5	100	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet both the STLC Limit at 560 and EPA-TCLP Limit at 5
* = STLC analysis for the metal is recommended (if marked)
** = Additional Analysis needed, please call to discuss (if marked)
*** = The concentration exceeds the TTLC Limit, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)
-- = Not analyzed/not requested

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CAL-DHS ELAP CERTIFICATE No.: 1555

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1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

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717 S. Myrtle Drive, Monrovia, CA 91016
Tel: (626) 930-1260 E-Mail: NEke@ConverseConsultants.com

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SAMPLE I.D.: **P02 (Int. Office N. Door Frame, Tan, Metal)**
LAB I.D.: 250516-33

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	189	1.0	10	500	15	6010B
Arsenic(As)	ND	0.5	10	500	5.0	6010B
Barium(Ba)	766	5.0	10	10,000	100	6010B
Beryllium(Be)	ND	0.5	10	75	0.75	6010B
Cadmium(Cd)	ND	0.5	10	100	1.0	6010B
Chromium Total(Cr)	4,420 ***	0.5	10	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	702	1.0	10	8,000	80	6010B
Copper(Cu)	51.3	1.0	10	2,500	25	6010B
Lead(Pb)	13,700 ***	0.5	100	1,000	5.0	6010B
Mercury(Hg)	0.814	0.01	2	20	0.2	7471A
Molybdenum(Mo)	ND	5.0	10	3,500	350	6010B
Nickel(Ni)	ND	2.5	10	2,000	20	6010B
Selenium(Se)	ND	1.0	10	100	1.0	6010B
Silver(Ag)	ND	1.0	10	500	5.0	6010B
Thallium(Tl)	ND	1.0	10	700	7.0	6010B
Vanadium(V)	ND	5.0	10	2,400	24	6010B
Zinc(Zn)	606	0.5	10	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet both the STLC Limit at 560 and EPA-TCLP Limit at 5
* = STLC analysis for the metal is recommended (if marked)
** = Additional Analysis needed, please call to discuss (if marked)
*** = The concentration exceeds the TTLC Limit, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)
-- = Not analyzed/not requested

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1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

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717 S. Myrtle Drive, Monrovia, CA 91016
Tel: (626) 930-1260 E-Mail: NEke@ConverseConsultants.com

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SAMPLE I.D.: **P03 (Ext, South Wall, Beige, CMU)**
LAB I.D.: 250516-34

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	ND	1.0	10	500	15	6010B
Arsenic(As)	ND	0.5	10	500	5.0	6010B
Barium(Ba)	4,490 *	5.0	100	10,000	100	6010B
Beryllium(Be)	ND	0.5	10	75	0.75	6010B
Cadmium(Cd)	ND	0.5	10	100	1.0	6010B
Chromium Total(Cr)	19.2	0.5	10	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	ND	1.0	10	8,000	80	6010B
Copper(Cu)	ND	1.0	10	2,500	25	6010B
Lead(Pb)	21.5	0.5	10	1,000	5.0	6010B
Mercury(Hg)	0.609	0.01	2	20	0.2	7471A
Molybdenum(Mo)	ND	5.0	10	3,500	350	6010B
Nickel(Ni)	ND	2.5	10	2,000	20	6010B
Selenium(Se)	ND	1.0	10	100	1.0	6010B
Silver(Ag)	ND	1.0	10	500	5.0	6010B
Thallium(Tl)	ND	1.0	10	700	7.0	6010B
Vanadium(V)	ND	5.0	10	2,400	24	6010B
Zinc(Zn)	1,830	0.5	10	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet both the STLC Limit at 560 and EPA-TCLP Limit at 5
* = STLC analysis for the metal is recommended (if marked)
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1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

LABORATORY REPORT

CUSTOMER: **Converse Consultants**
717 S. Myrtle Drive, Monrovia, CA 91016
Tel:(626)930-1260 E-Mail: NEke@ConverseConsultants.com

PROJECT: **Lee & Ro Romoland** PROJECT No.: **16-16-198-03**
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REPORT TO:Mr. NORMAN EKE DATE REPORTED:05/22/25

SAMPLE I.D.: **P04 (Ext, West Ctr Door Frame, Beige, Metal)**
LAB I.D.: 250516-35

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	107	1.0	10	500	15	6010B
Arsenic(As)	ND	0.5	10	500	5.0	6010B
Barium(Ba)	9,200	5.0	100	10,000	100	6010B
Beryllium(Be)	ND	0.5	10	75	0.75	6010B
Cadmium(Cd)	ND	0.5	10	100	1.0	6010B
Chromium Total(Cr)	2,450	0.5	10	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	420	1.0	10	8,000	80	6010B
Copper(Cu)	48.7	1.0	10	2,500	25	6010B
Lead(Pb)	8,010 ***	0.5	100	1,000	5.0	6010B
Mercury(Hg)	0.350	0.01	1	20	0.2	7471A
Molybdenum(Mo)	ND	5.0	10	3,500	350	6010B
Nickel(Ni)	ND	2.5	10	2,000	20	6010B
Selenium(Se)	ND	1.0	10	100	1.0	6010B
Silver(Ag)	ND	1.0	10	500	5.0	6010B
Thallium(Tl)	ND	1.0	10	700	7.0	6010B
Vanadium(V)	ND	5.0	10	2,400	24	6010B
Zinc(Zn)	376	0.5	10	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet both the STLC Limit at 560 and EPA-TCLP Limit at 5
* = STLC analysis for the metal is recommended (if marked)
** = Additional Analysis needed, please call to discuss (if marked)
*** = The concentration exceeds the TTLC Limit, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)
-- = Not analyzed/not requested

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Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

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CUSTOMER: **Converse Consultants**
717 S. Myrtle Drive, Monrovia, CA 91016
Tel: (626) 930-1260 E-Mail: NEke@ConverseConsultants.com

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SAMPLE I.D.: **P05 (Ext, North, Gas Pipe, Grey, Metal)**
LAB I.D.: 250516-36

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	ND	1.0	10	500	15	6010B
Arsenic(As)	ND	0.5	10	500	5.0	6010B
Barium(Ba)	70.7	5.0	10	10,000	100	6010B
Beryllium(Be)	ND	0.5	10	75	0.75	6010B
Cadmium(Cd)	ND	0.5	10	100	1.0	6010B
Chromium Total(Cr)	46.9	0.5	10	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	103	1.0	10	8,000	80	6010B
Copper(Cu)	117	1.0	10	2,500	25	6010B
Lead(Pb)	65.8 *	0.5	10	1,000	5.0	6010B
Mercury(Hg)	0.033	0.01	1	20	0.2	7471A
Molybdenum(Mo)	ND	5.0	10	3,500	350	6010B
Nickel(Ni)	ND	2.5	10	2,000	20	6010B
Selenium(Se)	ND	1.0	10	100	1.0	6010B
Silver(Ag)	ND	1.0	10	500	5.0	6010B
Thallium(Tl)	ND	1.0	10	700	7.0	6010B
Vanadium(V)	ND	5.0	10	2,400	24	6010B
Zinc(Zn)	4,500 *	0.5	10	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet both the STLC Limit at 560 and EPA-TCLP Limit at 5
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** = Additional Analysis needed, please call to discuss (if marked)
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SAMPLE I.D.: **P06 (Ext, N. Large Pipe, Tan, Metal)**
LAB I.D.: 250516-37

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	ND	1.0	10	500	15	6010B
Arsenic(As)	ND	0.5	10	500	5.0	6010B
Barium(Ba)	ND	5.0	10	10,000	100	6010B
Beryllium(Be)	ND	0.5	10	75	0.75	6010B
Cadmium(Cd)	ND	0.5	10	100	1.0	6010B
Chromium Total(Cr)	505 **	0.5	10	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	51.0	1.0	10	8,000	80	6010B
Copper(Cu)	142	1.0	10	2,500	25	6010B
Lead(Pb)	482 *	0.5	10	1,000	5.0	6010B
Mercury(Hg)	0.026	0.01	1	20	0.2	7471A
Molybdenum(Mo)	ND	5.0	10	3,500	350	6010B
Nickel(Ni)	152	2.5	10	2,000	20	6010B
Selenium(Se)	ND	1.0	10	100	1.0	6010B
Silver(Ag)	ND	1.0	10	500	5.0	6010B
Thallium(Tl)	ND	1.0	10	700	7.0	6010B
Vanadium(V)	ND	5.0	10	2,400	24	6010B
Zinc(Zn)	1,210	0.5	10	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet both the STLC Limit at 560 and EPA-TCLP Limit at 5
* = STLC analysis for the metal is recommended (if marked)
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SAMPLE I.D.: **P07 (Ext, N Gas Pipe, Yellow, Metal)**
LAB I.D.: 250516-38

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	ND	1.0	10	500	15	6010B
Arsenic(As)	ND	0.5	10	500	5.0	6010B
Barium(Ba)	101	5.0	10	10,000	100	6010B
Beryllium(Be)	ND	0.5	10	75	0.75	6010B
Cadmium(Cd)	ND	0.5	10	100	1.0	6010B
Chromium Total(Cr)	41.3	0.5	10	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	87.2	1.0	10	8,000	80	6010B
Copper(Cu)	51.7	1.0	10	2,500	25	6010B
Lead(Pb)	132	0.5	10	1,000	5.0	6010B
Mercury(Hg)	0.061	0.01	1	20	0.2	7471A
Molybdenum(Mo)	100	5.0	10	3,500	350	6010B
Nickel(Ni)	ND	2.5	10	2,000	20	6010B
Selenium(Se)	ND	1.0	10	100	1.0	6010B
Silver(Ag)	ND	1.0	10	500	5.0	6010B
Thallium(Tl)	ND	1.0	10	700	7.0	6010B
Vanadium(V)	ND	5.0	10	2,400	24	6010B
Zinc(Zn)	6,800 ***	0.5	100	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
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TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
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SAMPLE I.D.: **P08 (Ext, Shelf, Yellow, Wood)**
LAB I.D.: 250516-39

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	ND	1.0	10	500	15	6010B
Arsenic(As)	ND	0.5	10	500	5.0	6010B
Barium(Ba)	1,440 *	5.0	10	10,000	100	6010B
Beryllium(Be)	ND	0.5	10	75	0.75	6010B
Cadmium(Cd)	ND	0.5	10	100	1.0	6010B
Chromium Total(Cr)	60.4 **	0.5	10	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	49.7	1.0	10	8,000	80	6010B
Copper(Cu)	12.0	1.0	10	2,500	25	6010B
Lead(Pb)	984 *	0.5	10	1,000	5.0	6010B
Mercury(Hg)	0.044	0.01	1	20	0.2	7471A
Molybdenum(Mo)	ND	5.0	10	3,500	350	6010B
Nickel(Ni)	ND	2.5	10	2,000	20	6010B
Selenium(Se)	ND	1.0	10	100	1.0	6010B
Silver(Ag)	ND	1.0	10	500	5.0	6010B
Thallium(Tl)	ND	1.0	10	700	7.0	6010B
Vanadium(V)	ND	5.0	10	2,400	24	6010B
Zinc(Zn)	4,890 *	0.5	100	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet both the STLC Limit at 560 and EPA-TCLP Limit at 5
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-- = Not analyzed/not requested

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1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

LABORATORY REPORT

CUSTOMER: **Converse Consultants**
717 S. Myrtle Drive, Monrovia, CA 91016
Tel:(626)930-1260 E-Mail: NEke@ConverseConsultants.com

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SAMPLE I.D.: **P09 (Ext, NE Roof Vent, Off White, Metal)**
LAB I.D.: 250516-40

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	ND	1.0	10	500	15	6010B
Arsenic(As)	ND	0.5	10	500	5.0	6010B
Barium(Ba)	85.4	5.0	10	10,000	100	6010B
Beryllium(Be)	ND	0.5	10	75	0.75	6010B
Cadmium(Cd)	ND	0.5	10	100	1.0	6010B
Chromium Total(Cr)	5.02	0.5	10	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	ND	1.0	10	8,000	80	6010B
Copper(Cu)	10.0	1.0	10	2,500	25	6010B
Lead(Pb)	ND	0.5	10	1,000	5.0	6010B
Mercury(Hg)	ND	0.01	1	20	0.2	7471A
Molybdenum(Mo)	ND	5.0	10	3,500	350	6010B
Nickel(Ni)	ND	2.5	10	2,000	20	6010B
Selenium(Se)	ND	1.0	10	100	1.0	6010B
Silver(Ag)	ND	1.0	10	500	5.0	6010B
Thallium(Tl)	ND	1.0	10	700	7.0	6010B
Vanadium(V)	ND	5.0	10	2,400	24	6010B
Zinc(Zn)	8,960 ***	0.5	100	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet both the STLC Limit at 560 and EPA-TCLP Limit at 5
* = STLC analysis for the metal is recommended (if marked)
** = Additional Analysis needed, please call to discuss (if marked)
*** = The concentration exceeds the TTLC Limit, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)
-- = Not analyzed/not requested

DATA REVIEWED AND APPROVED BY: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

LABORATORY REPORT

CUSTOMER: **Converse Consultants**
717 S. Myrtle Drive, Monrovia, CA 91016
Tel: (626) 930-1260 E-Mail: NEke@ConverseConsultants.com

PROJECT: **Lee & Ro Romoland** PROJECT No.: **16-16-198-03**
MATRIX: SOLID DATE RECEIVED: 05/16/25
DATE SAMPLED: 05/15/25 DATE ANALYZED: 05/19&20/25
REPORT TO: Mr. NORMAN EKE DATE REPORTED: 05/22/25

SAMPLE I.D.: **P-10 (Ext, Well Caps, Blue, Metal (14))**
LAB I.D.: 250516-41

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	ND	1.0	10	500	15	6010B
Arsenic(As)	ND	0.5	10	500	5.0	6010B
Barium(Ba)	2,940 *	5.0	10	10,000	100	6010B
Beryllium(Be)	ND	0.5	10	75	0.75	6010B
Cadmium(Cd)	ND	0.5	10	100	1.0	6010B
Chromium Total(Cr)	78.3 **	0.5	10	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	25.5	1.0	10	8,000	80	6010B
Copper(Cu)	536 *	1.0	10	2,500	25	6010B
Lead(Pb)	319 *	0.5	10	1,000	5.0	6010B
Mercury(Hg)	0.023	0.01	1	20	0.2	7471A
Molybdenum(Mo)	ND	5.0	10	3,500	350	6010B
Nickel(Ni)	ND	2.5	10	2,000	20	6010B
Selenium(Se)	ND	1.0	10	100	1.0	6010B
Silver(Ag)	ND	1.0	10	500	5.0	6010B
Thallium(Tl)	ND	1.0	10	700	7.0	6010B
Vanadium(V)	ND	5.0	10	2,400	24	6010B
Zinc(Zn)	316	0.5	10	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet both the STLC Limit at 560 and EPA-TCLP Limit at 5
* = STLC analysis for the metal is recommended (if marked)
** = Additional Analysis needed, please call to discuss (if marked)
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1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

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717 S. Myrtle Drive, Monrovia, CA 91016
Tel: (626) 930-1260 E-Mail: NEke@ConverseConsultants.com

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REPORT TO: Mr. NORMAN EKE DATE REPORTED: 05/22/25

SAMPLE I.D.: **P-11 (Int, W. Ceiling Rafter, Beige On Metal)**
LAB I.D.: 250516-42

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	ND	1.0	10	500	15	6010B
Arsenic(As)	ND	0.5	10	500	5.0	6010B
Barium(Ba)	4,400 *	5.0	10	10,000	100	6010B
Beryllium(Be)	ND	0.5	10	75	0.75	6010B
Cadmium(Cd)	ND	0.5	10	100	1.0	6010B
Chromium Total(Cr)	212 **	0.5	10	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	34.2	1.0	10	8,000	80	6010B
Copper(Cu)	28.3	1.0	10	2,500	25	6010B
Lead(Pb)	405 *	0.5	10	1,000	5.0	6010B
Mercury(Hg)	1.43	0.01	10	20	0.2	7471A
Molybdenum(Mo)	ND	5.0	10	3,500	350	6010B
Nickel(Ni)	ND	2.5	10	2,000	20	6010B
Selenium(Se)	ND	1.0	10	100	1.0	6010B
Silver(Ag)	ND	1.0	10	500	5.0	6010B
Thallium(Tl)	ND	1.0	10	700	7.0	6010B
Vanadium(V)	ND	5.0	10	2,400	24	6010B
Zinc(Zn)	311	0.5	10	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet both the STLC Limit at 560 and EPA-TCLP Limit at 5
* = STLC analysis for the metal is recommended (if marked)
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*** = The concentration exceeds the TTLC Limit, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)
-- = Not analyzed/not requested

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1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

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717 S. Myrtle Drive, Monrovia, CA 91016
Tel: (626) 930-1260 E-Mail: NEke@ConverseConsultants.com

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SAMPLE I.D.: **P-12 (Int, W. Wall, Beige on CMU)**
LAB I.D.: 250516-43

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	ND	1.0	1	500	15	6010B
Arsenic(As)	ND	0.5	1	500	5.0	6010B
Barium(Ba)	47.5	5.0	1	10,000	100	6010B
Beryllium(Be)	ND	0.5	1	75	0.75	6010B
Cadmium(Cd)	ND	0.5	1	100	1.0	6010B
Chromium Total(Cr)	18.5	0.5	1	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	3.87	1.0	1	8,000	80	6010B
Copper(Cu)	5.22	1.0	1	2,500	25	6010B
Lead(Pb)	67.7 *	0.5	1	1,000	5.0	6010B
Mercury(Hg)	13.1 *	0.01	100	20	0.2	7471A
Molybdenum(Mo)	ND	5.0	1	3,500	350	6010B
Nickel(Ni)	3.68	2.5	1	2,000	20	6010B
Selenium(Se)	ND	1.0	1	100	1.0	6010B
Silver(Ag)	ND	1.0	1	500	5.0	6010B
Thallium(Tl)	ND	1.0	1	700	7.0	6010B
Vanadium(V)	5.28	5.0	1	2,400	24	6010B
Zinc(Zn)	185	0.5	1	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet both the STLC Limit at 560 and EPA-TCLP Limit at 5
* = STLC analysis for the metal is recommended (if marked)
** = Additional Analysis needed, please call to discuss (if marked)
*** = The concentration exceeds the TTLC Limit, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)
-- = Not analyzed/not requested

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Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

LABORATORY REPORT

CUSTOMER: **Converse Consultants**
717 S. Myrtle Drive, Monrovia, CA 91016
Tel: (626) 930-1260 E-Mail: NEke@ConverseConsultants.com

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SAMPLE I.D.: **P-13 (Int, W. Wall, Off-White On Concrete)**
LAB I.D.: 250516-44

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	ND	1.0	10	500	15	6010B
Arsenic(As)	ND	0.5	10	500	5.0	6010B
Barium(Ba)	542	5.0	10	10,000	100	6010B
Beryllium(Be)	ND	0.5	10	75	0.75	6010B
Cadmium(Cd)	ND	0.5	10	100	1.0	6010B
Chromium Total(Cr)	33.0	0.5	10	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	ND	1.0	10	8,000	80	6010B
Copper(Cu)	30.2	1.0	10	2,500	25	6010B
Lead(Pb)	49.2	0.5	10	1,000	5.0	6010B
Mercury(Hg)	3.05 *	0.01	10	20	0.2	7471A
Molybdenum(Mo)	ND	5.0	10	3,500	350	6010B
Nickel(Ni)	ND	2.5	10	2,000	20	6010B
Selenium(Se)	ND	1.0	10	100	1.0	6010B
Silver(Ag)	ND	1.0	10	500	5.0	6010B
Thallium(Tl)	ND	1.0	10	700	7.0	6010B
Vanadium(V)	ND	5.0	10	2,400	24	6010B
Zinc(Zn)	333	0.5	10	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet both the STLC Limit at 560 and EPA-TCLP Limit at 5
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SAMPLE I.D.: **P-14 (Int, Stair Rail, Yellow On Metal)**
LAB I.D.: 250516-45

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	286	1.0	10	500	15	6010B
Arsenic(As)	ND	0.5	10	500	5.0	6010B
Barium(Ba)	6,180	5.0	100	10,000	100	6010B
Beryllium(Be)	ND	0.5	10	75	0.75	6010B
Cadmium(Cd)	ND	0.5	10	100	1.0	6010B
Chromium Total(Cr)	4,160 ***	0.5	10	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	290	1.0	10	8,000	80	6010B
Copper(Cu)	42.3	1.0	10	2,500	25	6010B
Lead(Pb)	15,700 ***	0.5	100	1,000	5.0	6010B
Mercury(Hg)	0.284	0.01	1	20	0.2	7471A
Molybdenum(Mo)	75.8	5.0	10	3,500	350	6010B
Nickel(Ni)	ND	2.5	10	2,000	20	6010B
Selenium(Se)	ND	1.0	10	100	1.0	6010B
Silver(Ag)	ND	1.0	10	500	5.0	6010B
Thallium(Tl)	ND	1.0	10	700	7.0	6010B
Vanadium(V)	ND	5.0	10	2,400	24	6010B
Zinc(Zn)	1,750	0.5	10	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet both the STLC Limit at 560 and EPA-TCLP Limit at 5
* = STLC analysis for the metal is recommended (if marked)
** = Additional Analysis needed, please call to discuss (if marked)
*** = The concentration exceeds the TTLC Limit, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)
-- = Not analyzed/not requested

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1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

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SAMPLE I.D.: **P-15 (Int, Stair, Light Brown On Metal)**
LAB I.D.: 250516-46

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	293	1.0	10	500	15	6010B
Arsenic(As)	ND	0.5	10	500	5.0	6010B
Barium(Ba)	4,710	5.0	100	10,000	100	6010B
Beryllium(Be)	ND	0.5	10	75	0.75	6010B
Cadmium(Cd)	ND	0.5	10	100	1.0	6010B
Chromium Total(Cr)	4,110 ***	0.5	10	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	365	1.0	10	8,000	80	6010B
Copper(Cu)	50.8	1.0	10	2,500	25	6010B
Lead(Pb)	16,900 ***	0.5	100	1,000	5.0	6010B
Mercury(Hg)	0.580	0.01	2	20	0.2	7471A
Molybdenum(Mo)	ND	5.0	10	3,500	350	6010B
Nickel(Ni)	ND	2.5	10	2,000	20	6010B
Selenium(Se)	ND	1.0	10	100	1.0	6010B
Silver(Ag)	ND	1.0	10	500	5.0	6010B
Thallium(Tl)	ND	1.0	10	700	7.0	6010B
Vanadium(V)	ND	5.0	10	2,400	24	6010B
Zinc(Zn)	330	0.5	10	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet both the STLC Limit at 560 and EPA-TCLP Limit at 5
* = STLC analysis for the metal is recommended (if marked)
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*** = The concentration exceeds the TTLC Limit, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)
-- = Not analyzed/not requested

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SAMPLE I.D.: **P-16 (Int, W. Oil Tank, White On Metal)**
LAB I.D.: 250516-47

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	ND	1.0	10	500	15	6010B
Arsenic(As)	ND	0.5	10	500	5.0	6010B
Barium(Ba)	908	5.0	10	10,000	100	6010B
Beryllium(Be)	ND	0.5	10	75	0.75	6010B
Cadmium(Cd)	ND	0.5	10	100	1.0	6010B
Chromium Total(Cr)	120 **	0.5	10	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	99.1	1.0	10	8,000	80	6010B
Copper(Cu)	114	1.0	10	2,500	25	6010B
Lead(Pb)	490 *	0.5	10	1,000	5.0	6010B
Mercury(Hg)	0.036	0.01	1	20	0.2	7471A
Molybdenum(Mo)	ND	5.0	10	3,500	350	6010B
Nickel(Ni)	ND	2.5	10	2,000	20	6010B
Selenium(Se)	ND	1.0	10	100	1.0	6010B
Silver(Ag)	ND	1.0	10	500	5.0	6010B
Thallium(Tl)	ND	1.0	10	700	7.0	6010B
Vanadium(V)	ND	5.0	10	2,400	24	6010B
Zinc(Zn)	553	0.5	10	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet both the STLC Limit at 560 and EPA-TCLP Limit at 5
* = STLC analysis for the metal is recommended (if marked)
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-- = Not analyzed/not requested

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SAMPLE I.D.: **P-17 (Int, S. Water Pipe, Light Blue On Metal)**
LAB I.D.: 250516-48

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	ND	1.0	10	500	15	6010B
Arsenic(As)	ND	0.5	10	500	5.0	6010B
Barium(Ba)	11,800 ***	5.0	100	10,000	100	6010B
Beryllium(Be)	ND	0.5	10	75	0.75	6010B
Cadmium(Cd)	ND	0.5	10	100	1.0	6010B
Chromium Total(Cr)	23.4	0.5	10	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	95.5	1.0	10	8,000	80	6010B
Copper(Cu)	258	1.0	10	2,500	25	6010B
Lead(Pb)	49.5	0.5	10	1,000	5.0	6010B
Mercury(Hg)	0.119	0.01	1	20	0.2	7471A
Molybdenum(Mo)	134	5.0	10	3,500	350	6010B
Nickel(Ni)	ND	2.5	10	2,000	20	6010B
Selenium(Se)	ND	1.0	10	100	1.0	6010B
Silver(Ag)	ND	1.0	10	500	5.0	6010B
Thallium(Tl)	ND	1.0	10	700	7.0	6010B
Vanadium(V)	ND	5.0	10	2,400	24	6010B
Zinc(Zn)	3,010	0.5	10	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet both the STLC Limit at 560 and EPA-TCLP Limit at 5
* = STLC analysis for the metal is recommended (if marked)
** = Additional Analysis needed, please call to discuss (if marked)
*** = The concentration exceeds the TTLC Limit, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)
-- = Not analyzed/not requested

DATA REVIEWED AND APPROVED BY: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

LABORATORY REPORT

CUSTOMER: **Converse Consultants**
717 S. Myrtle Drive, Monrovia, CA 91016
Tel: (626) 930-1260 E-Mail: NEke@ConverseConsultants.com

PROJECT: **Lee & Ro Romoland** PROJECT No.: **16-16-198-03**
MATRIX: SOLID DATE RECEIVED: 05/16/25
DATE SAMPLED: 05/16/25 DATE ANALYZED: 05/19&20/25
REPORT TO: Mr. NORMAN EKE DATE REPORTED: 05/22/25

SAMPLE I.D.: **P-18 (DK Blue on Metal Engine)**
LAB I.D.: 250516-49

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	10.1	1.0	10	500	15	6010B
Arsenic(As)	ND	0.5	10	500	5.0	6010B
Barium(Ba)	428	5.0	10	10,000	100	6010B
Beryllium(Be)	ND	0.5	10	75	0.75	6010B
Cadmium(Cd)	ND	0.5	10	100	1.0	6010B
Chromium Total(Cr)	34.4	0.5	10	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	ND	1.0	10	8,000	80	6010B
Copper(Cu)	2,540 ***	1.0	10	2,500	25	6010B
Lead(Pb)	110	0.5	10	1,000	5.0	6010B
Mercury(Hg)	0.040	0.01	1	20	0.2	7471A
Molybdenum(Mo)	ND	5.0	10	3,500	350	6010B
Nickel(Ni)	ND	2.5	10	2,000	20	6010B
Selenium(Se)	ND	1.0	10	100	1.0	6010B
Silver(Ag)	ND	1.0	10	500	5.0	6010B
Thallium(Tl)	ND	1.0	10	700	7.0	6010B
Vanadium(V)	ND	5.0	10	2,400	24	6010B
Zinc(Zn)	4,110	0.5	10	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet both the STLC Limit at 560 and EPA-TCLP Limit at 5
* = STLC analysis for the metal is recommended (if marked)
** = Additional Analysis needed, please call to discuss (if marked)
*** = The concentration exceeds the TTLC Limit, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)
-- = Not analyzed/not requested

DATA REVIEWED AND APPROVED BY: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

METHOD BLANK REPORT

CUSTOMER: **Converse Consultants**
717 S. Myrtle Drive, Monrovia, CA 91016
Tel: (626) 930-1260 E-Mail:

PROJECT: **Lee & Ro Romoland** PROJECT No.: **16-16-198-03**
MATRIX: SOLID DATE RECEIVED: 05/16/25
DATE SAMPLED: 05/15&16/25 DATE ANALYZED: 05/19&20/25
REPORT TO: Mr. NORMAN EKE DATE REPORTED: 05/22/25

METHOD BLANK FOR LAB I.D.: 250516-32 THROUGH -49

TOTAL THRESHOLD LIMIT CONCENTRATION ANALYSIS
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD
Antimony(Sb)	ND	1.0	1	500	15	6010B
Arsenic(As)	ND	0.5	1	500	5.0	6010B
Barium(Ba)	ND	5.0	1	10,000	100	6010B
Beryllium(Be)	ND	0.5	1	75	0.75	6010B
Cadmium(Cd)	ND	0.5	1	100	1.0	6010B
Chromium Total(Cr)	ND	0.5	1	2,500	560/5@	6010B
Chromium VI (Cr6)	--	1.0	-	500	5.0	7196A
Cobalt(Co)	ND	1.0	1	8,000	80	6010B
Copper(Cu)	ND	1.0	1	2,500	25	6010B
Lead(Pb)	ND	0.5	1	1,000	5.0	6010B
Mercury(Hg)	ND	0.01	1	20	0.2	7471A
Molybdenum(Mo)	ND	5.0	1	3,500	350	6010B
Nickel(Ni)	ND	2.5	1	2,000	20	6010B
Selenium(Se)	ND	1.0	1	100	1.0	6010B
Silver(Ag)	ND	1.0	1	500	5.0	6010B
Thallium(Tl)	ND	1.0	1	700	7.0	6010B
Vanadium(V)	ND	5.0	1	2,400	24	6010B
Zinc(Zn)	ND	0.5	1	5,000	250	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
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* = STLC analysis for the metal is recommended (if marked)
** = Additional Analysis needed, please call to discuss (if marked)
*** = The concentration exceeds the TTLC Limit, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)
-- = Not analyzed/not requested

DATA REVIEWED AND APPROVED BY: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

QA/QC for Metals Analysis --TTLC--SOLID/SOIL MATRIX

Matrix Spike/ Matrix Spike Duplicate/ LCS :

ANALYSIS DATE: 5/20/2025 — **Unit : mg/Kg(ppm)**

Analysis	Spk.Sample BATCH ID	LCS CONC.	LCS	LCS %Rec.	Sample Result	Spike Conc.	MS	% Rec MS	MSD	% Rec MSD	% RPD
Arsenic(As)	250519-7	50.0	48.8	98	2.06	50.0	46.4	89	47.4	91	2%
Chromium(Cr)	250519-7	50.0	49.4	99	31.5	50.0	74.8	87	75.0	87	0%
Lead(Pb)	250519-7	50.0	50.7	101	3.56	50.0	53.1	99	53.3	99	0%

ANALYSIS DATE. : 5/19/2025

Analysis	Spk.Sample BATCH ID	LCS CONC.	LCS	LCS %Rec.	Sample Result	Spike Conc.	MS	% Rec MS	MSD	% Rec MSD	% RPD
Mercury (Hg)	250519-1	0.125	0.119	95	0	0.125	0.106	85	0.119	95	12%

MS/MSD Status:

Analysis	%MS	%MSD	%LCS	%RPD
Arsenic(As)	PASS	PASS	PASS	PASS
Chromium(Cr)	PASS	PASS	PASS	PASS
Lead(Pb)	PASS	PASS	PASS	PASS
Mercury (Hg)	PASS	PASS	PASS	PASS
Accepted Range	**70 ~ 130**	**70 ~ 130**	**85 ~ 115**	**0 ~ 20**

ANALYST: _____

FINAL REVIEWER: _____

Enviro-Chem, Inc. Laboratories
1214 E. Lexington Avenue
Pomona, CA 91766
Tel: (909) 590-5905 Fax: (909) 590-5907
CA-DHS ELAP CERTIFICATE # 1555

Turnaround Time
- ☐ Same Day
- ☐ 24 Hours
- ☐ 48 Hours
- ☐ 72 Hours
- ☐ 1 Week (Standard)
- ☐ Other

SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	No OF CONTAINERS	TEMPERATURE	PRESERVATION	Analysis Required: CAM Metals EPA 6010B	Misc	COMMENTS
P01	250516-32	05/15	1130	Paint	1 x8oz		None	X		Int, N. Engine, Grey, on metal
P02	-33	05/15	1215		1		None	X		Int, Office N. Door Frame, Tan, Metal
P03	-34	05/15	1400		1		None	X		Ext, South wall, Beige, Cmtl
P04	-35	05/15	1425		1		None	X		Ext, West Ctr Door Frame, Beige, Metal
P05	-36	05/15	1505		1		None	X		Ext, North, Gas Pipe, Grey, Metal
P06	-37	05/15	1520		1		None	X		Ext, N. Large Pipe, Tan, Metal
P07	-38	05/15	1625		1		None	X		Ext, N Gas Pipe, Yellow, Metal
P08	-39	05/15	1640	↓	1		None	X		Ext W Shelf, Yellow, Metal

Company Name: Converse Consultants
Address: 717 S. Myrtle
City/State/Zip: Monrovia, CA 91016

Project Contact: Norman Eke
Tel: 626-930-1260
Email: neke@conversecconsultants.com
Fax:

Sampler's Signature:
Project Name/ID: Lee & Ro Romoland 16-16-198-03

Relinquished by: Rodney Stanfield	Received by:	Date & Time: 05/16/25 1645	Instructions for Sample Storage After Analysis: ☐ Dispose of ☐ Return to Client ☐ Store (30 Days) ☐ Other
Relinquished by:	Received by	Date & Time	
Relinquished by:	Received by	Date & Time	

CHAIN OF CUSTODY RECORD

Date:

WHITE WITH SAMPLE YELLOW TO CLIENT

Enviro-Chem, Inc. Laboratories
1214 E. Lexington Avenue,
Pomona, CA 91766
Tel: (909) 590-5905 Fax: (909) 590-5907
CA-DHS ELAP CERTIFICATE # 1555

Turnaround Time
- ☐ Same Day
- ☐ 24 Hours
- ☐ 48 Hours
- ☐ 72 Hours
- ☐ 1 Week (Standard)
- Other

SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	No. OF CONTAINERS	TEMPERATURE	PRESERVATION	CAM Metals EPA 6010B	Misc	COMMENTS
				Analysis Required						
P09	25-516-40	05/15	1705	Paint	1	x80z	None	X		Ext, NE Roof vent, off white, Metal
P10	-41	05/15	1720	↓	1	|	None	X		Ext, Well Caps, Blue, Metal(lt)
#										

Company Name: Converse Consultants	Project Contact: Norman Eke	Sampler's Signature:	
Address: 717 S. Myrtle	Tel: 626-930-1260	Project Name/ID: Lee & RO Romoland	
City/State/Zip: Monrovia, CA 91016	Email/Fax: neke@conversecconsultants.com		16-16-198-03

Relinquished by: Rodney Standfield	Received by:	Date & Time: 05/16/25 1645	Instructions for Sample Storage After Analysis:
Relinquished by:	Received by:	Date & Time:	☐ Dispose of ☐ Return to Client ☐ Store (30 Days)
Relinquished by:	Received by:	Date & Time:	☐ Other

CHAIN OF CUSTODY RECORD

Date: _____ WHITE WITH SAMPLE YELLOW TO CLIENT

Enviro-Chem, Inc. Laboratories
1214 E. Lexington Avenue,
Pomona, CA 91766
Tel: (909) 590-5905 Fax: (909) 590-5907
CA-DHS ELAP CERTIFICATE # 1555

Turnaround Time
- ◘ Same Day
- ◘ 24 Hours
- ◘ 48 Hours
- ◘ 72 Hours
- ◘ 1 Week (Standard)
- Other

SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	No. OF CONTAINERS	TEMPERATURE	PRESERVATION	Analysis Required: 17 CAM Metals EPA 6010B	Misc	COMMENTS Reflex
P-11	250516-42	05/16	1010	Paint	1	X807	—	X		Int, W. Ceiling Reflex, Beige on metal
P-12	-43	05/16	1055		1		—	X		Int, W. wall, Beige on CMU
P-13	-44	05/16	1110		1		—	X		Int, W. wall, off-white on concrete
P-14	-45	05/16	1130		1		—	X		Int, Stair rail, yellow on metal
P-15	-46	05/16	1220		1		—	X		Int, Stair, Light Brown on metal
P-16	-47	05/16	1245		1		—	X		Int, W. Oil Tank, white on metal
P-17	-48	05/16	1400		1		—	X		Int, S. water Pipe, Light Blue on Metal
P-18	-49	05/16	1430		1			X		Int Blue on Metal Engine

Company Name: Converse Consultants
Address: 717 S. Myrtle Ave
City/State/Zip: Monrovia, CA 91016

Project Contact: Norman Eke
Tel: 626-930-1260
E-mail / ~~Fax~~: neke@conserveconsultants.com

Sampler's Signature:
Project Name/ID: Lee & Ro Romoland 16-16-198-03

Relinquished by: Rodney Stanfield	Received by:	Date & Time: 05/16/16 1645	Instructions for Sample Storage After Analysis: ◘ Dispose of ◘ Return to Client ◘ Store (30 Days) ◘ Other
Relinquished by:	Received by	Date & Time	
Relinquished by:	Received by	Date & Time	

CHAIN OF CUSTODY RECORD

Date: _____ WHITE WITH SAMPLE, YELLOW TO CLIENT

APPENDIX F

NOISE MONITORING SHEETS

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Noise Measurement Survey – 24 HR

Project Number: 20252406
Project Name: Matthews BPS

Test Personnel: Corey Knips
Equipment: LD Spark 706RC (SN: 18571)

Site Number: LT-1

Date: From 11/12/2025 To 11/13/2025
Time: From 11:00 a.m. To 11:00 a.m.

Site Location: 27930 Watson Road, Menifee, CA. On the western edge of the project site, on a tree. Approximately 150 feet from the Watson Road centerline.

Primary Noise Sources: Light traffic on Watson Road and Antelope Road, dogs barking (faint), faint aircraft noise, and occasional activity at communications facility at the southwest corner of the project site.

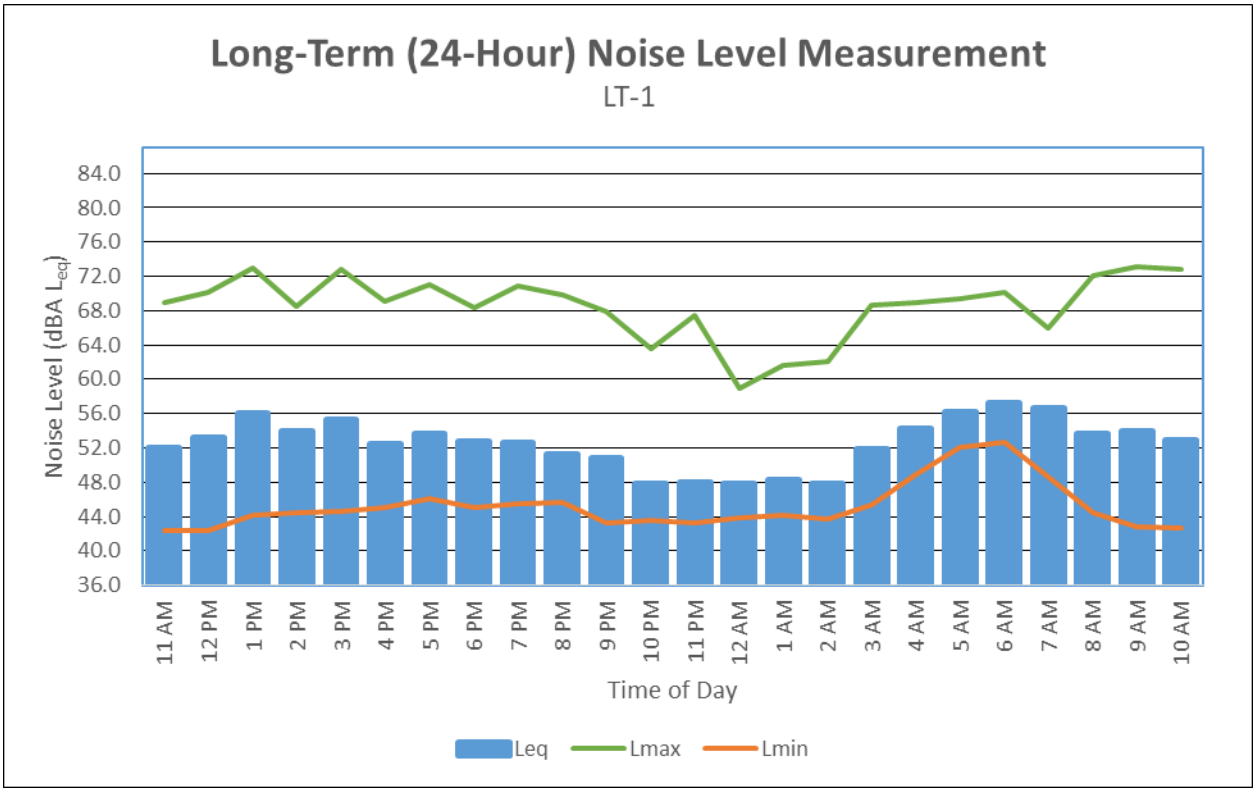
Comments:

Photo:

Long-Term (24-Hour) Noise Level Measurement Results at LT-1

Start Time	Date	Noise Level (dBA)		
		L_{eq}	L_{max}	L_{min}
11:00 AM	11/12/2025	52.0	68.9	42.3
12:00 PM	11/12/2025	53.1	70.2	42.3
1:00 PM	11/12/2025	56.1	73.0	44.1
2:00 PM	11/12/2025	54.0	68.5	44.5
3:00 PM	11/12/2025	55.3	72.8	44.6
4:00 PM	11/12/2025	52.5	69.1	45.0
5:00 PM	11/12/2025	53.6	71.1	46.1
6:00 PM	11/12/2025	52.7	68.3	45.0
7:00 PM	11/12/2025	52.6	70.9	45.5
8:00 PM	11/12/2025	51.3	69.9	45.6
9:00 PM	11/12/2025	50.8	67.9	43.2
10:00 PM	11/12/2025	47.9	63.5	43.6
11:00 PM	11/12/2025	47.9	67.4	43.2
12:00 AM	11/13/2025	47.9	59.0	43.8
1:00 AM	11/13/2025	48.2	61.6	44.1
2:00 AM	11/13/2025	47.9	62.1	43.7
3:00 AM	11/13/2025	51.9	68.6	45.4
4:00 AM	11/13/2025	54.3	68.9	49.0
5:00 AM	11/13/2025	56.2	69.4	52.0
6:00 AM	11/13/2025	57.2	70.1	52.7
7:00 AM	11/13/2025	56.6	65.9	48.6
8:00 AM	11/13/2025	53.7	72.1	44.4
9:00 AM	11/13/2025	54.0	73.1	42.8
10:00 AM	11/13/2025	52.9	72.8	42.6

Source: Compiled by LSA Associates, Inc. (2025).
dBA = A-weighted decibel
L_{eq} = equivalent continuous sound level
L_{max} = maximum instantaneous noise level
L_{min} = minimum measured sound level



Noise Measurement Survey – 24 HR

Project Number: 20252406
Project Name: Matthews BPS

Test Personnel: Corey Knips
Equipment: LD Spark 706RC (SN: 17637)

Site Number: LT-2

Date: From 11/12/2025 To 11/13/2025
Time: From 11:00 a.m. To 11:00 a.m.

Site Location: Watson Road Booster Station, 29285 Watson Rd, Menifee, CA. On a utility pole near the northwest corner of the property. Approximately 35 feet from the Watson Road centerline.

Primary Noise Sources: Light traffic on Watson Road, a faint high pitch buzz from the pump station, and faint aircraft noise.

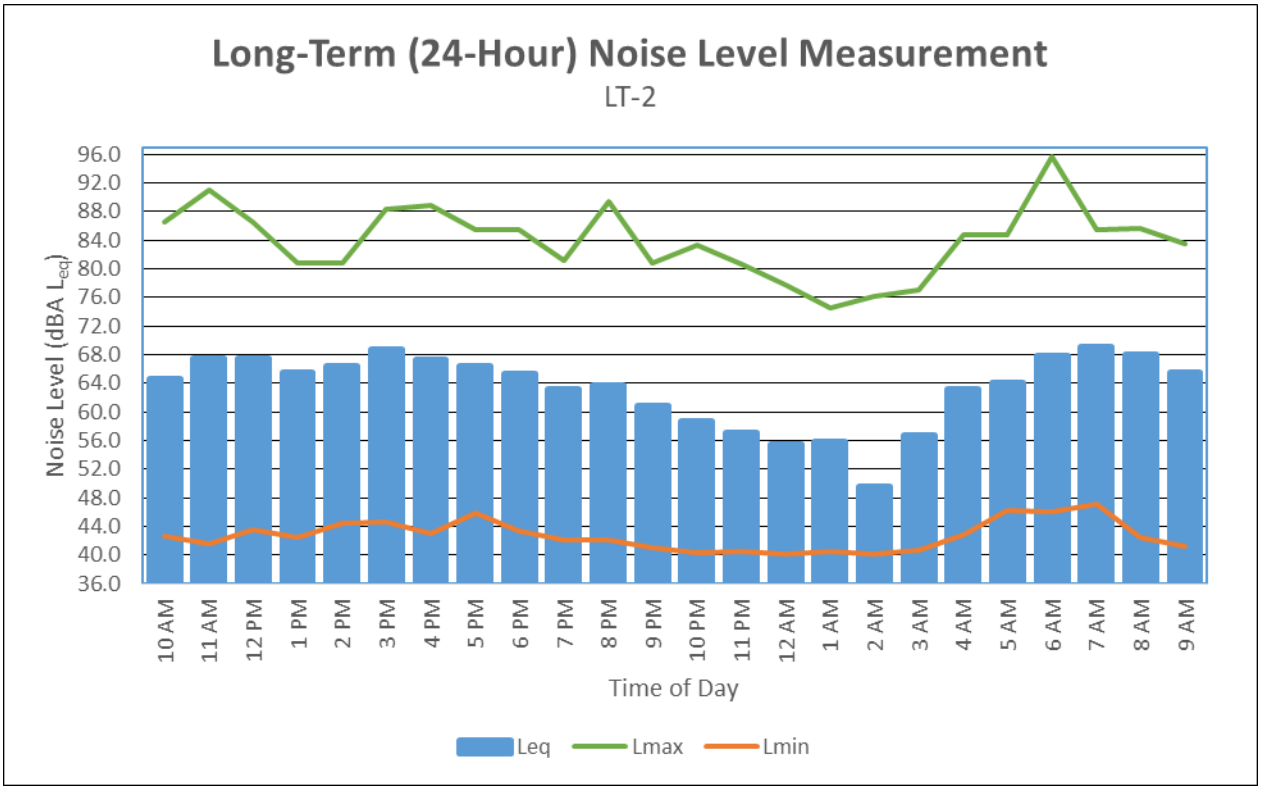
Comments:

Photo:

Long-Term (24-Hour) Noise Level Measurement Results at LT-2

Start Time	Date	Noise Level (dBA)		
		L_{eq}	L_{max}	L_{min}
11/12/25 10:00	10:00 AM	11/12/2025	64.6	86.6
11/12/25 11:00	11:00 AM	11/12/2025	67.4	91.0
11/12/25 12:00	12:00 PM	11/12/2025	67.4	86.5
11/12/25 13:00	1:00 PM	11/12/2025	65.5	80.8
11/12/25 14:00	2:00 PM	11/12/2025	66.4	80.8
11/12/25 15:00	3:00 PM	11/12/2025	68.7	88.3
11/12/25 16:00	4:00 PM	11/12/2025	67.3	88.8
11/12/25 17:00	5:00 PM	11/12/2025	66.4	85.5
11/12/25 18:00	6:00 PM	11/12/2025	65.4	85.5
11/12/25 19:00	7:00 PM	11/12/2025	63.1	81.2
11/12/25 20:00	8:00 PM	11/12/2025	63.7	89.5
11/12/25 21:00	9:00 PM	11/12/2025	60.9	80.8
11/12/25 22:00	10:00 PM	11/12/2025	58.8	83.3
11/12/25 23:00	11:00 PM	11/12/2025	57.1	80.7
11/13/25 0:00	12:00 AM	11/13/2025	55.5	77.7
11/13/25 1:00	1:00 AM	11/13/2025	55.8	74.6
11/13/25 2:00	2:00 AM	11/13/2025	49.6	76.1
11/13/25 3:00	3:00 AM	11/13/2025	56.7	77.0
11/13/25 4:00	4:00 AM	11/13/2025	63.1	84.8
11/13/25 5:00	5:00 AM	11/13/2025	64.1	84.8
11/13/25 6:00	6:00 AM	11/13/2025	67.8	95.7
11/13/25 7:00	7:00 AM	11/13/2025	69.0	85.5
11/13/25 8:00	8:00 AM	11/13/2025	67.9	85.7
11/13/25 9:00	9:00 AM	11/13/2025	65.5	83.5

Source: Compiled by LSA Associates, Inc. (2025).
dBA = A-weighted decibel
L_{eq} = equivalent continuous sound level
L_{max} = maximum instantaneous noise level
L_{min} = minimum measured sound level



Noise Measurement Survey – 24 HR

Project Number: 20252406
Project Name: Matthews BPS

Test Personnel: Corey Knips
Equipment: LD Spark 703+ (SN: 20224)

Site Number: LT-3

Date: From 11/12/2025 To 11/13/2025
Time: From 11:00 a.m. To 11:00 a.m.

Site Location: Near the corner of Jackson Avenue and Ethanac/Case Road. On a utility pole along Jackson Avenue, approximately 300 feet from the California State Route (SR) 74.

Primary Noise Sources: Traffic on SR 74 and Ethanac Road, very light traffic on Jackson Avenue, faint aircraft noise, and birds.

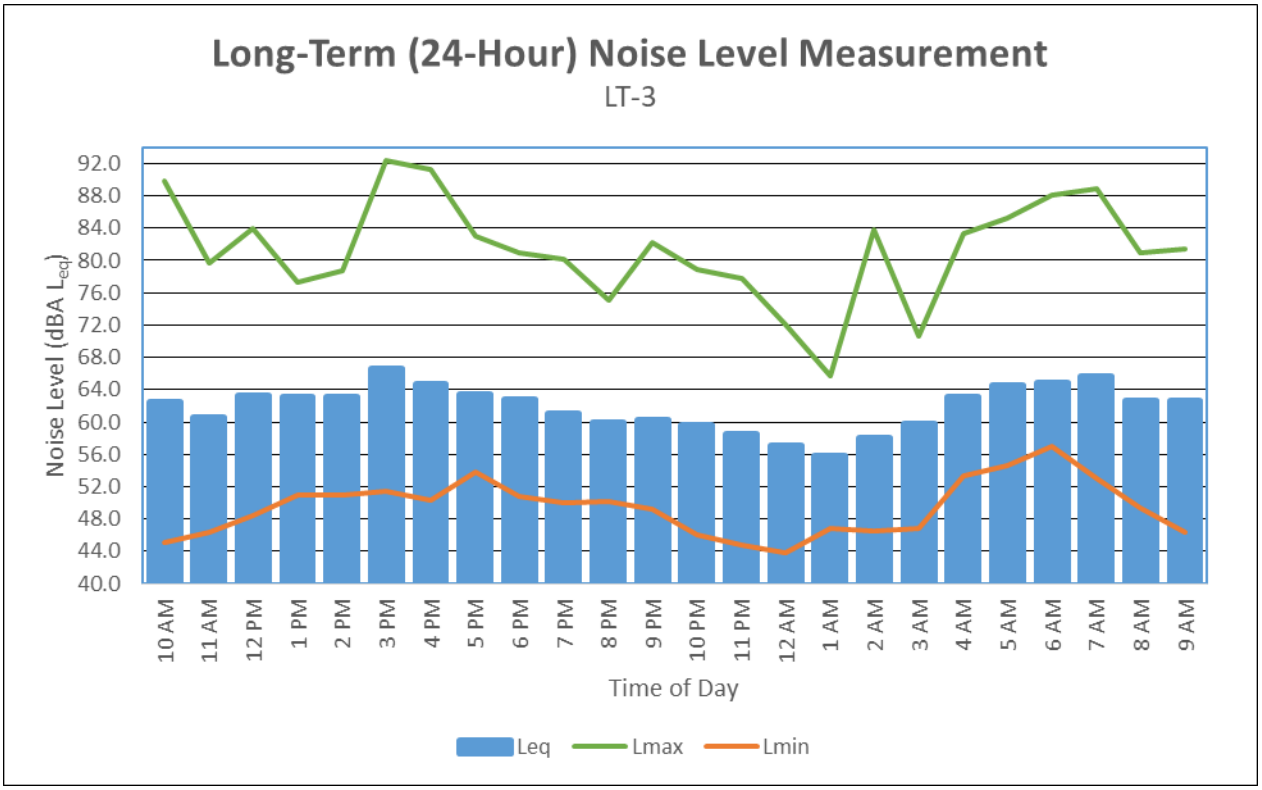
Comments:

Photo:

Long-Term (24-Hour) Noise Level Measurement Results at LT-3

Start Time	Date	Noise Level (dBA)		
		L_{eq}	L_{max}	L_{min}
11/12/25 10:00	10:00 AM	11/12/2025	62.4	89.8
11/12/25 11:00	11:00 AM	11/12/2025	60.5	79.7
11/12/25 12:00	12:00 PM	11/12/2025	63.2	84.0
11/12/25 13:00	1:00 PM	11/12/2025	63.0	77.3
11/12/25 14:00	2:00 PM	11/12/2025	63.2	78.8
11/12/25 15:00	3:00 PM	11/12/2025	66.5	92.3
11/12/25 16:00	4:00 PM	11/12/2025	64.6	91.2
11/12/25 17:00	5:00 PM	11/12/2025	63.3	83.0
11/12/25 18:00	6:00 PM	11/12/2025	62.8	80.9
11/12/25 19:00	7:00 PM	11/12/2025	61.1	80.1
11/12/25 20:00	8:00 PM	11/12/2025	59.9	75.1
11/12/25 21:00	9:00 PM	11/12/2025	60.2	82.2
11/12/25 22:00	10:00 PM	11/12/2025	59.5	78.9
11/12/25 23:00	11:00 PM	11/12/2025	58.5	77.8
11/13/25 0:00	12:00 AM	11/13/2025	57.1	72.0
11/13/25 1:00	1:00 AM	11/13/2025	55.9	65.7
11/13/25 2:00	2:00 AM	11/13/2025	58.0	83.8
11/13/25 3:00	3:00 AM	11/13/2025	59.8	70.6
11/13/25 4:00	4:00 AM	11/13/2025	63.2	83.4
11/13/25 5:00	5:00 AM	11/13/2025	64.5	85.2
11/13/25 6:00	6:00 AM	11/13/2025	64.8	88.1
11/13/25 7:00	7:00 AM	11/13/2025	65.6	88.9
11/13/25 8:00	8:00 AM	11/13/2025	62.6	81.0
11/13/25 9:00	9:00 AM	11/13/2025	62.6	81.5

Source: Compiled by LSA Associates, Inc. (2025).
dBA = A-weighted decibel
L_{eq} = equivalent continuous sound level
L_{max} = maximum instantaneous noise level
L_{min} = minimum measured sound level



Noise Measurement Survey

Project Number: 20252406 Test Personnel: Corey Knips
Project Name: Matthews BPS Equipment: LD 831 SLM

Site Number: ST-1 Date: 11/12/2025 Time: From 10:13 a.m. To 10:23 am.

Site Location: 27930 Watson Road, Menifee, CA. Approximately 20 feet from the northern property line and 310 feet from the Watson Road centerline. Near the east-west center of the site.

Primary Noise Sources: Faint traffic noise on Antelope Road and Watson Road, dogs barking across Watson Road to the south (faint), and faint aircraft noise (small plane for skydiving).

Measurement Results:

	dBA
L_{eq}	46.9
L_{max}	64.2
L_{min}	37.8
L_{peak}	86.8
L_2	52.7
L_8	50.2
L_{25}	47.2
L_{50}	44.6
SEL	77.8

Atmospheric Conditions:

Maximum Wind Velocity (mph)	2.9
Average Wind Velocity (mph)	1.1
Temperature (F)	76.5
Relative Humidity (%)	43.2
Comments:	

Comments:

Location Photo:

4.1.7 Threatened/Endangered Species

There is only one federally/State listed species that was identified as having a moderate potential to occur (Appendix B) in the project vicinity:

- Burrowing owl (*Athene cunicularia hypugaea* [BUOW]); State candidate for listing as endangered/ threatened

4.1.8 Non-Listed Special-Status Species

Of the 24 other non-listed special-status species identified and discussed in Appendix B, 10 species are not expected to occur based on lack of suitable habitat, 11 species are considered to have a low probability of occurrence, 3 species are considered to have a moderate probability of occurrence, and no species are considered present within the project site. The following non-listed special-status species have at least a moderate probability to occur within the BSA:

- Ferruginous hawk (*Buteo regalis* [FEHA]);
- California horned lark (*Eremophila alpestris actia* [HOLA]); and
- Loggerhead shrike (*Lanius ludovicianus* [LOSH])

Nesting bird species, including special-status species identified in Appendix B, with potential to occur are protected by California Fish and Game Code Sections 3503, 3503.5, and 3800, and by the MBTA (16 United States Code 703–711). These laws regulate the take, possession, or destruction of the nest or eggs of any migratory bird or bird of prey. However, the USFWS has recently determined that the MBTA should apply only to "…affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs" and will not be applied to incidental take of migratory birds pursuant to otherwise lawful activities.

4.1.9 Critical Habitat

The BSA does not lie within federally designated critical habitat.

4.1.10 Potential Jurisdictional Waters

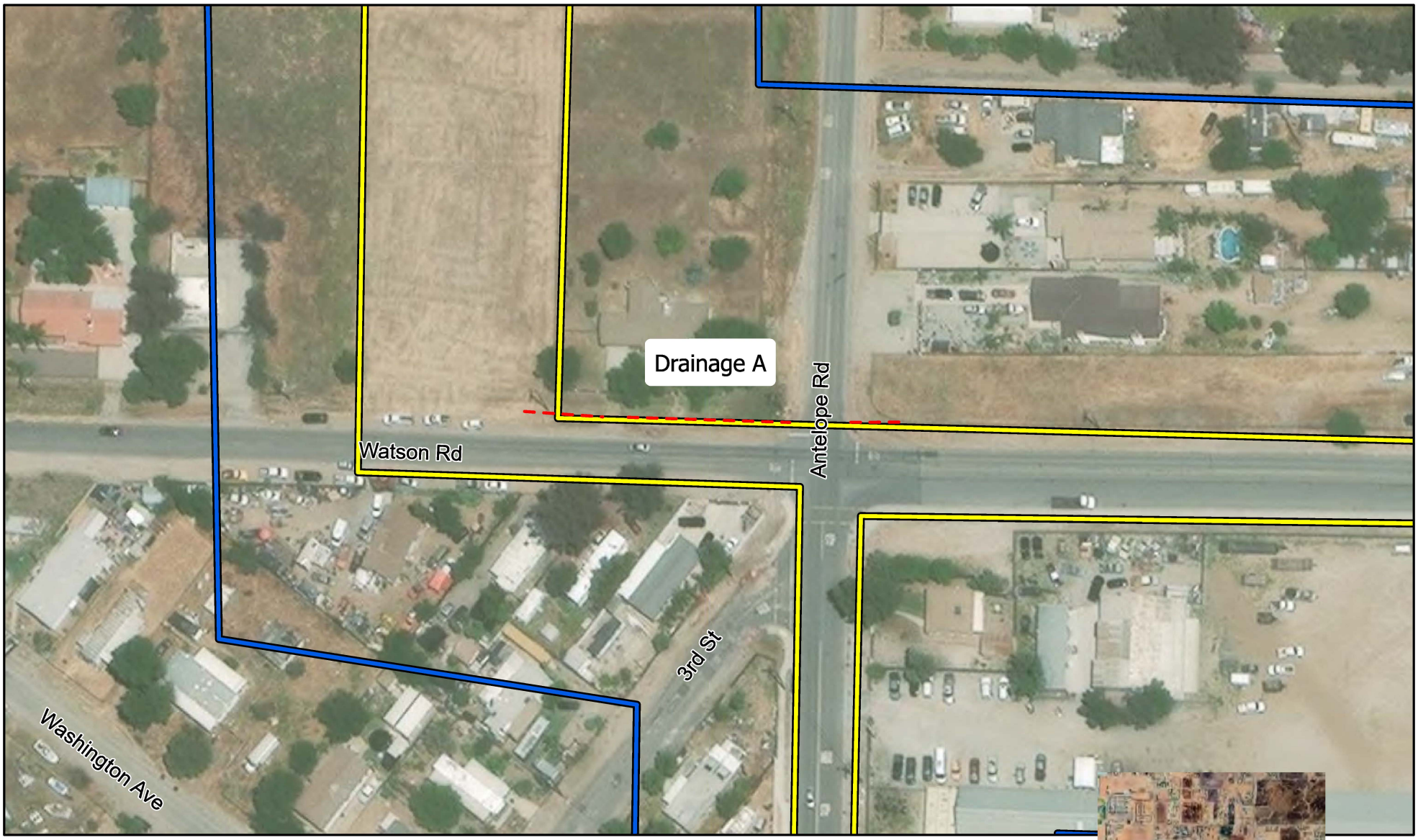
The USACE, under Section 404 of the Federal Clean Water Act (CWA), regulates discharges of dredged or fill material into "waters of the United States." These waters include wetlands and non-wetland bodies of water that meet specific criteria, including a connection to interstate commerce. This connection may be direct (through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce) or it may be indirect (through a connection identified in USACE regulations). The USACE typically regulates as non-wetland waters of the United States any body of water displaying an "ordinary high water mark" (OHWM). In order to be considered a "jurisdictional wetland" under Section 404, an area must possess hydrophytic vegetation, hydric soils, and wetland hydrology. The CDFW, under Sections 1600 et seq. of the California Fish and Game Code, regulates alterations to lakes, rivers, and streams. A stream is defined by the presence of a channel bed and banks and at least an occasional flow of water. The RWQCB is responsible for the administration of Section 401 of the CWA, through water quality certification of any activity that may result in a discharge to jurisdictional waters of the United

States. The RWQCB may also regulate discharges to "waters of the State," including wetlands, under the California Porter-Cologne Water Quality Control Act.

There are two drainage features within the BSA (see Figure 6, Potential Jurisdictional Features), and they are identified as Drainages A and B for purposes of this analysis. Although an official jurisdictional delineation was not conducted as part of the biological resources assessment for this project, the preliminary results of these drainage features are discussed below.

Drainage A is a roadside drainage ditch that runs parallel to Watson Road and underneath Antelope Road. This feature has corrugated metal pipe that creates 2-foot culverts on either side. This feature is 3 feet wide and houses non-native, ruderal vegetation.

Drainage B is a roadside drainage ditch that runs parallel to Menifee Road and runs underneath Watson Road. Drainage B has 3-foot culverts, created with corrugated metal pipe, on either side of Watson Road. This feature is 8 feet in width and features non-native, ruderal vegetation.



LSA

200-ft Buffer

Project Boundary

Potential Jurisdictional Features

0 50 100

FEET

SOURCE: Google Imagery (6/2021)

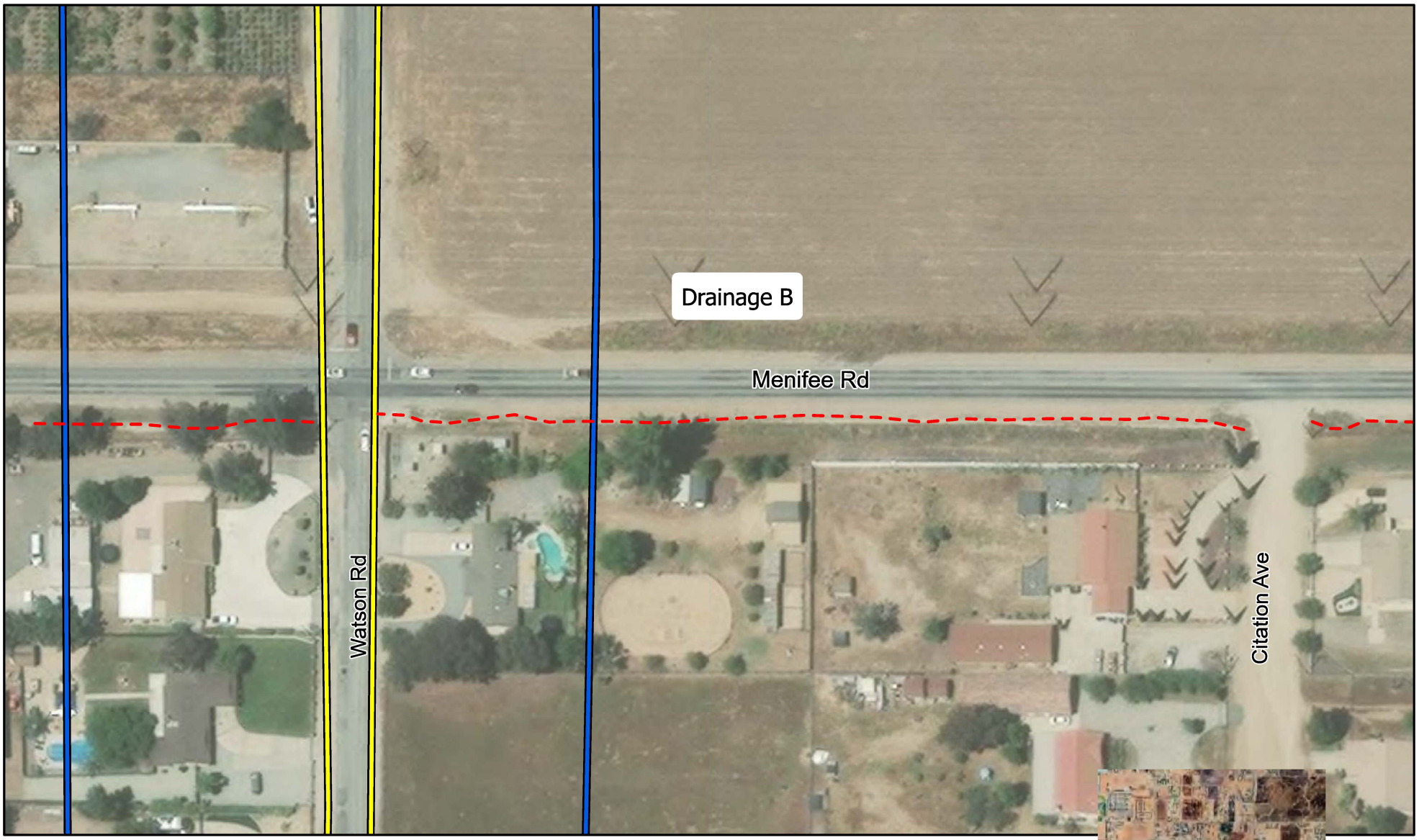
I:\2025\20252406\GIS\Pro\Matthews Booster Pump Station and Transmission Line Project.aprx (11/24/2025)

FIGURE 6

Sheet 1 of 2

Menifee and Watson Road II Booster Pump Station (BPS) and Pipeline Project
Biological Assessment Report

Potential Jurisdictional Features



LSA

200-ft Buffer

Project Boundary

Potential Jurisdictional Features

0 50 100

FEET

SOURCE: Google Imagery (6/2021)

I:\2025\20252406\GIS\Pro\Matthews Booster Pump Station and Transmission Line Project.aprx (11/24/2025)

FIGURE 6

Sheet 2 of 2

Menifee and Watson Road II Booster Pump Station (BPS) and Pipeline Project

Biological Assessment Report

Potential Jurisdictional Features

5.0 IMPACTS AND RECOMMENDATIONS

Following is a discussion of potential disturbances and recommendations for avoidance, minimization, and mitigation measures per applicable local, State, and federal policy.

5.1 THREATENED, ENDANGERED, AND CANDIDATE SPECIES

No impacts to threatened, endangered, or Candidate species are expected to occur within the BSA; therefore, no recommendations for avoidance, minimization, and mitigation measures are proposed.

5.1.1 Burrowing Owl

Only paved portions of the BSA are located within an MSHCP Survey Area for burrowing owl. However, suitable habitat for burrowing owl was observed adjacent to the boundaries of the BSA. There are two parcels adjacent to Watson Road between Junipero Road and Menifee Road that may contain suitable habitat for burrowing owl. There are open areas with berms on either side. California ground squirrels were observed in this area and may provide suitable burrows for the owls to occupy; however, no owls were observed during either site visit.

In order to avoid impacts to the possible burrowing owls, focused burrowing owl breeding season surveys (February 1–August 31) are required in accordance with County of Riverside (County) survey instructions (Western Riverside County Regional Conservation Authority 2022). Survey visits should be a week or more apart and spaced so that they are not all at the beginning or end of the survey season, when owls may not be present. A preconstruction survey for burrowing owl will also be required within 30 days prior to any ground-disturbing activities. The focused and preconstruction surveys would be required in the vacant lots, using an accepted protocol.

During the surveys a qualified biologist will survey the project area including a 500-foot buffer, or to the edge of the property if less than 500 feet, for burrows that could be used by burrowing owl. If a burrow is located, the biologist will determine whether an owl is present in the burrow. If the burrow is determined to be occupied, the burrow will be flagged and a 160-foot buffer during the non-breeding season or a 250-foot buffer during the breeding season or a buffer to the edge of the property boundary if less than 500 feet will be established around the burrow. The buffer area will be staked and flagged. No development activities will be permitted within the buffer until the young are no longer dependent on the burrow.

5.1.2 Critical Habitat

No federally designated critical habitat is present within the study area; thus, there will be no project-related effects to critical habitat.

5.2 NON-LISTED SPECIAL-STATUS SPECIES

The 24 non-listed special-status species identified in Appendix B as having a low to moderate probability of occurrence in the project study area have limited population distribution in Southern California, and development is further reducing their ranges and numbers. These species have no

official State or federal protection status, but they merit consideration under CEQA. Due to the disturbed nature of the site and surrounding development, impacts from the project are not anticipated to have a significant effect on these non-listed special-status species.

5.3 NESTING BIRDS

To avoid impacts to nesting birds, during the nesting season (February 1 through August 15), prior to the start of construction activities, surveys will be conducted by a qualified biologist on the project site and within 500 feet of the project boundary, or to the property boundary if less than 500 feet. If nesting birds are found, a 500-foot non-disturbance buffer, or to the property boundary if less than 500 feet, will be established around the nest site. The buffer area will be staked and flagged. No construction will be permitted within the buffer during the breeding season of January 15 through June 15 or until the young birds have fledged or the nest acquires an inactive status.

5.4 JURISDICTIONAL WATERS

Potential jurisdictional waters of the United States regulated by the USACE or RWQCB, or CDFW jurisdictional lakes, rivers, or streams are present within the proposed project site. This includes two drainage features. Both of these drainage features occur within the project footprint; the project has been designed to avoid impacts to each of these features. This will be accomplished by going around the potential jurisdictional waters or by going under them through trenchless methods such as horizontal directional drilling. Thus, there will be no project-related effects to jurisdictional waters. If the project proposes impacts to these aquatic resources, Mitigation Measure (MM) BIO-3 shall be implemented, which requires a formal jurisdictional delineation to determine impacts.

5.5 HABITAT FRAGMENTATION AND WILDLIFE MOVEMENT

Wildlife movement and habitat fragmentation are important issues in assessing effects to wildlife. Habitat fragmentation occurs when a proposed action results in a single, unified habitat area being divided into two or more areas such that the division isolates the two new areas from each other. Isolation of habitat occurs when wildlife cannot move freely from one portion of the habitat to another or from one habitat type to another. An example is the fragmentation of habitats within and around “checkerboard” residential development. Habitat fragmentation can also occur when a portion of one or more habitats is converted into another habitat, as when scrub habitats are converted into annual grassland habitat because of frequent burning.

The project site does not correspond to any natural landscape blocks, small natural areas, interstate connections, essential connectivity areas, or potential riparian connections, as documented in the California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California report (Spencer et al. 2010). Wildlife movement of species such as coyote (*Canis latrans*) is expected within most of the project site given the project’s proximity to vacant undeveloped lands such as the two fields adjacent to Watson Road and an undeveloped section adjacent to the northwest intersection of Watson Road and Menifee Road. Undeveloped lands within the study area are bordered by existing paved roads that already restrict wildlife movement in the project vicinity. Due to the project occurring within an urban environment, wildlife movement within the project site is anticipated to be limited to wildlife present on site or present on the undeveloped land to the east of the project site.

The wildlife species that occur in the vicinity of the project site are likely adapted to the urban-wildland interface, and the project would not introduce new effects to the area. Potential noise, vibration, light, dust, or human disturbance associated with project activities would only temporarily deter wildlife from using areas in the immediate vicinity. These indirect effects could temporarily alter migration behaviors, territories, or foraging habitats in select areas. However, because these are temporary effects and the project vicinity is partially developed, it is likely that wildlife already living and moving close to the project site would alter their normal functions for the duration of land use changes and development and then re-establish these functions once all temporary effects have been removed. Project activities would not place any permanent barriers within any known wildlife movement corridors or interfere with habitat connectivity. Therefore, the proposed project would not substantially limit wildlife movement.

5.6 LOCAL POLICIES AND ORDINANCES

The City and Riverside County General Plans and development ordinances may include regulations or policies governing biological resources. For example, policies may include tree preservation, locally designated species survey areas, local species of interest, and significant ecological areas. Pursuant to California Code Section 53090 Section D and Section E, EMWD is exempt from local land use policies, plans, and zoning ordinances.

5.6.1 City of Menifee Municipal Code

Menifee Landscape Standards (Section 9.2 of the City of Menifee Municipal Code) consists of Section 9.205.030 of the City Municipal Code, which establishes Tree Preservation Regulations that are described below.

5.6.1.1 Section 9.205.030 (Tree Preservation Regulations)

This section serves to outline its purpose to protecting mature trees that are in good health, do not pose safety threats, are not nuisance trees, and those categorized as heritage trees. Application of a tree removal permit is required despite the status of existing trees.

Project impacts to protected trees shall follow this guideline: Existing healthy trees with a 6-inch or larger trunk diameter measured at 4 feet from the surrounding grade shall be replaced at a three-to-one ratio if removed, in addition to any other new tree installation required. Existing healthy trees, with a 6-inch or larger trunk diameter measured at 4 feet from the surrounding grade, which are retained on site shall be credited toward the tree installation requirements of this chapter at a one-to-two ratio (one tree saved equals a two-tree credit toward the installation of new trees required).

In the event that a heritage tree is removed, replacement is required with the largest nursery-grown tree(s) available as determined by the approval authority. To determine adequate replacement values for heritage trees, the applicant may be required to submit an independent appraisal prepared by a horticulturist, International Society of Arboriculture (ISA)-certified arborist, or licensed landscape architect to determine the replacement value of the tree(s) to be removed.

The proposed project anticipates no significant impacts to trees within the BSA. There are no measures required to protect the trees within the BSA.

5.6.2 Western Riverside Multiple Species Habitat Conservation Plan

The BSA lies within the planning area of the MSHCP; however, EMWD is not pursuing a PSE designation for the project site and is not seeking to obtain MSHCP coverage. Therefore, the proposed project is not subject to the requirements of the MSHCP (e.g., development fees and MSHCP consistency analysis).

5.6.3 Stephens' Kangaroo Rat Habitat Conservation Plan

The BSA lies within the planning area of the SKR HCP; however, as a water utility agency, EMWD is exempt from the requirements of the SKR HCP (e.g., development fees).

6.0 MITIGATION MEASURES

MM BIO-1 **Focused Burrowing Owl Survey.** Focused burrowing owl breeding season surveys (March 1–August 31) are required in accordance with County of Riverside survey instructions (Western Riverside County Regional Conservation Authority 2022). Survey visits should be a week or more apart and spaced so that they are not all at the beginning or end of the survey season, when owls may not be present. A preconstruction survey for burrowing owl will also be required within 30 days prior to any ground-disturbing activities. The focused and preconstruction surveys would be required in the vacant lots, using an accepted protocol.

During the surveys a qualified biologist will survey the project area including a 500-foot buffer, or to the edge of the property if less than 500 feet, for burrows that could be used by burrowing owl. If a burrow is located, the biologist will determine whether an owl is present in the burrow. If the burrow is determined to be occupied, the burrow will be flagged and a 160-foot buffer during the non-breeding season or a 250-foot buffer during the breeding season or a buffer to the edge of the property boundary if less than 500 feet will be established around the burrow. The buffer area will be staked and flagged. No development activities will be permitted within the buffer until the young are no longer dependent on the burrow.

MM BIO-2 **Preconstruction Nesting Bird Survey.** To ensure compliance with the California Fish and Game Code and the Migratory Bird Treaty Act and to avoid potential impacts to nesting birds, vegetation removal activities shall be conducted outside the general bird nesting season (January 15 through August 31). Any vegetation removal and/or construction activities that occur during the nesting season will require that all suitable habitats be thoroughly surveyed for the presence of nesting birds by a qualified biologist. Prior to commencement of clearing within each project segment, a qualified biologist shall conduct a preconstruction survey within 3 days prior to ground-disturbing activities. This may warrant various preconstruction surveys to ensure that each survey aligns with the start of each segment of the project. Should nesting birds be found, an exclusionary buffer will be established by the qualified biologist. The buffer may be up to 500 feet in diameter, depending on the species of nesting bird found. This buffer will be clearly marked in the field by construction personnel under guidance of the qualified biologist, and construction or clearing will not be conducted within this zone until the qualified biologist determines that the young have fledged or the nest is no longer active. The buffer may be modified and/or other recommendations proposed as determined appropriate by the biologist to minimize impacts. Nesting bird habitat within the project site will be resurveyed during the bird breeding season if there is a lapse in construction activities longer than 7 days.

MM BIO-3 **Jurisdictional Delineation.** Prior to commencing construction activities, a jurisdictional delineation shall be conducted if impacts to any aquatic resources within the project site are expected. A three parameter delineation shall be

conducted according to the California Department of Fish and Wildlife's (CDFW) *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Regional Supplement) and the 1987 Corps Wetland Delineation Manual, and to delineate the jurisdictional limit of non- wetland waters of the United States following the procedures set forth in 33 Code of Federal Regulations 328.3(e). If impacts to identified aquatic resources are expected to occur, appropriate permits will need to be acquired from the appropriate agencies. This includes the issuance of a Streambed Alteration Agreement as issued by CDFW under Section 1602 of the Fish and Game Code and Waste Discharge Requirements as issued by the Regional Water Quality Control Board under the Porter-Cologne Water Quality Control Act. A verification, in the form of a jurisdictional determination, will also need to be requested from the United States Army Corps of Engineers (USACE) on the regulatory conclusions made in the jurisdictional delineation for USACE jurisdiction. Should the USACE determine aquatic resources under its jurisdiction are present within the project site and are proposed for impacts, a Section 404 permit will need to be acquired from the USACE.

7.0 CUMULATIVE IMPACTS

According to Section 15130 of the *State CEQA Guidelines*, "cumulative impacts" refers to incremental effects of an individual project when viewed in connection with the effects of past projects, current projects, and probable future projects. Due to the relatively disturbed nature of the project study area and its proximity to residential development, impacts are not considered to be cumulatively significant.

8.0 REFERENCES

Biogeographic Information and Observation System (BIOS). n.d. Website: https://apps.wildlife.ca.gov/bios6/ (accessed October 2025).

California Code, Government Code - GOV § 53091. n.d. FindLaw, Thomson Reuters. Website: codes.findlaw.com/ca/government-code/gov-sect-53091 (accessed March 2024).

California Department of Fish and Wildlife. n.d. California Natural Diversity Database (CNDDB) — RareFind 5. California Department of Fish and Wildlife. Website: https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx (accessed October 26, 2025).

California Department of Fish and Wildlife. n.d. CNDDB Maps & Data. California Department of Fish and Wildlife. Website: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data (accessed October 26, 2025).

California Native Plant Society. n.d. Rare Plant Inventory (online edition, v9.5.1). California Native Plant Society. Website: https://rareplants.cnps.org/Search/Advanced (accessed October 22, 2025).

California Native Plant Society. n.d. Rare Plant Inventory (online edition, v9.5.1) – Help & Advanced Searching. California Native Plant Society. Website: https://rareplants.cnps.org/Home/Help/ (accessed October 22, 2025).

City of Menifee Comprehensive Development Code. n.d. Website: https://online.encodeplus.com/regs/menifee-ca/doc-viewer.aspx?tocid=003.005.008#secid-1527 (accessed February 2024).

Google Earth. 2025. Aerial photographs of the project site and surrounding areas (accessed October–November 2025).

Riverside County Habitat Conservation Agency (RCHCA). n.d. Stephens' Kangaroo Rat Mitigation Fee. Website: https://www.rchca.us/185/Stephens-Kangaroo-Rat-Mitigation-Fee (accessed March 2024).

Riverside County Transportation and Land Management Agency. n.d. Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), Appendix C: Standard Best Management Practices. Website: https://rctlma.org/multiple-species-habitat-conservation-plan-mshcp-volume-1-appendix-c (accessed March 2024).

Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. California Essential Habitat Connectivity Project. California Essential Habitat Connectivity: A Strategy for Conserving a Connected California. February. Website: consbio.org/wp-content/uploads/2022/05/CEHC_Plan_MASTER_030210_31_2.pdf (accessed October 30, 2025).

United States Department of Agriculture, Natural Resources Conservation Service. n.d. Web Soil Survey. USDA NRCS. Website: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm (accessed October 23, 2025).

United States Fish and Wildlife Service. Critical Habitat Report (ECOS). n.d. U.S. Department of the Interior. Website: https://ecos.fws.gov/ecp/report/table/critical-habitat.html (accessed October 23, 2025).

United States Fish and Wildlife Service. n.d. National Wetlands Inventory – Wetlands Mapper. U.S. Department of the Interior. Website: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/ (accessed October 26, 2025).

Western Riverside County Regional Conservation Authority. 2022. Western Riverside County MSHCP Biological Monitoring Program. Burrowing Owl Monitoring Protocol, 2022. Western Riverside County MSHCP. Website: wrc-rca.org/wp-content/uploads/2023/11/BUOW-monitoring-protocol-2022_final_NRP.pdf (accessed October 30, 2025).

APPENDIX A

PLANT AND ANIMAL SPECIES OBSERVED

Plant Species Observed

Scientific Name	Common Name
CONIFERS	
Cupressaceae	**Cypress family**
*Cupressus sempervirens**	Italian cypress
EUDICOT FLOWERING PLANTS	
Asteraceae	**Sunflower family**
Ambrosia acanthicarpa	Annual bur-sage
Heterotheca grandiflora	Telegraph weed
Helianthus annuus	Common sunflower
Lactuca serriola	Prickly lettuce
Amaranthaceae	**Pigweed family**
Amaranthus palmeri	Palmer's pigweed
Brassicaceae	**Mustard family**
*Hirschfeldia incana**	Shortpod mustard
Chenopodiaceae	**Saltbush family**
*Salsola tragus**	Russian thistle
Fabacae	**Pea family**
Parkinsonia aculeata	Jerusalem thorn
Myrtaceae	**Myrtle family**
Eucalyptus sp.*	Eucalyptus
Simaroubaceae	**Quassia family**
Ailanthus altissima	Tree of Heaven
Solanaceae	**Nightshade family**
*Nicotiana glauca**	Tree tobacco
MONOCOT FLOWERING PLANTS	
Arecaceae	**Palm family**
Washingtonia filifera	California fan palm
*Washingtonia robusta**	Mexican fan palm
Poaceae	**Grass family**
Bromus sp.*	Brome grass
*Cynodon dactylon**	Bermuda grass
*Hordeum murinum**	Mouse barley
*Schismus barbatus**	Common Mediterranean grass

* = non-native species

Wildlife Species Observed

Scientific Name	Common Name
BIRDS	
Charadriidae	**Plovers and Lapwings**
Charadrius vociferus	Killdeer
Columbidae	**Pigeons and Doves**
*Columba livia**	Rock pigeon
Accipitridae	**Kites, Hawks, and Eagles**
Buteo jamaicensis	Red-tailed hawk
Tyrannidae	**Tyrant Flycatchers**
Sayornis nigricans	Black phoebe
Sayornis saya	Say's phoebe
Tyrannus vociferans	Cassin's kingbird
Corvidae	**Crows and Ravens**
Corvus brachyrhynchos	American crow
Fringillidae	**Finches**
Haemorhous mexicanus	House finch
Spinus psaltria	Lesser goldfinch
Passerellidae	**New World Sparrows**
Melospiza melodia	Song sparrow
Zonotrichia leucophrys	White-crowned sparrow
Passeridae	**Old World Sparrows**
Passer domesticus	House sparrow
Parulidae	**Wood Warblers**
Setophaga coronata	Yellow-rumped warbler
Sturnidae	**Starlings**
Sturnus vulgaris *	European starling
MAMMALS	
Sciuridae	**Squirrels**
Spermophilus beecheyi	California ground squirrel
Geomyidae	**Pocket Gophers**
Thomomys bottae	Botta's pocket gopher

* = non-native species

APPENDIX B

SPECIAL-STATUS SPECIES SUMMARY

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Plants				
Allium munzii **Munz's onion**	US: FE CA: ST	Seasonally moist sites on clay soils (generally) or within rocky outcrops (pyroxenite) on rocky-sandy loams (such as Cajalco, Las Posas, and Vallecitos) with clay subsoils, in openings within coastal sage scrub, pinyon juniper woodland, and grassland, at 300 to 1,070 meters (1,000 to 3,500 feet) in elevation. Known only from western Riverside County in the greater Perris Basin (Temescal Canyon-Gavilan Hills/Plateau, Murrieta-Hot Springs areas) and within the Elsinore Peak (Santa Ana Mountains) and Domenigoni Hills regions.	Blooms April through May (perennial bulbiferous herb)	**Not expected:** No suitable habitat (clay soils or within rocky outcrops on rocky-sandy loams) is present within the BSA.
Atriplex coronata var. *notatior* **San Jacinto Valley crownscale**	US: FE CA: –	Alkaline flats in playas, chenopod scrub, valley and foothill grasslands, vernal pools at 365 to 520 meters (1,200 to 1,700 feet) in elevation. Endemic to the San Jacinto River Valley area of western Riverside County.	Blooms April through May (annual herb)	**Not expected:** No suitable habitat (alkaline flats in playas, chenopod scrub, valley and foothill grasslands, vernal pools at 365 to 520 meters) is present within the BSA.
Atriplex parishii **Parish's brittlescale**	US: – CA: 1B.1	Alkali soils in meadows, vernal pools, chenopod scrub, and playas. Usually on drying alkali flats with fine soils. In California, known from Riverside and San Diego Counties. Also occurs in Mexico. Believed extirpated from Los Angeles, Orange, and San Bernardino Counties.	Blooms June through October	**Not expected:** No suitable habitat (alkali soils in meadows, vernal pools, chenopod scrub, and playas) is present within the BSA.
Brodiaea filifolia **Thread-leaved brodiaea**	US: FT CA: SE	Usually on clay or associated with vernal pools or alkaline flats; occasionally in vernally moist sites in fine soils (clay loam, silt loam, fine sandy loam, loam, loamy fine sand). Typically associated with needlegrass or alkali grassland or vernal pools. Occurs from 25 to 1,120 meters (80 to	Blooms March through June (perennial herb)	**Not expected:** No suitable habitat (clay or associated with vernal pools or alkaline flats) is present within the BSA.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
		3,700 feet) in elevation. Known only from Los Angeles, Orange, Riverside, San Bernardino, San Diego, and San Luis Obispo Counties, California.		
Caulanthus simulans **Payson's jewel-flower**	US: – CA: 4.2	Recently burned areas or disturbed sites such as streambeds in chaparral, coastal sage scrub, riparian areas, and grassland at 60 to 2,200 meters (200 to 7,200 feet) in elevation. Known from San Diego County (collections in western Riverside County misidentified, are *C. heterophyllus* var. *pseudosimulans*).	Blooms (Feb) March through May (June) (annual herb)	**Not expected:** No suitable habitat (recently burned areas or disturbed sites such as streambeds in chaparral, coastal sage scrub, riparian areas, and grassland at 60 to 2,200 meters) is present within the BSA.
Centromadia pungens ssp. *laevis* **Smooth tarplant**	US: – CA: 1B.1	Generally alkaline areas in chenopod scrub, meadows, playas, riparian woodland, valley and foothill grassland below 480 meters (1,600 feet) in elevation. Known from Riverside and San Bernardino Counties, extirpated from San Diego County.	Blooms April through November (annual herb)	**Not expected:** No suitable habitat (generally alkaline areas in chenopod scrub, meadows, playas, riparian woodland, valley and foothill grassland) is present within the BSA.
Chorizanthe parryi var. *parryi* **Parry's spineflower**	US: – CA:1B.1	Sandy or rocky soils in chaparral, coastal scrub, oak woodlands, and grassland at 40 to 1,705 meters (100 to 5,600 feet) in elevation. Known only from Los Angeles, Riverside, and San Bernardino Counties.	Blooms April through June	**Low:** Marginally suitable habitat (non-native grassland) is present within the BSA.
Harpagonella palmeri **Palmer's grapplinghook**	US: – CA: 4.2	Clay soils in openings in coastal sage scrub, juniper woodland, and grassland below 830 meters (2,700 feet) in elevation. In California, known only from Orange, Riverside, and San Diego Counties and the Channel Islands. Also occurs in Arizona and Mexico.	Blooms March through May	**Not expected:** No suitable habitat (clay soils) is present within the BSA.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Hordeum intercedens **Vernal barley**	US: – CA: 3.2	Vernal pools and saline flats and depressions below 1,000 meters (3,300 feet) in elevation. Known from many California counties. Also occurs in Mexico.	Blooms March through June	**Not expected:** No suitable habitat (vernal pools and saline flats and depressions) is present within the BSA.
Lasthenia glabrata ssp. *coulteri* **Coulter's goldfields**	US: – CA: 1B.1	Vernal pools and alkaline soils in marshes, playas, and similar habitats below 1,220 meters (4,000 feet) in elevation. Known from Colusa, Merced, Tulare, Orange, Riverside, Santa Barbara, San Diego, San Luis Obispo, Tehama, Ventura, and Yolo Counties. Believed extirpated from Kern, Los Angeles, and San Bernardino Counties, and possibly also from Tulare County. Also occurs in Mexico.	Blooms February through June	**Not expected:** No suitable habitat (vernal pools and alkaline soils in marshes, playas, and similar habitat) is present within the BSA.
Lepidium virginicum var. *robinsonii* **Robinson's pepper-grass**	US: – CA: 4.3	Dry soils in coastal sage scrub and chaparral below 885 meters (2,900 feet) in elevation. In California, known only from Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, and San Diego Counties, and Santa Cruz Island. Also occurs in Mexico.	Blooms January through July	**Not expected:** No suitable habitat (in coastal sage scrub and chaparral) is present within the BSA.
Navarretia fossalis **Spreading navarretia**	US: FT CA: –	In vernal pools, playas, shallow freshwater marshes, and similar sites at 15 to 820 meters (50 to 2,700 feet) in elevation. In California, known only from Los Angeles, San Luis Obispo, Riverside, and San Diego Counties. Also occurs in Mexico.	Blooms April through June (annual herb)	**Not expected:** No suitable habitat (vernal pools, playas, shallow freshwater marshes) is present within the BSA.
Tortula californica **California screw moss**	US: – CA: 1B.2	Rock outcrops, vertical rock walls and soil banks with appropriate moisture conditions, at 10 to 1,460 meters (30 to 4,800 feet) in elevation. Known only from Modoc, Kern, Los Angeles, Modoc, Monterey, Riverside, San Diego, Santa Barbara, and Ventura Counties, California.	N/A	**Not expected:** No suitable habitat (rock outcrops, vertical rock walls and soil banks with appropriate moisture conditions) is present within the BSA.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Invertebrates				
Bombus crotchii **Crotch's bumble bee**	US: – CA: SCE	Inhabits scrub (including chaparral) and grassland with high floral diversity from coastal California to the crest of Sierra-Cascade and in desert edge areas, south into Mexico. Suitable bumble bee habitat requires the continuous availability of flowers suitable for foraging and in quantities sufficient to sustain the colony throughout its duration (spring through summer), as well as sites suitable for colony nesting and for overwintering of the new queens. Preferred foraging plants include milkweeds (*Asclepias* spp.), phacelias (*Phacelia* spp.), sages (*Salvia* spp.), vetches (*Vicia* spp.), deerweed (*Acmispon glaber*), lupines (*Lupinus* spp.), and poppies (*Eschscholzia* spp.) (Robert Thorpe et al., 1983, Bumble Bees and Cuckoo Bumble Bees of California). Usually nests underground in abandoned rodent burrows but may also nest in similar environments such as cavities in fallen logs, thatched grasses, or rock piles (California Department of Fish and Wildlife, Survey Considerations for California Endangered Species Act [CESA] Candidate Bumble Bee Species). Overwintering habitat is poorly understood and therefore CDFW does not recommend surveys for it. Sloping areas insulated with moss or leaf litter under trees have been found to support overwintering gynes (ibid.).	Spring and summer	**Not expected.** The BSA does not contain ideal foraging habitat in the form of scrub or grasslands with high floral diversity.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Branchinecta lynchi **Vernal pool fairy shrimp**	US: FT CA: SA	Vernal pools and similar features in unplowed grassland areas. Pools must contain water continuously for at least 18 days in all but the driest years to allow for reproduction. Known from the Central Valley and adjacent foothill areas, the central coast and south coast ranges, from the transverse ranges near Santa Clarita, from the Santa Rosa Plateau, Skunk Hollow, and the Stowe Road vernal pool west of Hemet in Riverside County, and from northwest San Diego County. Occurs at up to about 700 meters (2,300 feet) in elevation in areas north of Kern County and at up to 1,700 meters (5,600 feet) in elevation in areas to the south.	Seasonally following rains; typically, January through April	**Not expected:** No suitable habitat (vernal pools) is present within the BSA.
Amphibians				
Spea hammondii **Western spadefoot**	US: FPT CA: SSC	Grasslands and occasionally hardwood woodlands; largely terrestrial but requires rain pools or other ponded water persisting at least 3 weeks for breeding; burrows in loose soils during dry season. Occurs in the Central Valley and adjacent foothills, the non-desert areas of southern California, and Baja California.	Primarily October through April (following onset of winter rains)	**Not expected:** No suitable habitat (ponded water persisting at least 3 weeks) is present within the BSA.
Reptiles				
Actinemys pallida **Southwestern pond turtle**	US: FPT CA: SSC	Inhabits permanent or nearly permanent water from central California to northwestern Baja California. Absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries. Requires basking sites such as partially submerged logs, rocks, or open mud banks.	Year-round with reduced activity November through March	**Not expected:** No suitable habitat (permanent water) is present within the BSA.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Anniella stebbinsi **Southern California legless lizard**	US: – CA: SSC	Inhabits sandy or loose loamy soils with high moisture content under sparse vegetation. Found primarily in cismontane southern California from Santa Barbara County to northwestern Baja California, with a few outlying populations in the deserts of southern California.	Nearly year-round, at least in southern areas	**Not expected:** No suitable habitat (loose loamy soils with high moisture content under sparse vegetation or cismontane habitat) is present within the BSA.
Arizona elegans occidentalis **California glossy snake**	US: – CA: SSC	Scrub and grassland habitats, often with loose or sandy soils. Patchily distributed from the eastern portion of San Francisco Bay area to southern San Joaquin Valley and in non-desert areas of southern California. Also occurs in Baja California.	Most active March through June (nocturnal)	**Low:** Marginally suitable habitat (grassland habitat with sandy soils) is present within the BSA.
Aspidoscelis hyperythra **Orange-throated whiptail**	US: - CA: SA	Prefers washes and other sandy areas with patches of brush and rocks, in chaparral, coastal sage scrub, juniper woodland, and oak woodland from sea level to 915 meters (3,000 feet) in elevation. Perennial plants required. Occurs in Riverside, Orange, and San Diego Counties west of the crest of the Peninsular Ranges, in extreme southern San Bernardino County near Colton, and in Baja California.	March through July with reduced activity August through October	**Low:** Marginally suitable habitat (sandy areas) is present within the BSA.
Crotalus ruber **Red-diamond rattlesnake**	US: - CA: SSC	Desert scrub, thornscrub, open chaparral and woodland; occasional in grassland and cultivated areas. Prefers rocky areas and dense vegetation. Morongo Valley in San Bernardino and Riverside Counties to the west and south into Baja California.	Primarily mid-spring through mid-fall	**Low:** Marginally suitable habitat (non-native grassland) is present within the BSA.
Phrynosoma blainvillii **Coast horned lizard**	US: – CA: SSC	Primarily in sandy soil in open areas, especially washes and floodplains, in many plant communities. Requires open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants or other insects.	Primarily April through July with reduced activity August through October	**Low:** Marginally suitable habitat (sandy soil) is present within the BSA.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
		Occurs west of the deserts from northern Baja California north to Shasta County below 2,400 meters (8,000 feet) in elevation.		
Birds				
Aimophila ruficeps canescens **Southern California rufous-crowned sparrow**	US: – CA: SA	Dry, open, rocky hillsides with scattered shrubs.	Year-round	**Low:** Marginally suitable habitat (dry open habitat) is present within the BSA.
Aquila chrysaetos (nesting & wintering) **Golden eagle**	US: – CA: SFP	Generally open country of the Temperate Zone worldwide. Nesting primarily in rugged mountainous country. Uncommon resident in southern California.	Year-round	**Not expected:** No suitable nesting habitat (rugged mountainous area) is present within the BSA.
Artemisiospiza belli belli **Bell's sparrow**	US: – CA: SA	Occupies chaparral and coastal sage scrub from west central California to northwestern Baja California.	Year-round	**Not expected:** No suitable nesting habitat (chaparral and coastal sage scrub) is present within the BSA.
Athene cunicularia hypugaea (burrow sites & some wintering sites) **Burrowing owl**	US: - CA: SSC/SPE	Open, treeless areas with low, sparse vegetation, usually on flat or gently sloping terrain, including grasslands, sparse scrub (cover less than 30 percent), farmland, airfields, airports, road embankments, cemeteries, urban vacant lots, desert areas, and other open habitat. They usually occupy ground squirrel burrows but may also utilize man-made structures such as culverts or debris piles, usually temporarily.	Year-round	**Moderate**: Suitable habitat (open, treeless areas with low, sparse vegetation) is present within the BSA.
Buteo regalis (wintering) **Ferruginous hawk**	US: – CA: SA	Forages in open fields, grasslands and agricultural areas, sagebrush flats, desert scrub, fringes of pinyon-juniper habitats, and other open country in western North America. Breeds in south-central Canada and the interior of the western United States. Winters primarily in the southwestern quadrant of	Mid-September through mid-April	**Moderate**: Suitable foraging habitat (open fields, grasslands and agricultural areas) is present within the BSA.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
		the United States south to central Mexico.		
Eremophila alpestris actia **California horned lark**	US: – CA: SA	Open grasslands and fields, agricultural area, open montane grasslands. This subspecies is resident from northern Baja California northward throughout non-desert areas to Humboldt County, including the San Joaquin Valley and the western foothills of the Sierra Nevada (north to Calaveras County). Prefers bare ground such as plowed or fall-planted fields for nesting, but may also nest in marshy soil. During the breeding season, this is the only subspecies of horned lark in non-desert southern California; however, from September through April or early May, other subspecies visit the area.	Year-round interior (inland areas)	**Moderate**: Suitable habitat (grasslands and fields, agricultural area) is present within the BSA.
Lanius ludovicianus (nesting) **Loggerhead shrike**	US: – CA: SSC (breeding)	Prefers open habitats with scattered small trees and with fences, utility lines, or other perches. Inhabits open country with short vegetation, pastures, old orchards, cemeteries, golf courses, riparian areas, and open woodlands. Highest density occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Occurs only rarely in heavily urbanized areas, but often found in open cropland. Found in open country in much of North America.	Year-round	**Moderate**: Suitable habitat (open habitats with scattered small trees and with fences, utility lines, or other perches) is present within the BSA.
Polioptila californica californica **Coastal California gnatcatcher**	US: FT CA: SSC	Inhabits coastal sage scrub in low-lying foothills and valleys up to about 500 meters (1,640 feet) in elevation in cismontane southwestern	Year-round	**Not expected:** No suitable nesting habitat (coastal sage scrub in low-lying foothills and valleys)

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
		California and northwestern Baja California.		is present within the BSA.
Vireo bellii pusillus **Least Bell's vireo**	US: FE CA: SE	Riparian forests and willow thickets. The most critical structural component of least Bell's vireo habitat in California is a dense shrub layer 2 to 10 feet (0.6–3.0 meters) above ground. Willows usually dominant. Nests from central California to northern Baja California Sur. Winters primarily in Baja California Sur.	March through September	**Not expected:** No suitable nesting habitat (riparian forests and willow thickets) is present within the BSA.
Mammals				
Chaetodipus californicus femoralis **Dulzura pocket mouse**	US: – CA: SA	Found in a variety of habitats including coastal sage scrub, chaparral and grassland in northern Baja California, San Diego and extreme southwestern and western Riverside Counties. Limit of range to northwest (at interface with C. c. dispar) unclear.	Year-round	**Low:** Marginally suitable habitat (non-native grassland) is present within the BSA.
Dipodomys merriami parvus **San Bernardino kangaroo rat**	US: FE CA: SE	Gravelly and sandy soils of alluvial fans, braided river channels, active channels and terraces; San Bernardino Valley (San Bernardino County) and San Jacinto Valley (Riverside County). In San Bernardino County, this species occurs primarily in the Santa Ana River and its tributaries north of Interstate 10, with small remnant populations in the Etiwanda alluvial fan, the northern portion of the Jurupa Mountains in the south Bloomington area, and in Reche Canyon. In Riverside County, this species occurs along the San Jacinto River east of approximately Sanderson Avenue, and along Bautista Creek. Remnant populations may also occur within Riverside County in	Nocturnal; active year-round	**Not expected:** The BSA is out of the species known range.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
		Reche Canyon, San Timoteo Canyon, Laborde Canyon, the Jurupa Mountains, and the Santa Ana River Wash north of State Route 60.		
Dipodomys stephensi **Stephens' kangaroo rat**	US: FT CA: ST	Found in plant communities transitional between grassland and coastal sage scrub, with perennial vegetation cover of less than 50%. Most commonly associated with *Artemisia tridentata*, *Eriogonum fasciculatum*, and *Erodium*. Requires well-drained soils with compaction characteristics suitable for burrow construction (neither sandy nor too hard). Not found in soils that are highly rocky or sandy, less than 20 inches deep, or heavily alkaline or clay, or in areas exceeding 25 percent slope. Occurs only in western Riverside County, northern San Diego County, and extreme southern San Bernardino County, below 915 meters (3,000 feet) in elevation. In northwestern Riverside County, known only from east of I-15. Reaches its northwest limit in south Norco, southeast Riverside, and in the Reche Canyon area of Riverside County and extreme southern San Bernardino County.	Year-round; nocturnal	**Not expected:** No suitable nesting habitat (communities transitional between grassland and coastal sage scrub) is present within the BSA.
Eumops perotis californicus **Western mastiff bat**	US: – CA: SSC	In California, most records are from rocky areas at low elevations and from buildings. Occurs in many open, semiarid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in vertical cliff faces, high buildings, trees, and tunnels throughout	Year-round; nocturnal	**Low**. Suitable foraging habitat (non-native grassland) is present within the BSA.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
		southwestern California. May roost in tall bridges. Has been documented in palms. This species regularly forages approximately 100–200 feet above the ground and has been estimated to forage at altitudes as high as 2,000 feet above the substrate. Likely forages considerable distances from roosting sites. The diet consists primarily of moths (Lepidoptera), but also includes beetles, crickets, and katydids. Nonmigratory; present year-round in southern California.		
Lasiurus xanthinus **Western yellow bat**	US: – CA: SSC	Found mostly in desert and desert riparian areas of the southwest US, but also expanding its range with the increased usage of native and non-native ornamental palms in landscaping. Individuals typically roost amid dead fronds of palms but have also been documented roosting in cottonwood trees. Forages over many habitats.	Year-round; nocturnal	**Low**. Suitable foraging habitat is present within the BSA.
Onychomys torridus ramona **Southern grasshopper mouse**	US: – CA: SSC	Believed to inhabit sandy or gravelly valley floor habitats with friable soils in open and semi-open scrub, including coastal sage scrub, mixed chaparral, low sagebrush, riparian scrub, and annual grassland with scattered shrubs, preferring low to moderate shrub cover. More susceptible to small- and large-scale habitat loss and fragmentation than most other rodents, due to its low fecundity, low population density, and large home range size. Arid portions of southwestern California and northwestern Baja California.	Nocturnal; active year-round	**Low:** Marginally suitable habitat (sandy valley floor) is present within the BSA.

Special-Status Species Summary

Species (Current Name)	Status	Habitat and Distribution	Activity Period in California	Occurrence Probability
Perognathus longimembris brevinasus **Los Angeles pocket mouse**	US: – CA: SSC	Prefers sandy soil for burrowing but has been found on gravel washes and stony soils. Found in coastal sage scrub in Los Angeles, Riverside, and San Bernardino Counties.	Nocturnal; active late spring to early fall	**Low:** Marginally suitable habitat (sandy soil) is present within the BSA.

US: Federal Classifications
– No applicable classification.
FE Taxa federally listed as Endangered.
FT Taxa federally listed as Threatened.
FPE Taxa federally listed as Proposed Endangered.
FPT Taxa federally listed as Proposed Threatened.

CA: State Classifications
– No applicable classification.
SE Taxa State listed as Endangered.
ST Taxa State listed as Threatened.
SPE Taxa State listed as Proposed Endangered.
SPT Taxa State listed as Proposed Threatened.
SFP Taxa State listed as fully protected.
SSC California Species of Special Concern. Refers to animals with vulnerable or seriously declining populations.
SCE Candidate for State-listing as Endangered.
SA Special Animal. Refers to any other animal monitored by the Natural Diversity Database, regardless of its legal or protection status.
1B California Rare Plant Rank 1B: Rare, threatened, or endangered in California and elsewhere.
2B California Rare Plant Rank 2B: Rare, threatened, or endangered in California, but more common elsewhere.
3 California Rare Plant Rank 3: A review list of plants about which more information is needed.
4 California Rare Plant Rank 4: A watch list of plants of limited distribution.

BSA = biological study area

KRIEGER & STEWART
Engineering Consultants

TECHNICAL MEMORANDUM NO. 3

TO: FERMIN BALVANEDA
EASTERN MUNICIPAL WATER DISTRICT

FILE: 491-140.5.1

FROM: PHILIP E. STROM
SINISA SARIC
BRANDON C. VALADEZ
KRIEGER & STEWART, INCORPORATED

DATE: 10/1/2021

SUBJECT: MATTHEWS BOOSTER PUMPING STATION AND PIPELINE PROJECT
PIPELINE GEOTECHNICAL REPORT

This Technical Memorandum (TM) is provided to summarize the geotechnical requirements for the proposed Matthews Booster Pumping Station (BPS) Transmission Pipeline.

DRAFT

A. INTRODUCTION

The proposed Matthews BPS Transmission Pipeline consists of two segments connecting to the 1720L Longview PZ: a 30" diameter pipeline and 24" diameter pipeline. The 30" pipeline will begin at the Matthews BPS site and leave the site due east to Antelope Road. Once in Antelope Road, the 30" pipeline will turn and head north to Watson Road where the pipeline will turn and head east and connect to the 1720L PZ near the existing Watson BPS. The 24" pipeline will connect to the 30" pipeline at the intersection of Watson Road and Menifee Road and head north in Menifee Road to connect to the 1720L PZ near the existing Vista BPS. Both the 30" and 24" pipelines are shown on **Figure 1** attached.

Leighton Consulting, Inc. (Leighton) performed fourteen (14) exploratory borings to a maximum depth of 15' below ground surface (BGS) along the pipeline alignment at approximately 1,000' intervals (Borings LB-04 through LB-17). One (1) exploratory boring was performed at the proposed Matthews BPS site to a depth of 35' BGS (LB-01) and two (2) exploratory borings were performed for the proposed bore and jack for crossing the railroad and Highway 74 adjacent to the existing Romoland BPS (one (1) exploratory boring for the proposed bore and jack pit to a depth of 50' BGS (LB-02) and one (1) exploratory boring for the proposed receiving pit to a depth of 35' BGS (LB-03)). Approximate locations of the exploratory borings are shown on **Figure 1** attached.

Shipping/Mailing Address: 3890 Orange Street #1509, Riverside, CA 92502
Office Location: 3602 University Avenue, Riverside, CA 92501
Tel: (951) 684-6900 • Fax: (951) 684-6986 • www.kriegerandstewart.com

B. SUMMARY OF GEOTECHNICAL EXPLORATION FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Leighton's Geotechnical Exploration Report (Report) is attached in **Appendix A**. The Report provides design criteria and recommendations for trench excavations, temporary shoring, pipe subgrade, pipe bedding, trench backfill, import soils, bearing capacity, earth pressures, soil parameters for pipe structural design, external pipe loads, and trenchless excavations (i.e. bore and jack). The Report also includes corrosivity data for use by the project corrosion engineer for preparing the corrosion analysis report. Based on their exploration and analysis, Leighton considers construction of the proposed pipeline feasible using standard construction techniques, except for a short segment of the alignment that is underlain by bedrock.

Groundwater was not encountered in any of the exploratory borings. Subsurface materials along the 30" pipeline alignment in Antelope Road and Watson Road, and along the 24" pipeline alignment in Menifee Road from Watson Road to Mapes Road, include artificial fill and dense alluvial deposits, which Leighton has classified as OSHA Soil Type C. Subsurface materials in Menifee Road north of Mapes Road is weathered granitic bedrock, which Leighton has classified as OSHA Soil Type B. Although bedrock was encountered north of Mapes Road, Leighton anticipates that the bedrock can be excavated with a Caterpillar 235 trackhoe or similar (e.g. 40-ton, 200 horsepower excavator) within the upper 10' BGS since the bedrock is "weathered". However, Leighton states that non-weathered core-stones should be anticipated within the upper 5' BGS, in which case rock-ripping, blasting, or other rock-reducing techniques may be required.

The proposed pipeline will be installed within existing paved roadways or outside existing roadways in dirt shoulders. As a minimum, existing pavement should be replaced in kind plus 1" additional thickness over 8" of aggregate base.

DRAFT

BCV/blt
REPORTS/491-140P5P1-TM3

cc: David Ahles, Eastern Municipal Water District

Attachments: Figure 1 - 30" and 24" Pipeline Alignments and Geotechnical Boring Locations
Appendix A - Leighton Geotechnical Exploration Report

Leighton Consulting, Inc.
A Leighton Group Company

September 27, 2021

Project No. 12847.001

KRIEGER & STEWART, INC.
3602 University Avenue
Riverside, California 92501

Attention: Mr. Brandon C. Valadez, PE

Subject: Geotechnical Exploration
Matthews Booster Pump Station and Pipeline Project
Eastern Municipal Water District (EMWD)
Menifee, Riverside County, California

In accordance with your authorization, we performed a geotechnical exploration for the subject project. **This report presents our findings and provides our geotechnical recommendations for the design and construction of the proposed pipeline**. Based on the results of our exploration, the proposed pipeline alignment is underlain by dense alluvial deposits. Weathered granitic bedrock is expected within a shallow depth (<15 feet BGS) north of Mapes Road. The pipeline alignment is not located within any currently designated County or AP Earthquake Fault Zones. Groundwater was not encountered in any of our borings within the depth explored. From a geotechnical perspective, the constructability of the proposed pipeline is considered feasible provided the recommendations included in this report are implemented.

The opportunity to be of service is sincerely appreciated. If you should have any questions, please do not hesitate to call our office.

Respectfully submitted,

LEIGHTON CONSULTING, INC.

Simon I. Saiid, GE 2641
Principal Engineer
Ext. 8013 ssaiid@leightongroup.com

Robert F. Riha, CEG 1921
President/Senior Principal Geologist
Ext. 8914 rriha@leightongroup.com

Distribution: (1) Addressee (PDF copy via email)

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1.0 INTRODUCTION

1.1 Site/Alignment Description

The proposed pipeline is generally located within the Right-Of-Way's (ROW) of Antelope Road, Watson Road, and Menifee Road as depicted on Figure 1, *Site Location Map*. The surrounding areas along the proposed pipeline generally consist of residential homes and undeveloped land. The first segment of the pipeline alignment begins at the intersection of Antelope Road and Ethanac Road near the existing Booster Pump Station (BPS) and continues north approximately 2800 feet to the intersection of Antelope Road and Watson Road. The second segment then runs east along Watson Road for approximately 7000 feet to the Watson Booster Station located approximately 1600 feet east of Menifee Road. The third segment begins at the intersection of Menifee Road and Watson Road and extends north along Menifee Road for approximately 5300 feet to the intersection of Mountain Avenue. The overall topography along the alignment is relatively flat with very gentle slope up to the north and east.

1.2 Project Description

Based on information provided, we understand that EMWD is planning to install approximately 9,800 lineal feet (LF) of 30" water pipelines along the proposed alignment along Antelope Road and Watson Road, and approximately 5,300 LF of 24" pipe along Menifee Road. It is anticipated that this pipeline will be installed at approximately 5 to 7 feet below ground surface (BGS). We also expect a trenchless excavation method/jack-and-bore to be used for crossing Highway 74 and existing railroad tracks as well as for crossing Menifee Road at Watson Road.

1.3 Purpose and Scope of Exploration

The purpose of our exploration is to (1) evaluate geotechnical engineering characteristics of the earth materials along the proposed alignment, and (2) provide geotechnical recommendations for design and construction of the proposed project. As described in our proposal, the scope of our evaluation included the following tasks:

- Field Exploration: Our field exploration consisted of seventeen (17) hollow stem auger borings drilled along or as close as practical to the proposed alignment.
- Geotechnical Laboratory Tests: Geotechnical laboratory tests were performed on selected soil samples collected during our field exploration.

2.0 SUMMARY OF GEOTECHNICAL FINDINGS

A summary of our findings from research of pertinent literature, site-specific field exploration, geotechnical laboratory testing and engineering analysis, is discussed in this section.

2.1 Regional Geology

As shown on Figure 2, *Regional Geology Map*, the proposed pipeline alignment is underlain by Quaternary Alluvial Deposits (Qof) from LB-1 through LB-15, and weathered Cretaceous Tonalite bedrock (Klmt) north of LB-15. These conditions were confirmed in our exploratory borings.

2.2 Subsurface Conditions

The subsurface soils conditions along the proposed alignment vary depending on location and depth. Detailed descriptions of the earth materials encountered are provided in Appendix A.

2.2.1. Artificial Fill (Af)

Some of our borings encountered artificial fill as typical embankment fill associated with existing roadways. The fill generally consists of silty sand materials (SM) and is expected to be less than 2 feet in thickness. Where our borings penetrated existing asphalt, the measured thickness of asphaltic concrete and aggregate base layers are listed in Table 1 below.

Table 1. Existing Pavement Thickness

Boring #	Location (see Figure 4)	Approx. AC Thickness (Inch)	Approx. Aggregate Base Thickness (Inch)
LB-3	Antelope Road	3.5	No Base
LB-4	Antelope Road	8.0	No Base
LB-5	Antelope Road	5.0	No Base
LB-6	Watson Road	3.0	7.0
LB-7	Watson Road	5.0	8.0
LB-8	Watson Road	3.0	No Base
LB-9	Watson Road	4.0	No Base
LB-10	Watson Road	3.0	No Base

2.2.2. Quaternary Alluvium

Quaternary old alluvial materials were encountered beneath the artificial fill in all borings. This alluvium is generally dense to very dense and consist of

3.0 RECOMMENDATIONS

3.1 General

The proposed improvements appear feasible from a geotechnical viewpoint provided that the following recommendations are incorporated into the design and construction phases of development. Based on the results of this geotechnical exploration, the main geologic/geotechnical concerns that may affect the constructability cost the proposed pipeline are as follows:

- Trench excavation is likely to encounter shallow rock (upper 10 feet) in the northern portion of the pipeline (~north of Mapes Road). This granitic diorite bedrock will vary in weathering, hardness and density depending on depth and location.
- Transition subgrade from bedrock to alluvium is likely to occur along the northern portion of the alignment and potentially cause excessive differential settlement. In such case, we recommend that the rock side be over-excavated to a depth of at least 12 inches below trench subgrade for a distance of 30 feet and replaced by compacted class II aggregate base or properly compacted granular soils approved by the geotechnical consultant.

3.2 Earthwork Considerations

Earthwork associated with the proposed pipelines should be performed in accordance with applicable EMWD Specifications, “Standard Specifications for Public Works Construction” (Greenbook, latest edition) and the recommendations included in the text of this report.

3.2.1. General

Trench excavation should be performed in accordance with the project plans, specifications, and all applicable OSHA requirements. The contractor should be responsible for providing the "competent person" required by OSHA standards. Contractors should be advised that onsite sandy soils could make excavations particularly unsafe and hence necessary safety precautions should be taken at all times.

3.2.2. Excavation Characteristics

Based on the results of our exploratory borings, the encountered artificial fill and alluvium should generally be excavatable with conventional heavy duty earthmoving/excavation equipment in good working conditions. However, as discussed above, trench excavation is likely to encounter shallow rock (upper 10 feet) in the northern portion of the pipeline (~north of Mapes Road). Although no correlations are published for typical trench excavation

4.0 CONSTRUCTION CONSIDERATIONS

4.1 Pre-excavation Survey and Settlement Monitoring

A very important geotechnical concern is to avoid damaging any existing improvements adjacent to excavations. It is recommended that the contractor provide settlement monitoring and contingency plans when excavating near existing settlement-sensitive structures or underground utilities.

4.2 Dewatering during Open Trench Excavation

If encountered during trench excavation, groundwater control, such as dewatering, will be required to limit instability of the pipeline trench and aid in foundation construction and soil backfill. Dewatering or any other suitable method for stabilizing excavation bottom may be selected by the contractor based on actual groundwater conditions encountered and based on the contractor's chosen means-and-methods of construction. The selected method by the contractor should be able to effectively mitigate for bottom heave or stabilize subgrade soils during construction/backfilling. However, deep groundwater drawdown should be avoided, to reduce the potential for damaging adjacent structures, if applicable. Dewatering flow/volume will vary significantly based on the specific geologic conditions described in our report and actual depth and geometry of excavated trench or pit. Contractors should be responsible for estimating dewatering quantities and verify subsurface conditions prior to construction.

4.3 Trenchless Excavation/Shafts

This construction method is presumably feasible from a geotechnical perspective, within encountered alluvial soils. However, the contractor should (1) review our findings to confirm that the selected excavation technique is feasible, and (2) perform additional studies as deemed necessary to evaluate such technique and the effect of groundwater seepage / saturated sand. If applicable, passive earth pressure developed at the jacking reaction block may provide support during pipe jacking operations. The ultimate resistance for design of jacking reaction block(s) may be assumed to be 300 pcf at level undisturbed alluvium, which can be doubled for isolated thrust vectors. However, some deformation will occur, and thrusting could result in heave and damage to overlying structures in the direction of the thrust vector.

5.0 LIMITATIONS

This report was necessarily based in part upon data obtained from a limited number of observances, site visits, soil samples, tests, analyses, histories of occurrences, spaced subsurface explorations and limited information on historical events and observations. Such information is necessarily incomplete. The nature of many sites is such that differing characteristics can be experienced within small distances and under various climatic conditions. Changes in subsurface conditions can and do occur over time. This exploration was performed with the understanding that the project as described in Section 1.2 of this report.

This report was prepared for Krieger & Stewart, Inc. based on Krieger & Stewart, Inc.'s needs, directions, and requirements at the time of our investigation. This report is not authorized for use by, and is not to be relied upon by any party except Krieger & Stewart, Inc., and its successors and assigns as owner of the property, with whom Leighton Consulting, Inc. has contracted for the work. Use of or reliance on this report by any other party is at that party's risk. Unauthorized use of or reliance on this report constitutes an agreement to defend and indemnify Leighton Consulting, Inc. from and against any liability which may arise as a result of such use or reliance, regardless of any fault, negligence, or strict liability of Leighton Consulting, Inc.

The client is referred to Appendix C regarding important information provided by the Geoprofessional Business Association (GBA) on geotechnical engineering studies and report and their applicability.

One-Dimensional Swell or Settlement Potential of Cohesive Soils

(ASTM D 4546) -- Method 'B'

Leighton

Project Name:	EMWD Matthews BPS & Pipeline	Tested By:	M. Vinet	Date:	7/7/21
Project No.:	12847.001	Checked By:	M. Vinet	Date:	7/14/21
Boring No.:	LB-5	Sample Type:	IN SITU		
Sample No.:	R-2	Depth (ft.)	5.0		

Sample Description: Silty Sand (SM), Brown.

Source and Type of Water Used for Inundation: Arrowhead (Distilled)

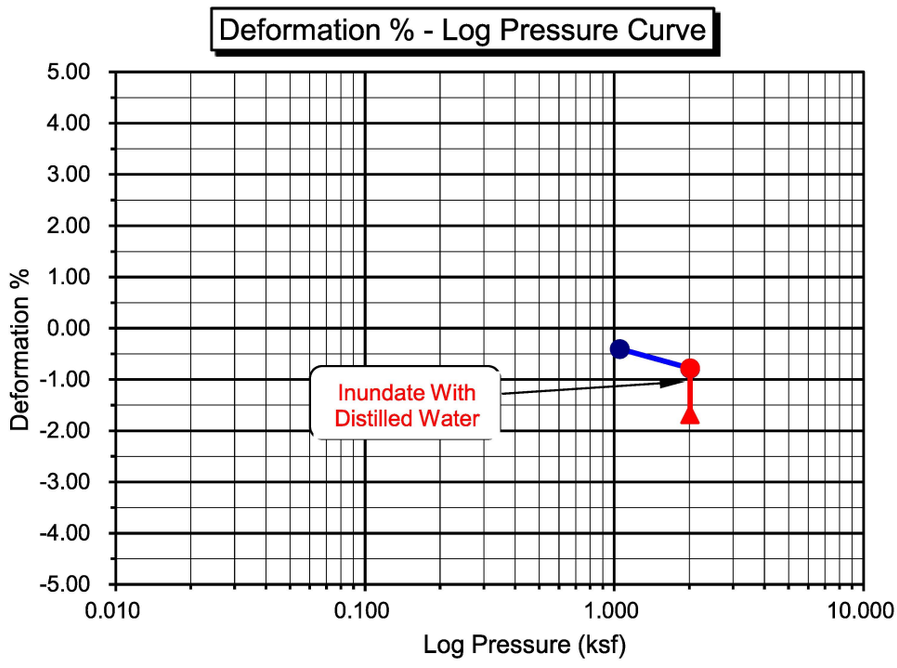
** Note: Loading After Wetting (Inundation) not Performed Using this Test Method.

Initial Dry Density (pcf):	120.1
Initial Moisture (%):	11.0
Initial Height (in.):	1.0000
Initial Dial Reading (in):	0.0000
Inside Diameter of Ring (in):	2.416

Final Dry Density (pcf):	122.1
Final Moisture (%) :	13.4
Initial Void ratio:	0.4037
Specific Gravity (assumed):	2.70
Initial Degree of Saturation (%):	73.3

Pressure (p) (ksf)	Final Reading (in)	Apparent Thickness (in)	Load Compliance (%)	Swell (+) Settlement (-) % of Sample Thickness	Void Ratio	Corrected Deformation (%)
1.050	0.0040	0.9960	0.00	-0.40	0.3981	-0.40
2.013	0.0078	0.9922	0.00	-0.78	0.3928	-0.78
H2O	0.0168	0.9832	0.00	-1.68	0.3802	-1.68

Percent Swell / Settlement After Inundation = -0.91



Leighton

One-Dimensional Swell or Settlement Potential of Cohesive Soils

(ASTM D 4546) -- Method 'B'

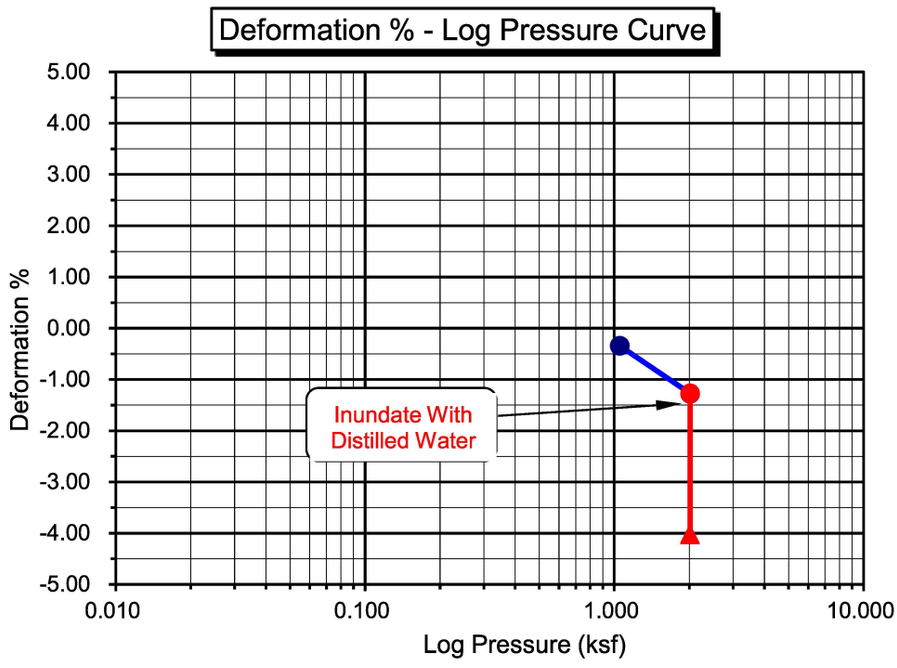
Project Name: EMWD Matthews BPS & Pipeline | Tested By: M. Vinet | Date: 7/7/21
Project No.: 12847.001 | Checked By: M. Vinet | Date: 7/14/21
Boring No.: LB-9 | Sample Type: IN SITU
Sample No.: R-2 | Depth (ft.) 5.0
Sample Description: Silty Sand (SM), Dark Brown.
Source and Type of Water Used for Inundation: Arrowhead (Distilled)
** Note: Loading After Wetting (Inundation) not Performed Using this Test Method.

Initial Dry Density (pcf):	114.3
Initial Moisture (%):	8.2
Initial Height (in.):	1.0000
Initial Dial Reading (in):	0.0000
Inside Diameter of Ring (in):	2.416

Final Dry Density (pcf):	119.1
Final Moisture (%) :	12.7
Initial Void ratio:	0.4752
Specific Gravity (assumed):	2.70
Initial Degree of Saturation (%):	46.4

Pressure (p) (ksf)	Final Reading (in)	Apparent Thickness (in)	Load Compliance (%)	Swell (+) Settlement (-) % of Sample Thickness	Void Ratio	Corrected Deformation (%)
1.050	0.0034	0.9966	0.00	-0.34	0.4702	-0.34
2.013	0.0127	0.9873	0.00	-1.27	0.4565	-1.27
H2O	0.0403	0.9597	0.00	-4.03	0.4158	-4.03

Percent Swell / Settlement After Inundation = -2.80



One-Dimensional Swell or Settlement Potential of Cohesive Soils

(ASTM D 4546) -- Method 'B'

Leighton

Project Name:	EMWD Matthews BPS & Pipeline		Tested By:	M. Vinet	Date: 7/7/21
Project No.:	12847.001		Checked By:	M. Vinet	Date: 7/14/21
Boring No.:	LB-12		Sample Type:	IN SITU	
Sample No.:	R-3		Depth (ft.)	10.0	

Sample Description: Silty Sand (SM), Dark Yellowish Brown.

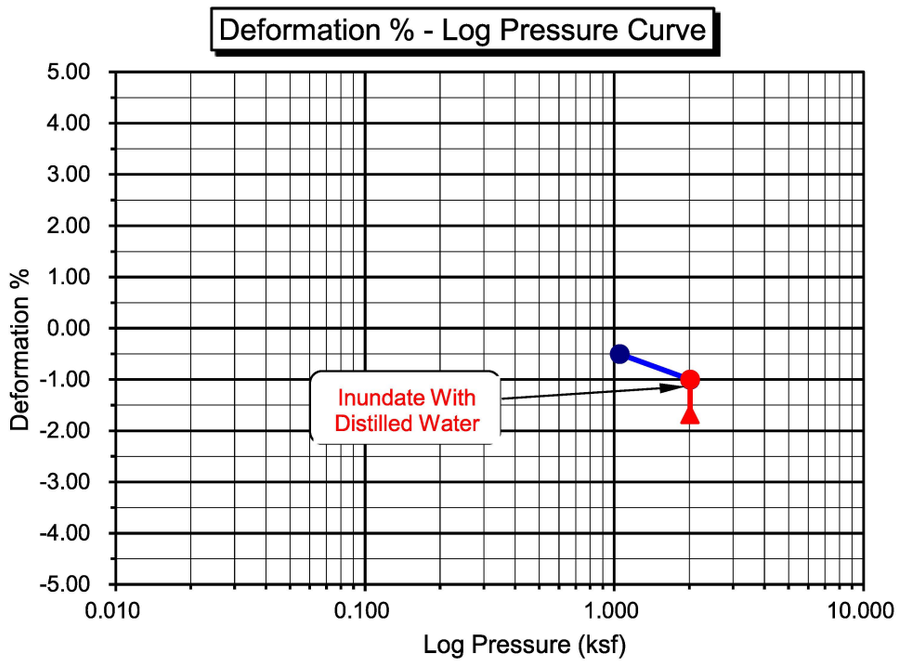
Source and Type of Water Used for Inundation: Arrowhead (Distilled)

** Note: Loading After Wetting (Inundation) not Performed Using this Test Method.

Initial Dry Density (pcf):	114.0	Final Dry Density (pcf):	116.0
Initial Moisture (%):	8.9	Final Moisture (%) :	14.9
Initial Height (in.):	1.0000	Initial Void ratio:	0.4782
Initial Dial Reading (in):	0.0000	Specific Gravity (assumed):	2.70
Inside Diameter of Ring (in):	2.416	Initial Degree of Saturation (%):	50.1

Pressure (p) (ksf)	Final Reading (in)	Apparent Thickness (in)	Load Compliance (%)	Swell (+) Settlement (-) % of Sample Thickness	Void Ratio	Corrected Deformation (%)
1.050	0.0050	0.9950	0.00	-0.50	0.4708	-0.50
2.013	0.0100	0.9900	0.00	-1.00	0.4634	-1.00
H2O	0.0168	0.9832	0.00	-1.68	0.4534	-1.68

Percent Swell / Settlement After Inundation = -0.69



One-Dimensional Swell or Settlement Potential of Cohesive Soils

(ASTM D 4546) -- Method 'B'

Leighton

Project Name:	EMWD Matthews BPS & Pipeline	Tested By:	M. Vinet	Date:	7/7/21
Project No.:	12847.001	Checked By:	M. Vinet	Date:	7/14/21
Boring No.:	LB-16	Sample Type:	IN SITU		
Sample No.:	R-2	Depth (ft.)	5.0		

Sample Description: Silty Sand (SM), Brown.

Source and Type of Water Used for Inundation: Arrowhead (Distilled)

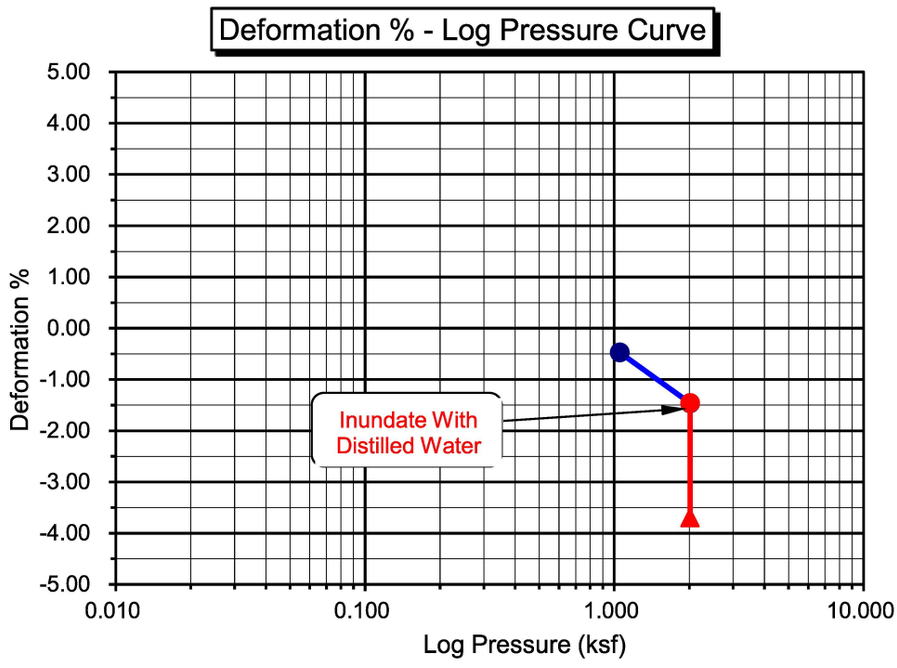
** Note: Loading After Wetting (Inundation) not Performed Using this Test Method.

Initial Dry Density (pcf):	106.0
Initial Moisture (%):	7.3
Initial Height (in.):	1.0000
Initial Dial Reading (in):	0.0000
Inside Diameter of Ring (in):	2.416

Final Dry Density (pcf):	110.0
Final Moisture (%) :	16.2
Initial Void ratio:	0.5909
Specific Gravity (assumed):	2.70
Initial Degree of Saturation (%):	33.4

Pressure (p) (ksf)	Final Reading (in)	Apparent Thickness (in)	Load Compliance (%)	Swell (+) Settlement (-) % of Sample Thickness	Void Ratio	Corrected Deformation (%)
1.050	0.0047	0.9953	0.00	-0.47	0.5834	-0.47
2.013	0.0146	0.9854	0.00	-1.46	0.5677	-1.46
H2O	0.0370	0.9630	0.00	-3.70	0.5320	-3.70

Percent Swell / Settlement After Inundation = -2.27



Leighton

SAND EQUIVALENT TEST

ASTM D 2419 / DOT CA Test 217

Project Name:	EMWD Matthews BPS & Pipeline	Tested By:	M. Vinet	Date:	7/13/21
Project No. :	12847.001	Computed By:	M. Vinet	Date:	7/13/21
Client:	Krieger & Stewart, Inc	Checked By:	M. Vinet	Date:	7/14/21

Boring No.	Sample No.	Depth (ft.)	Soil Description	T1	T2	T3	T4	R1	R2	SE	Average SE
LB-7	B-1	5	Silty Sand (SM)	10:00	10:10	10:12	10:32	12.7	1.4	12	**12**
				10:02	10:12	10:14	10:34	12.3	1.3	11	

T1 = Starting Time

T2 = (T1 + 10 min) Begin Agitation

T3 = Settlement Starting Time

T4 = (T3 + 20 min) Take Clay Reading (R1)

Sand Equivalent = R2 / R1 * 100

Record SE as Next Higher Integer

Leighton

SAND EQUIVALENT TEST

ASTM D 2419 / DOT CA Test 217

Project Name:	EMWD Matthews BPS & Pipeline	Tested By:	M. Vinet	Date:	7/13/21
Project No. :	12847.001	Computed By:	M. Vinet	Date:	7/13/21
Client:	Krieger & Stewart, Inc	Checked By:	M. Vinet	Date:	7/14/21

Boring No.	Sample No.	Depth (ft.)	Soil Description	T1	T2	T3	T4	R1	R2	SE	Average SE
LB-14	B-1	5	Silty Sand (SM)	10:04	10:14	10:16	10:36	13.1	1.9	15	**15**
				10:06	10:16	10:18	10:38	13.0	1.9	15	

T1 = Starting Time

T2 = (T1 + 10 min) Begin Agitation

T3 = Settlement Starting Time

T4 = (T3 + 20 min) Take Clay Reading (R1)

Sand Equivalent = R2 / R1 * 100

Record SE as Next Higher Integer

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

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GEOTECHNICAL UPDATE

Eastern Municipal Water District (EMWD)
Matthews/Romoland Booster Pump Station
City of Menifee, Riverside County, California

Prepared for:
Lee + Ro, Inc.
1199 S. Fullerton Road
City Of Industry, Ca 91748

Prepared by:
Verdantas
41715 Enterprise Circle N, Suite 103
Temecula, California 92590
951-296-0530

Verdantas Project No: 041.32115

June 2025

41715 Enterprise Circle N Suite 103
Temecula, CA 92590
+1 951.296.0530

June 12, 2025

Project No. 32115

Mr. Amritendu Maji, P.E
LEE + RO, Inc.
1199 S. Fullerton Road
City of Industry, CA 91748

Subject: **Geotechnical Exploration Report**
Matthews/Romoland Booster Pump Station
Eastern Municipal Water District (EMWD)
City of Menifee, Riverside County, California

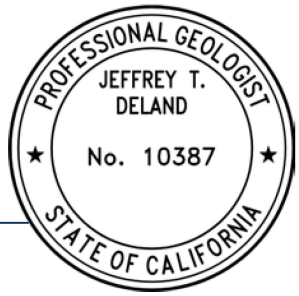
In accordance with your request, Verdantas Inc. (Verdantas, *formerly Leighton Consulting, Inc.*) is pleased to present herewith our update geotechnical report for the proposed water booster pump station (BPS) located west of the intersection of Antelope Road and Watson Road, in the City of Menifee, California.

Based on the results of this exploration, the proposed (BPS) is considered feasible from a geotechnical perspective. The site is generally underlain to the depth explored by dense older alluvial soils. These materials are expected to possess very low expansion potential and should be considered as CalOSHA Type C soils, so sloped excavations will be required to protect workers, if shoring and/or shields are not used.

The opportunity to be of service is sincerely appreciated. If you should have any questions, please do not hesitate to call our office.

Sincerely,

Verdantas Inc.



Jeffrey T. DeLand, PG
Project Geologist/PM
1 951.252.8015
jdeland@verdantas.com

Bashir S. Saiid, PE
Associate Engineer
1 951.252.8927
bsaiid@verdantas.com

Distribution: (1) Addressee (PDF via email)

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1. INTRODUCTION

1.1 Site Location and Description

As depicted on Figure 1, the proposed Booster Pump Station (BPS) is located northwest of the intersection of Antelope Road and Watson Road in the City of Menifee. The site of the BPS consists of one parcel that is rectangular in shape. This parcel has been designated Assessors Parcel Number (APN) 329-050-049. The site is currently vacant surrounded by residential homes. Site topography is relatively flat.

1.2 Project Description

Based on information provided, we understand that a new dual zone BPS will be constructed to replace the existing Romoland BPS and to service new water pipelines. A previous site was selected for this BPS, however, due to a logistic issue with the City of Menifee, a new site was selected. The project includes approximately 10,000 gallons per minute (gpm) and 12,700 gpm of ultimate pumping capacity for the Matthews BPS and Romoland BPS, respectively. Plans were not available as of the date of this report; however, we assume that the proposed improvements will also consist of a masonry block wall building for the BPS along with associated yard piping, and perimeter wall. Depth to pipe invert is anticipated to be approximately 10 feet below the existing ground surface while pump can depth is approximately 12 to 15 feet below the existing ground surface, based on the provided information.

1.3 Purpose and Scope of Exploration

The purpose of our exploration is to (1) evaluate geotechnical engineering characteristics of the earth materials at the proposed site, and (2) provide geotechnical recommendations for design and construction of the proposed booster station. The scope of our work included the following tasks:

- Background Review: We reviewed readily available, relevant, geotechnical/ geologic reports and maps pertinent to the project.
- Field Exploration: Our field exploration consisted of two (2) hollow stem auger borings drilled within the proposed booster station site to provide field data for geotechnical evaluation.
- Geotechnical Laboratory Tests: Geotechnical laboratory tests were performed on selected soil samples collected during our field exploration. This laboratory-testing program was designed to evaluate general physical and engineering characteristics of soil within the project site.
- Engineering Analysis: Data obtained from our background review, field exploration, and geotechnical laboratory testing programs was evaluated to develop geotechnical conclusions and recommendations for the proposed booster pump station.
- Report Preparation: Results of this exploration have been summarized in this report, presenting our findings, conclusions and recommendations.

This report does not address the potential for encountering hazardous materials. Important information about limitations of geotechnical reports, in general, is presented in Appendix D, *GBA Important Information About This Geotechnical Report*.

1.4 Field Exploration

Our field exploration consisted of the excavation of two (2) hollow stem auger borings to a maximum depth of 51.5 feet below ground surface (BGS) within designated areas of the site. During exploration, disturbed/bulk and relatively undisturbed samples were collected for further laboratory testing and evaluation. Approximate locations of these borings are depicted on the Boring Location Map (see Figure 3). Sampling and logging were conducted by staff from our firm. After logging and sampling, the excavations were loosely backfilled with spoils generated during excavation. The exploration logs are provided in Appendix A.

1.5 Laboratory Testing

Laboratory tests were performed on representative bulk samples to provide a basis for development of earthwork control and foundation design. The laboratory testing program included maximum density and moisture content relationship, expansion index, collapse/swell potential, corrosion suite, R-value, and sieve analysis. The results of our laboratory testing are presented in Appendix B.

2. SUMMARY OF GEOTECHNICAL FINDINGS

A summary of our findings from research of pertinent literature, previous site-specific field explorations, geotechnical laboratory testing and engineering analysis, is discussed in this section.

2.1 Regional Geology

The site is located within a prominent natural geomorphic province in southwestern California known as the Peninsular Ranges. It is characterized by steep, elongated ranges and valleys that trend northwestward. More specifically, the site is situated within the Perris Block, an eroded mass of Cretaceous and older crystalline rock.

The Perris Block, approximately 20 miles by 50 miles in extent, is bounded by the San Jacinto Fault Zone to the northeast, the Elsinore Fault Zone to the southwest, the Cucamonga Fault Zone to the northwest, and the Temecula Basin to the southeast. The southeast boundary of the Perris block is poorly defined. The Perris Block has had a complex tectonic history, apparently undergoing relative vertical land movements of several thousand feet in response to movement on the Elsinore and San Jacinto Fault Zones. Thin sedimentary materials locally mantle the crystalline bedrock and alluvial and colluvial deposits fill the lower valley areas.

2.2 Subsurface Conditions

Our field exploration indicates that the subject site is underlain by quaternary-aged older fan deposits overlain by a thin layer (<1') of artificial fill/disturbed soil. This older alluvium consists of dense to very dense silty sand (SM) and clayey sand (SC) as well as very hard sandy silt (ML). Based on laboratory testing, the shallow soils possess very low expansion potential (EI<21) and possess very slight potential for collapse (<1%). Detailed descriptions of the earth materials encountered in each excavation are provided in Appendix A.

2.3 Surface and Groundwater

No surface or groundwater was observed or encountered to a depth of 51.5 feet explored. Water elevation from monitoring wells within ½ mile of the site indicate that the historic high is approximately 1363 feet mean sea level (approximately 90 feet below ground surface). However, groundwater conditions can fluctuate seasonally and also be directly-impacted by other factors such as future adjacent irrigation, which does not exist at the time of our field explorations.

2.4 Faulting and Seismic Design Parameters,

The subject site, like the rest of Southern California, is located within a seismically active region as a result of being located near the active margin between the North American and Pacific tectonic plates. The principal source of seismic activity on this site is movement along the northwest-trending regional fault systems such as the Elsinore and San Jacinto fault zones. Based on our review of published geologic maps (CGS, 2018), the subject site is not included within an Earthquake Fault Zone as created by the Alquist-Priolo Earthquake Fault Zoning Act.

For the purpose of structural design, seismic coefficients based on the 2022 California Building Code (CBC) are provided below. Since this facility is water pump station, we anticipate this is an Essential Facility (Risk Category IV), and a site-specific seismic analysis is required (Site Class D). In accordance with CBC 2022 and ASCE 7-16, seismic coefficients are tabulated below. More detailed information and graphical output of our analysis is provided in Appendix C.

Table 1. CBC Site Categorization and Seismic Coefficients

CBC Categorization/Coefficient	Value
Site Longitude (decimal degrees)	-117.1727
Site Latitude (decimal degrees)	33.7508
Site Class Definition	D
Mapped Spectral Response Acceleration at 0.2s Period, S_s	1.43g
Mapped Spectral Response Acceleration at 1s Period, S_1	0.53g
Adjusted Spectral Response Acceleration at 0.2s Period, S_{MS}	1.43g
Adjusted Spectral Response Acceleration at 1s Period, S_{M1}	0.90g
Design Spectral Response Acceleration at 0.2s Period, S_{DS}	0.95g
Design Spectral Response Acceleration at 1s Period, S_{D1}	0.60g

g = Gravity acceleration

* Per Supplement 3 to ASCE 7-16, the seismic parameters S_{M1} and S_{D1} in Table 1 above should be increased by 50% (Site Class D). Alternatively, a site-specific ground motion hazard analysis in accordance with Section 21.2 of ASCE 7-16 is required for this site.

The results of this analysis also indicate that the modified Peak Ground Acceleration (PGAm) for this site is 0.55g (see Appendix C).

2.5 Secondary Seismic Hazards

Secondary hazards such as ground rupture, seiches and tsunamis, landsliding, rockfalls, ground fissuring and subsidence should be considered nil for this site.

2.5.1 Liquefaction Potential

The site is mapped by the County of Riverside as having a low liquefaction hazard. Due to the absence of shallow groundwater and dense silty and clayey sands, the potential for liquefaction is considered very low or not a geologic concern.

2.5.2 Seismically-Induced Settlement

Due to the dense nature of subsurface soils, the seismically-induced settlement resulting from seismic loading is estimated to be less-than (<) 1-inch. Differential settlement resulting from seismic loading is assumed to be less than 0.5-inch over a distance of 40 feet. Seismic settlement is not considered a geotechnical constraint to the project, particularly for a buried vault and conduits.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 General

The proposed water booster pump station appears feasible from a geotechnical viewpoint provided that the following recommendations are incorporated into the design and construction phases of development. Due to the subsurface consisting of silty sand, the soils encountered may be considered CalOSHA Type C soils, and sloped excavations will be required to protect workers, if shoring and/or shields are not used.

3.2 Earthwork Considerations

Earthwork associated with the proposed booster pump station should be performed in accordance with applicable EMWD Specifications, “Standard Specifications for Public Works Construction” (Greenbook, latest edition) and the recommendations included in the text of this report.

3.2.1 Excavation Characteristics

Based on the results of our exploratory borings, the onsite alluvium should generally be easy to excavate with conventional earthmoving excavation equipment. Excavation should be performed in accordance with the project plans, specifications, and all applicable OSHA requirements. The contractor should be responsible for providing the "competent person" required by OSHA standards. Contractors should be advised that onsite sandy soils could make excavations particularly unsafe and hence necessary safety precautions should be taken at all times.

3.2.2 Subgrade Preparation – Pipelines

Prior to pipe installation, the subgrade should be firm, uniform, and free of standing water, loose materials and then properly compacted to provide uniform seating and support to the entire section of the pipe placed on bedding material. Oversize particles larger than 2-inches in largest dimension should be removed from the trench subgrade and replaced with compacted uniform bedding materials. If groundwater is encountered or the subgrade become disturbed due to localized seepage or surface water, the contractor should excavate the disturbed or saturated soils to a maximum depth of 2 feet and replace with suitable materials to provide a stable bottom. Crushed rock (½-inch maximum size) may be used if found necessary to stabilize bottom of trench/pit prior to placing bedding materials.

3.2.3 Subgrade Preparation – Pump House/Walls/Structures

We anticipate that foundations for the perimeter wall, various concrete pads and pump building will be constructed at or near finish grades. As such, in all areas requiring additional fill to achieve finish grades, the upper 12-inches of existing soils (or 12-inches below bottom of footings) should be removed/over-excavated and recompacted prior to placing the new fill. The intent of this overexcavation is to achieve minimum of 12-inches of compacted soils beneath all settlement-sensitive structures including pavement areas. Localized areas of deeper removals/ over-

excavation may be required in some areas depending on the actual conditions encountered and pending verification by our field representative during grading.

After performing required over-excavation, the exposed bottom/subgrade should be scarified a minimum depth of 8 inches, and moisture conditioned to near optimum moisture content and compacted to a minimum of 90 percent relative compaction in accordance with ASTM D1557.

3.2.4 Subgrade Preparation – Pump Can Subgrade

As described in Section 1.2 of this report, subgrade elevations for the pump cans are anticipated to be approximately 12 to 15 feet below the existing ground surface. If disturbed during excavation, the exposed subgrade should moisture conditioned to optimum moisture content and compacted to a minimum of 90 percent relative compaction in accordance with ASTM D1557.

3.2.5 Trench Backfill

Prior to backfilling, pipes should be bedded in and covered with a uniform, granular material that has a Sand Equivalent (SE) of 30 or greater, and a gradation meeting requirements of the pipe manufacturer. Onsite soils are expected to be too silty to be considered for bedding material. A minimum cover of 12 inches of bedding material should be provided above the top of the pipe. As an alternative, crushed rock per EMWD Standards can be used as pipe bedding.

3.2.6 General Backfill

Native soils are considered suitable in all structural fill areas including building pads and pavement. These materials should be placed in thin lifts (not exceeding 8 inches); moisture conditioned, as necessary, and mechanically compacted to a minimum of 90 percent relative compaction per ASTM D 1557 or as required per EMWD standard specifications. The actual lift thickness should depend on the compaction equipment used. For hand-directed mechanical equipment such as vibratory plates or tampers, the maximum lift thickness should not exceed 4 inches. The contractor should not use jetting to compact trench backfill unless approved by EMWD and the jetting procedures and soils requirements comply with Section 306-1.3 of the “Green Book”.

3.2.7 Import Soils

Import soils and/or borrow sites, if needed, should be evaluated by Verdantas prior to import. Import soils should be uncontaminated, granular in nature, free of organic material (loss on ignition less-than 2 percent), have very low expansion potential (or EI<21) and have a low corrosion impact to the proposed improvements.

3.2.8 Shrinkage and Subsidence

Change in volume of excavated and recompacted soil varies according to initial density, which is a function of soil type and location. This volume change is represented as a percentage increase (bulking) or decrease (shrinkage) in volume of fill after removal and recompaction. Subsidence occurs as natural ground is moisture-conditioned and densified to receive fill. Field and laboratory

data used in our calculations included laboratory-measured maximum dry densities for soil types encountered at this site relative to measure in-place densities of soils sampled. We estimate the upper 2 feet requiring removal and re-compaction to have a shrinkage factor of 5 to 10 percent. Level of fill compaction, variations in existing soil dry density, and other factors influence the amount of volume change. Some adjustments to earthwork volume should be anticipated during grading of the site.

3.3 Foundation Design / Earth Pressures

3.3.1 Bearing Capacity

A net allowable bearing capacity of 2,500 pounds-per-square-foot (psf), may be used for design of footings of appurtenant structures founded into a minimum of 12-inches of compacted fill. A minimum base width of 18 inches for continuous footings and a minimum bearing area of 3 square feet (1.75 ft by 1.75 ft) for pad foundations should be used. This allowable bearing pressure may be increased by 250 psf for each additional foot of embedment and 150 psf with each additional foot of width, to a maximum vertical bearing value of 3,500 psf. A modulus of subgrade reaction of 200 pci may be used for design of mat and/or large pad foundations.

Additionally, an increase of one-third may be applied when considering short-term live loads (e.g. seismic and wind). Our recommended allowable bearing capacity is generally based on a total allowable, post construction settlement of 1 inch. Differential settlement is estimated at 0.5-inch over a horizontal distance of 40 feet. However, for a completely subterranean vault (without any above-grade structure), static settlement is expected to be negligible.

3.3.2 Lateral Resistance

Lateral loads may be resisted by friction between the footings and the supporting subgrade. A maximum allowable frictional resistance of 0.30 may be used for design. In addition, lateral resistance may be provided by passive pressures acting against foundations poured neat against properly compacted granular fill. We recommend that an allowable passive pressure based on an equivalent fluid pressure of 250 pounds-per-cubic-foot (pcf) be used in design. Passive pressure should not exceed 3,000 psf. These values may be increased by one-third when considering wind and seismic forces. The friction and passive values should be reduced by a factor-of-safety of 1.5 if used in combination.

3.3.3 Static Lateral Earth Pressures for Retaining Walls:

We recommend that retaining walls be backfilled with site soils or imported non-expansive soils (EI≤21). For drained retaining walls with level backfill, the following parameters may be used for retaining wall design:

Table 2. Retaining Wall Design Earth Pressures (Static, Drained)

Loading Conditions	Equivalent Fluid Density (pcf)	
	Level Backfill	2:1 Backfill
Active	35	55
At-Rest	52	85
Passive*	300*	125 (2:1, sloping down)

* This assumes level condition in front of the wall will remain for the duration of the project, not to exceed 2,000 psf at depth.

Cantilever walls that are designed to yield at least 0.001H, where H is equal to the wall height, may be designed using the active condition. Rigid walls and walls braced at the top should be designed using the at-rest condition, which is expected to be the case for vaults. Passive pressure is used to compute soil resistance to lateral structural movement.

Total depth of retained earth for design of walls and for uplift resistance should be measured as the vertical height of the stem below the ground surface at the wall face for stem design or measured at the heel of the footing for overturning and sliding. A total unit weight of 120 pounds-per-cubic-foot (pcf) may be assumed to calculate weight of compacted fill soil over wall footings, if properly compacted and drained.

3.3.4 Retaining Wall Surcharges:

In addition to the above lateral forces due to retained earth, surcharge due to above grade loads on the wall backfill, such as traffic, should be considered in design of retaining walls. Vertical surcharge loads behind a retaining wall on or in backfill within a 1:1 (horizontal:vertical) plane projection up and out from the retaining wall toe, should be considered as lateral and vertical surcharge. Unrestrained (cantilever) retaining walls should be designed to resist one-third of these surcharge loads applied as a uniform horizontal pressure on the wall. Braced walls should also be designed to resist an additional uniform horizontal-pressure equivalent to one-half of uniform vertical surcharge-loads.

In areas where autos and pickup trucks will drive, we suggest assuming a uniform vertical surcharge of 300 psf, which would result in active and at-rest horizontal surcharges of 100 psf and 150 psf, respectively. This should be doubled in areas of heavy construction traffic (such as concrete trucks, heavy equipment delivery-trucks, etc.). If crane outrigger loads or other point load sources are applied as wall surcharge, this will require additional analyses based on load source and location relative to the wall.

3.3.5 Incremental Seismic Loads - Retaining Structures

Seismic incremental loads need not be added to buried-vaults or retaining walls on the order of (≤) 6-feet deep or less, with level backfill. However, at the discretion of the project Structural Engineer (SE), incremental seismic earth pressures of 14H pounds-per-cubic-foot (pcf), where H is the retaining wall stem height in feet, may be applied for design in addition to static earth and surcharge pressures presented above. This is based on traditional Mononobe-Okabe (1929) equations. Traditionally, this incremental seismic earth pressure has been applied as an inverted

triangle (inverted equivalent fluid pressure), with largest dynamic earth pressure occurring at the top of the wall (upper ground surface). Resultant seismic earth pressure force has traditionally been applied at approximately 0.6H from the bottom of the wall, where H is the wall (stem) height (e.g. Seed and Whitman, 1970). However, recent studies (Sitar, et. al., 2013, UC. Berkeley) suggest a uniform pressure distribution is likely closer to actual lateral seismic loads, so a uniform pressure of 12H applied as a uniform/rectangular pressure distribution can also be considered (based on current research and observations).

3.3.6 Building Slab – Vapor Retarder:

Building slabs should be designed by the structural engineer and constructed on properly compacted subgrade soils. It has been a standard of care to install a moisture-vapor retarder underneath all slabs where moisture condensation is undesirable. Moisture vapor retarders may retard but not totally eliminate moisture vapor movement from the underlying soils up through the slabs. Moisture vapor transmission may be additionally reduced by use of concrete additives. Verdantas Inc. does not practice in the field of moisture vapor transmission evaluation/mitigation. Therefore, we recommend that a qualified person/firm be engaged/ consulted with to evaluate any impact on the proposed construction.

3.4 Corrosivity Evaluation

Sulfate ions in the soil can lower soil resistivity and can be highly aggressive to portland cement concrete by combining chemically with certain constituents of the concrete, principally tricalcium aluminate. This reaction is accompanied by expansion and eventual disruption of the concrete matrix. Potentially high sulfate content could also cause corrosion of the reinforcing steel in concrete. Table below summarizes current standards for concrete exposed to sulfate-containing solutions.

Table 3. Sulfate Concentration and Sulfate Exposure

Sulfate In Water (parts-per-million)	Water-Soluble Sulfate (SO_4) in soil (percentage by weight)	Sulfate Exposure
0-150	0.00 - 0.10	Negligible
150-1,500	0.10 - 0.20	Moderate (Seawater)
1,500-10,000	0.20 - 2.00	Severe
>10,000	Over 2.00	Very Severe

The sulfate content was determined in the laboratory for representative onsite soil sample. The results indicate that the water-soluble sulfate range is less than 0.1 percent by weight, which is considered negligible as per Table 3 above. Based upon the test results, Type II cement or an equivalent may be used.

Many factors can affect corrosion potential of soil including soil moisture content, resistivity, permeability and pH, as well as chloride and sulfate concentration. In general, soil resistivity, which is a measure of how easily electrical current flows through soils, is the most influential factor. Based on the findings of studies presented in ASTM STP 1013 titled “Effects of Soil

Characteristics on Corrosion" (February, 1989), the approximate relationship between soil resistivity and soil corrosiveness was developed as shown in Table below.

Table 4. Relationship between Soil Resistivity and Soil Corrosivity

Soil Resistivity (ohm-cm)	Classification of Soil Corrosiveness
0 to 900	Very Severely Corrosive
900 to 2,300	Severely Corrosive
2,300 to 5,000	Moderately Corrosive
5,000 to 10,000	Mildly Corrosive
10,000 to >100,000	Very Mildly Corrosive

Based on minimum resistivity laboratory test results, the onsite soil is considered ***mildly corrosive***. Ferrous pipe can be protected by polyethylene bags, tape or coatings, di-electric fittings, concrete encasement or other means to separate the pipe from wet onsite soils. Further testing of import and possibly site soil corrosivity could be performed and specific recommendations for corrosion protection may need to be provided by a qualified corrosion engineer.

3.5 Preliminary Pavement Design

Our preliminary pavement design is based on a laboratory derived R-value of 40 and based on subgrade preparation per Section 3.2.3 above and Caltrans Highway Design Manual. For planning and estimating purposes, the pavement sections are calculated based on Traffic Indexes (TI) as indicated in Table below:

Table 5. Asphalt Pavement Sections

General Traffic Condition	Design Traffic Index (TI)	Asphalt Concrete (inches)	Aggregate Base (inches)
Light Traffic / Parking Stalls	4.5	3.0	4.0
Truck Access / Driveways	5.5	3.0	5.25

Appropriate Traffic Index (TI) should be selected or verified by the project civil engineer or traffic engineering consultant and appropriate R-value of the subgrade soils will need to be verified after completion of rough grading to finalize the pavement design. Pavement design and construction should also conform to applicable District and industry standards. The Caltrans pavement section design calculations were based on a pavement life of approximately 20 years with a normal amount of flexible pavement maintenance.

Where applicable, we recommend that a minimum of 6 inches of PCC pavement be used, in high impact load areas or if to be subjected to truck traffic. The PCC pavement may be placed directly on a compacted subgrade with an R-Value of 30 or higher. The PCC pavement should be adequately reinforced to prevent shrinkage cracking and have a minimum of 28-day flexural strength of 550 psi (or compressive strength of 3,250 psi). Other requirements of Caltrans Standard Specifications regarding mixing and placing of concrete should be followed.

The upper 12 inches of the subgrade soils should be scarified, moisture-conditioned to near optimum moisture content, compacted to at least 95 percent relative compaction (ASTM D1557) and kept in this condition until the pavement section is constructed. Minimum relative compaction requirements for aggregate base should be 95 percent of the maximum laboratory density as determined by ASTM D1557. If applicable, aggregate base should conform to the "Standard Specifications for Public Works Construction" (Green book) current edition or Caltrans Class 2 aggregate base.

If pavement areas are adjacent to heavily watered landscape areas, some deterioration of the subgrade load bearing capacity may result. Moisture control measures such as deepened curbs or other moisture barrier materials may be used to prevent the subgrade soils from becoming saturated. The use of concrete cutoff or edge barriers should be considered when pavement is planned adjacent to either open (unfinished) or irrigated landscaped areas.

3.6 Slope Construction

Compacted fill or cut slopes up to 15 feet in height at maximum 2:1 (horizontal: vertical) are considered grossly stable for static and pseudostatic conditions. Higher or steeper slopes should be subject to further review and evaluation.

Slope faces are inherently subject to erosion, particularly if exposed to rainfall and storm drainage water. It is recommended that proper erosion control measures be provided in accordance with recommendations of the project Civil Engineer or erosion control specialist.

4. CONSTRUCTION CONSIDERATIONS

4.1 Temporary Cut Slopes

The contractor is responsible for all temporary slopes and trenches excavated at the site and the design of any required temporary shoring. Shoring, bracing and benching should be performed by the contractor in accordance with the current edition of the California Construction Safety Orders, see:

http://www.dir.ca.gov/title8/sb4a6.html

During construction, exposed earth material conditions should be regularly evaluated to verify that conditions are as anticipated. The contractor is responsible for providing the "competent person" required by OSHA standards to evaluate soil conditions. Close coordination between the competent person and geotechnical consultant should be maintained to facilitate construction while providing safe excavations. Existing alluvial soils encountered are classified as OSHA soil Type C. Therefore, unshored temporary cut slopes should be no steeper than 1:1 (horizontal:vertical), for a height no-greater-than (≤) 20 feet (California Construction Safety Orders, Appendix B to Section 1541.1, Table B-1). These recommended temporary cut slopes assume a level ground surface for a distance equal to one-and-a-half (x1.5) the depth of excavation. For steeper temporary slopes, deeper excavations, and/or where slopes terrain exists within close proximity to excavation (<1.5xdepth), appropriate shoring methods or flatter slopes may be required to protect the workers in the excavation and adjacent improvements. Such methods should be implemented by the contractor and approved by the geotechnical consultant.

4.2 Temporary Shoring

If the sloped open cut excavation is not feasible based on requirements above and due to existing structures, excavations for the proposed pipeline should be supported by a temporary shoring system such as cross-braced hydraulic shoring, conventional shields, sheet piles, soldier piles and wood lagging. The choice should be left to the contractor's judgment since economic considerations and/or the individual contractor's construction experience may determine which method is more economical and/or appropriate. The contractor and shoring designer should also perform additional geotechnical studies as necessary to refine the means-and-methods of shoring construction.

The support of all adjacent areas (existing structures, etc.) during excavation and construction (including pavements) without distress is the contractor's responsibility. In addition, it should be the contractor's responsibility to undertake a pre-construction survey with benchmarks and photographs of the adjacent properties. Shoring systems should be designed by a California licensed civil or structural engineer. As preliminary design guidelines, we present the following geotechnical parameters for shoring design. The following lateral earth pressures are recommended for temporary shoring supporting encountered alignment soils with level ground behind the shoring. Passive pressure also may be used to compute lateral soil resistance, if

necessary, for sheet piles. Earth pressures provided are ultimate values and a safety factor should be applied as appropriate.

Table 6. Static Lateral Earth Pressures

Conditions[1]	Static Equivalent Fluid Weight (pcf)
Active (cantilever)	35
At-Rest (braced)	52
Passive[2]	300

1. For temporary excavations only, with level backfill, not including surcharges
2. Passive equivalent fluid pressure may be doubled for isolated soldier piles spaced at least 2½ diameters on-center. Passive resistance should not exceed 3,000 pounds-per-square-foot (psf)

Determination of appropriate design conditions (active or at-rest) depends on shoring flexibility. If a rotation of more than 0.001 radian (0.06 degrees) is allowed, active pressure conditions apply; otherwise, at-rest condition governs.

Surcharge loads (dead or live) should be added to the indicated lateral earth pressures and should be applied uniformly, if such loads are within a horizontal distance that is less-than the exposed shoring height. The corresponding lateral earth pressure will approximately be 33-percent of the vertical surcharge for active conditions, and 50-percent for at-rest conditions. Surcharge pressures from concentrated loads should be evaluated after geometric constraints and loading conditions are determined on individual basis.

4.3 Pre-excavation Survey and Settlement Monitoring

A very important geotechnical concern is to avoid damaging any existing improvements adjacent to excavations. It is recommended that the contractor provide settlement monitoring and contingency plans in case of adjacent settlement-resistive improvements.

4.4 Dewatering during Construction

Based on the results of our exploration, groundwater was not encountered at the explored depths (51.5 feet). If encountered during excavation, groundwater control such as dewatering, will be required to limit instability of the pump cans/pit bottom, and aid in foundation construction and soil backfill. Dewatering or any other suitable method for stabilizing excavation bottom may be selected by the contractor based on actual groundwater conditions encountered and based on the contractor's chosen means-and-methods of construction. The selected method by the contractor should be able to effectively mitigate for bottom heave or stabilize subgrade soils during construction/ backfilling. However, deep groundwater drawdown should be avoided, to reduce the potential for damaging adjacent structures, if applicable. It is recommended that the selected dewatering method should keep groundwater at least 3 feet below bottom of excavation for wet well or underground vault construction. It is also important to consider the uplift forces resulting from the shallow groundwater during post-construction conditions to buried vaults or wet wells.

4.5 Additional Geotechnical Services

Verdantas should review site, grading and foundation plans, when available, and comment further on geotechnical aspects of the project. Geotechnical conclusions and preliminary recommendations should be reviewed and verified by Verdantas during construction and revised accordingly if geotechnical conditions encountered vary from our findings and interpretations. Geotechnical observation and testing during construction should be provided as follows:

- During overexcavation of unsuitable soil,
- During compaction of all fill materials,
- After excavation of all footings and prior to placement of concrete,
- During utility trench backfilling and compaction,
- During pavement construction and when unusual conditions are encountered.

5. LIMITATIONS

This report was necessarily based in part upon data obtained from a limited number of observances, site visits, soil samples, tests, analyses, histories of occurrences, spaced subsurface explorations and limited information on historical events and observations. Such information is necessarily incomplete. The nature of many sites is such that differing characteristics can be experienced within small distances and under various climatic conditions. Changes in subsurface conditions can and do occur over time. This exploration was performed with the understanding that the project as described in Section 1.2 of this report.

This report was prepared for LEE + RO, Inc. based on LEE + RO, Inc. needs, directions, and requirements at the time of our investigation. This report is not authorized for use by, and is not to be relied upon by any party except LEE + RO, Inc., and its successors and assigns as owner of the property, with whom Verdantas, Inc. has contracted for the work. Use of or reliance on this report by any other party is at that party's risk. Unauthorized use of or reliance on this report constitutes an agreement to defend and indemnify Verdantas, Inc. from and against any liability which may arise as a result of such use or reliance, regardless of any fault, negligence, or strict liability of Verdantas, Inc. The client is referred to Appendix D regarding important information on geotechnical engineering studies/reports and their applicability and limitations.

6. REFERENCES

ASCE 7, 2016, Minimum Design Loads for Buildings and Other Structures by Structural Engineering institute.

California Building Code (CBC), 2022, "*California Code of Regulations*," Title 24, Part 2, Vol. 2.

California Geologic Survey (CGS), 2006 Geologic Map of California, of the San Bernardino and Santa Ana 30' X 60' Quadrangles, Southern California, Version 1.0.

California Geologic Survey (CGS), 2018, Earthquake Fault Zones, A guide for Government Agencies, Property Owners / Developers, And Geoscience Practitioners for Assessing Fault Rupture Hazards in California, Department of Conservation, Division of Mines and Geology, Special Publication 42. Revised

California Department of Water Resources (DWR), 2025, Well Completion Report Map Application, https://wdl.water.ca.gov/WaterDataLibrary/Map.aspx

Converse Consultants, 2017, Geotechnical and Geologic Due Diligence Report, Proposed Romoland Booster Pump Station, 1.99-Acre Site at the Southwest Corner of Ethanac Road & Antelope Road Romoland Area, Riverside County, California, Project No. 16-81-253-01, dated August 10, 2017.

Converse Consultants, 2018, Geotechnical Investigation Report, Romoland Booster Pump Station Replacement, Romoland Area, Riverside County, California, Project No. 16-81-253-02, dated October 1, 2018.

Leighton Consulting, Inc., 2021, Geotechnical Exploration, Matthews Booster Pump Station and Pipeline Project, Eastern Municipal Water District (EMWD), Menifee, Riverside County, California, Project No. 12847.001, dated September 27, 2021.

National Center for Earthquake Engineering Research, (NCEER), 1997, Proceedings of the NCEER Workshop of Liquefaction Resistance of Soils, Technical Report NCEER-97-0022, dated December 31.

Public Works Standard, Inc., 2024, Greenbook, *Standard Specifications for Public Works Construction*: BNI Building News, Anaheim, California.

United States Geological Survey, (USGS), 2025, A Web Based Computer Program Published by USGS to Calculate Seismic Hazard Curves and Design Parameters based on ASCE 7-16 Procedures.

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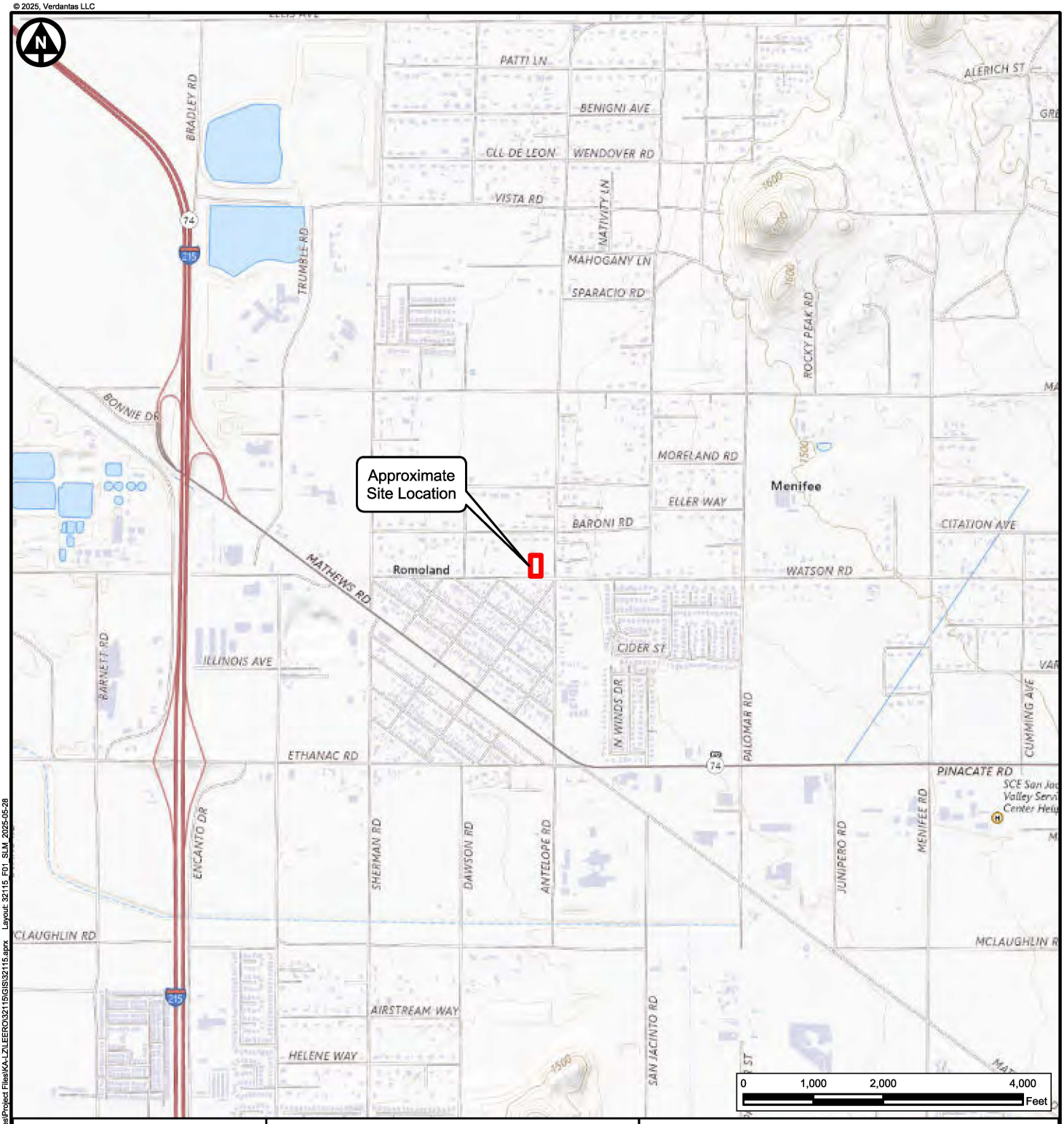

Approximate Site Location

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Sources:
Aerial Imagery: Esri Imagery Web Service dated 2021.

Topographic Map: National Geographic Society Web Service.

Quadrangle: Perris, California

Matthews/Romoland
Booster Pump Station

Site Location Map

Menifee, California

Project Number	32115
Date	05/2025
Author	mmurphy
Scale	1 in = 2,000 ft
Figure	1

Edited: 5/28/2025 File Location: C:\Users\MaryMurphy\OneDrive - Verdantas\Files\Project Files\KA-LZ\LEERO\32115\GIS\32115.aprx Layout: 32115_F01_SLM_2025-05-28

Produced Using Esri's ArcGIS Software

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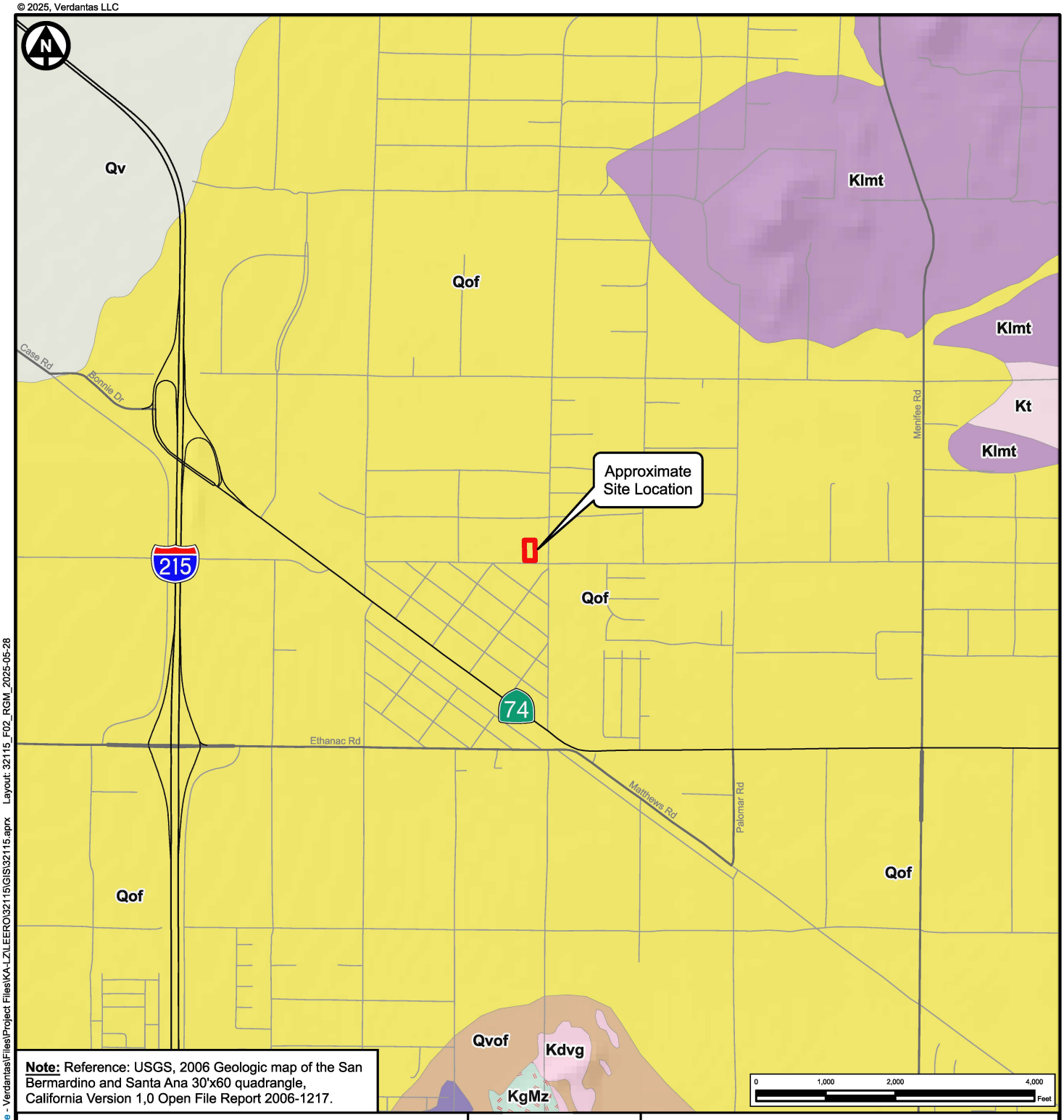

Note: Reference: USGS, 2006 Geologic map of the San Bermardino and Santa Ana 30'x60 quadrangle, California Version 1,0 Open File Report 2006-1217.

- Qv,Very young alluvial-valley deposits
- Kdvg,Domenigoni Valley Pluton
- KgMz,Intermixed Mesozoic schist and Cretaceous granitic rocks
- Kgb,Gabbro, undifferentiated
- Klmt,Lakeview Mountains pluton
- Kt,Tonalite, undifferentiated
- Qof,Old alluvial-fan deposits
- Qvof,Very old alluvial-fan deposits

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Matthews/Romoland
Booster Pump Station

Regional Geology Map

Menifee, California

Project Number	32115
Date	05/2025
Author	mmurphy
Scale	1 in = 2,000 ft
Figure	2

Edited: 5/28/2025 File Location: C:\Users\MaryMurphy\OneDrive - Verdantas\Files\Project Files\KA-LZ\LEERO\32115\GIS\32115.aprx Layout: 32115_F02_RGM_2025-05-28

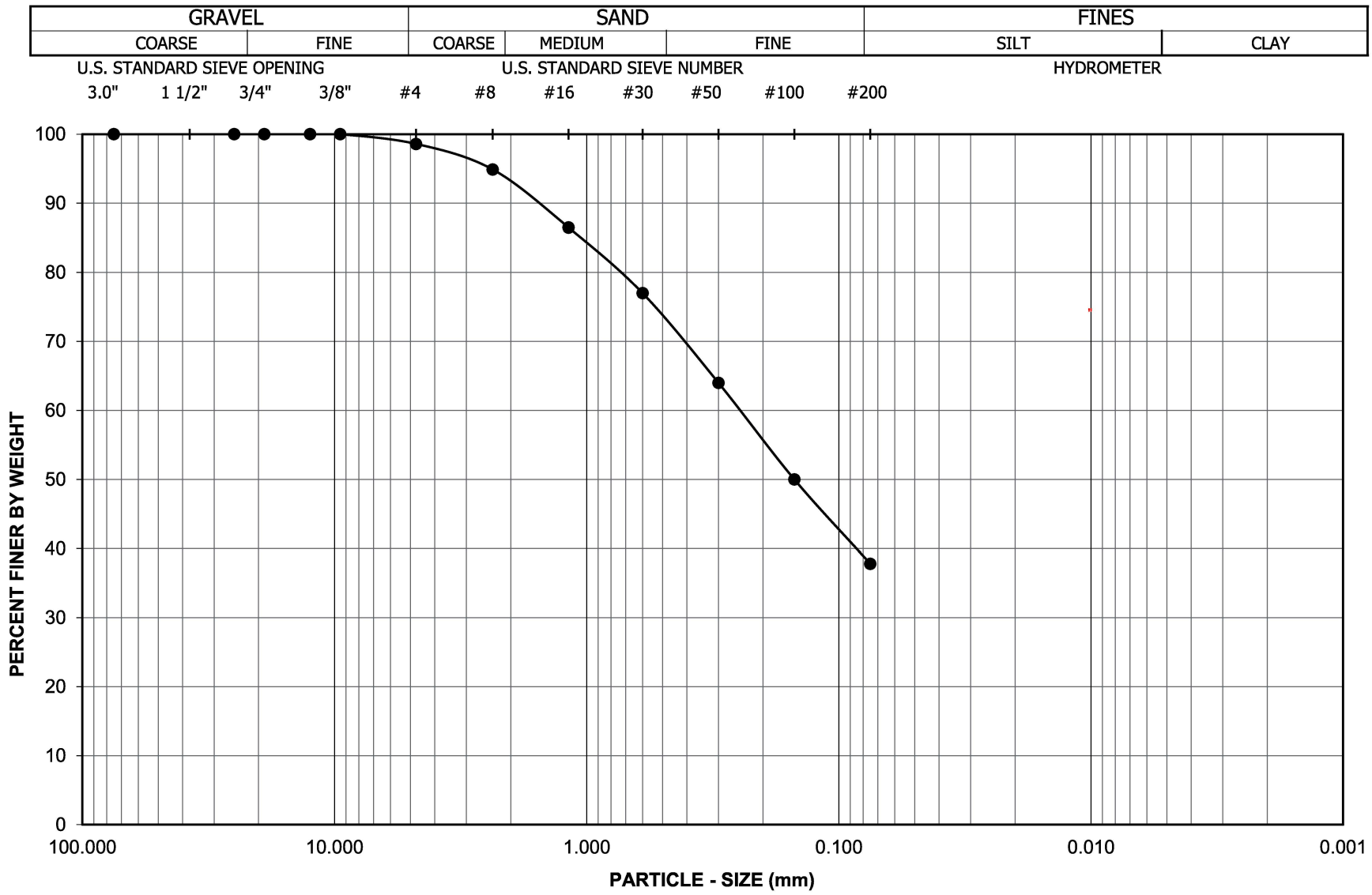
Produced Using Esri's ArcGIS Software

Appendix A

Logs Of Exploratory Borings

Appendix B

Geotechnical Laboratory Testing Results



Project Name: EMWD Matthews BPS Additional Geotech

Project No.: 041.0000032115

Boring No.: VB-2 Sample No.: B-1

Depth (feet): 0 - 5.0 Soil Type : SM

Soil Identification: Silty Sand (SM), Dark Yellowish Brown.

GR:SA:FI : (%) 1 : 61 : 38

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PARTICLE - SIZE DISTRIBUTION ASTM D 6913

Jun-25

Boring No.	VB-1	VB-1						
Sample No.	S-3	S-9						
Depth (ft.)	15.0	45.0						
Sample Type	SPT	SPT						
Soil Classification	SM	SM						
Soak Time (min)	10	10						
Moisture Correction								
Wet Weight of Soil + Container (gm.)	1092.6	1255.4						
Dry Weight of Soil + Container (gm.)	1038.1	1113.1						
Weight of Container (gm)	281.3	279.5						
Moisture Content (%)	7.2	17.1						
Container No.:	L	AF						
Sample Dry Weight Determination								
Weight of Sample + Container (gm.)	1038.1	1113.1						
Weight of Container (gm.)	281.3	279.5						
Weight of Dry Sample (gm.)	756.8	833.6						
Container No.:	L	AF						
After Wash								
Dry Weight of Sample + Container (gm)	737.0	760.6						
Weight of Container (gm)	281.3	279.5						
Dry Weight of Sample (gm)	455.7	481.1						
% Passing No. 200 Sieve	**40**	**42**						
% Retained No. 200 Sieve	60	58						

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PERCENT PASSING
No. 200 SIEVE
ASTM D 1140

Project Name: EMWD Matthews BPS
Project No.: 041.0000032115
Client Name: Eastern Municipal Water District
Tested By: OMH Date: 06/02/25

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MODIFIED PROCTOR COMPACTION TEST

ASTM D 1557

Project Name:	EMWD Matthews BPS Additional Geotech	Tested By:	G. Stearns	Date:	06/03/25
Project No.:	041.0000032115	Input By:	M. Vinet	Date:	06/05/25
Boring No.:	VB-1	Depth (ft.):	0 - 5.0		
Sample No.:	B-1				
Soil Identification:	Silty Sand (SM), Dark Yellowish Brown.				

Preparation Method: [X] Moist [ ] Dry

[X] Mechanical Ram [ ] Manual Ram

Mold Volume (ft³) 0.03350 *Ram Weight = 10 lb.; Drop = 18 in.*

TEST NO.	1	2	3	4	5	6
Wt. Compacted Soil + Mold (g)	5435	5584	5682	5647		
Weight of Mold (g)	3491	3491	3491	3491		
Net Weight of Soil (g)	1944	2093	2191	2156		
Wet Weight of Soil + Cont. (g)	1780.6	1522.3	1462.2	1398.2		
Dry Weight of Soil + Cont. (g)	1720.8	1450.0	1372.1	1295.4		
Weight of Container (g)	279.5	280.2	276.8	277.5		
Moisture Content (%)	4.1	6.2	8.2	10.1		
Wet Density (pcf)	127.9	137.7	144.2	141.9		
Dry Density (pcf)	122.8	129.7	133.2	128.9		

Maximum Dry Density (pcf) 133.2 **Optimum Moisture Content (%)** 8.2

PROCEDURE USED

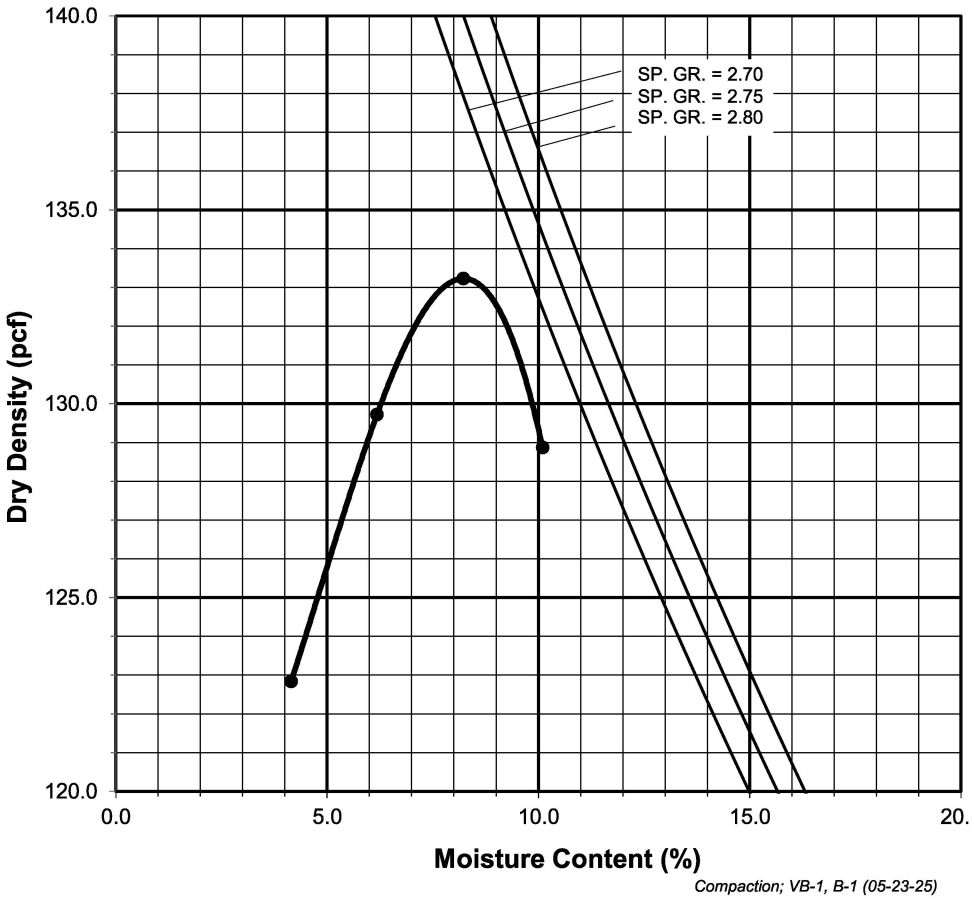
[X] **Procedure A**
Soil Passing No. 4 (4.75 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if +#4 is 20% or less

[ ] **Procedure B**
Soil Passing 3/8 in. (9.5 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
Use if +#4 is >20% and +3/8 in. is 20% or less

[ ] **Procedure C**
Soil Passing 3/4 in. (19.0 mm) Sieve
Mold : 6 in. (152.4 mm) diameter
Layers : 5 (Five)
Blows per layer : 56 (fifty-six)
Use if +3/8 in. is >20% and +¾ in. is <30%

Particle-Size Distribution:
[ ]
GR:SA:FI

Atterberg Limits:
[ ]
LL,PL,PI



Compaction; VB-1, B-1 (05-23-25)

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EXPANSION INDEX of SOILS
ASTM D 4829

Project Name:	EMWD Matthews BPS Additional Geotech	Tested By:	G. Stearns	Date:	6/3/25
Project No. :	041.0000032115	Checked By:	M. Vinet	Date:	6/5/25
Boring No.:	VB-1	Depth:	0 - 5.0		
Sample No. :	B-1	Location:	N/A		
Sample Description:	Silty Sand (SM), Dark Yellowish Brown.				

Dry Wt. of Soil + Cont. (gm.)	1466.0
Wt. of Container No. (gm.)	0.0
Dry Wt. of Soil (gm.)	1466.0
Weight Soil Retained on #4 Sieve	9.3
Percent Passing # 4	99.4

MOLDED SPECIMEN	Before Test	After Test
Specimen Diameter (in.)	4.01	4.01
Specimen Height (in.)	1.0000	0.9980
Wt. Comp. Soil + Mold (gm.)	622.4	640.9
Wt. of Mold (gm.)	198.7	198.7
Specific Gravity (Assumed)	2.70	2.70
Container No.	12	12
Wet Wt. of Soil + Cont. (gm.)	349.0	640.9
Dry Wt. of Soil + Cont. (gm.)	326.8	392.3
Wt. of Container (gm.)	49.0	198.7
Moisture Content (%)	8.0	12.7
Wet Density (pcf)	127.8	133.7
Dry Density (pcf)	118.3	118.6
Void Ratio	0.425	0.422
Total Porosity	0.298	0.297
Pore Volume (cc)	61.7	61.3
Degree of Saturation (%) [S meas]	**50.9**	**81.4**

SPECIMEN INUNDATION in distilled water for the period of 24 h or expansion rate < 0.0002 in./h.

Date	Time	Pressure (psi)	Elapsed Time (min.)	Dial Readings (in.)
6/3/25	12:30	1.0	0	0.5000
6/3/25	12:40	1.0	10	0.5000
	Add Distilled Water to the Specimen			
6/4/25	8:00	1.0	1160	0.4980
6/4/25	9:00	1.0	1220	0.4980

Expansion Index (EI meas) =	((Final Rdg - Initial Rdg) / Initial Thick.) x 1000	-2.0
Expansion Index (Report) =	Nearest Whole Number or Zero (0) if Initial Height is > than Final Height	**0**

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One-Dimensional Swell or Settlement Potential of Cohesive Soils
(ASTM D 4546) -- Method 'B'

Project Name:	EMWD Matthews BPS Additional Geotech	Tested By:	OMH	Date:	6/2/25
Project No.:	041.0000032115	Checked By:	M. Vinet	Date:	6/6/25
Boring No.:	VB-1	Sample Type:	IN SITU		
Sample No.:	R-1	Depth (ft.)	5.0		

Sample Description: Silty Sand (SM), Dark Yellowish Brown.

Source and Type of Water Used for Inundation: Arrowhead (Distilled)

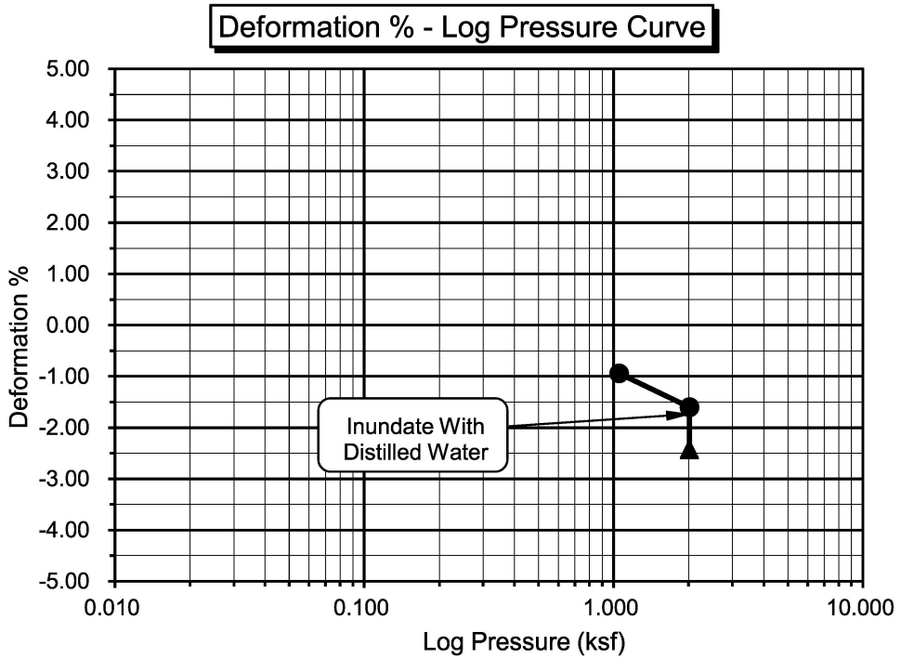
** Note: Loading After Wetting (Inundation) not Performed Using this Test Method.

Initial Dry Density (pcf):	126.9
Initial Moisture (%):	5.5
Initial Height (in.):	1.0000
Initial Dial Reading (in):	0.0000
Inside Diameter of Ring (in):	2.416

Final Dry Density (pcf):	130.1
Final Moisture (%) :	10.6
Initial Void ratio:	0.3279
Specific Gravity (assumed):	2.70
Initial Degree of Saturation (%):	45.5

Pressure (p) (ksf)	Final Reading (in)	Apparent Thickness (in)	Load Compliance (%)	Swell (+) Settlement (-) % of Sample Thickness	Void Ratio	Corrected Deformation (%)
1.050	0.0094	0.9906	0.00	-0.94	0.3154	-0.94
2.013	0.0160	0.9840	0.00	-1.60	0.3067	-1.60
H2O	0.0243	0.9757	0.00	-2.43	0.2957	-2.43

Percent Swell / Settlement After Inundation = **-0.84**



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One-Dimensional Swell or Settlement Potential of Cohesive Soils
(ASTM D 4546) -- Method 'B'

Project Name:	EMWD Matthews BPS Additional Geotech	Tested By:	OMH	Date:	6/2/25
Project No.:	041.0000032115	Checked By:	M. Vinet	Date:	6/6/25
Boring No.:	VB-2	Sample Type:	IN SITU		
Sample No.:	R-2	Depth (ft.)	5.0		

Sample Description: Silty Sand (SM), Dark Yellowish Brown.

Source and Type of Water Used for Inundation: Arrowhead (Distilled)

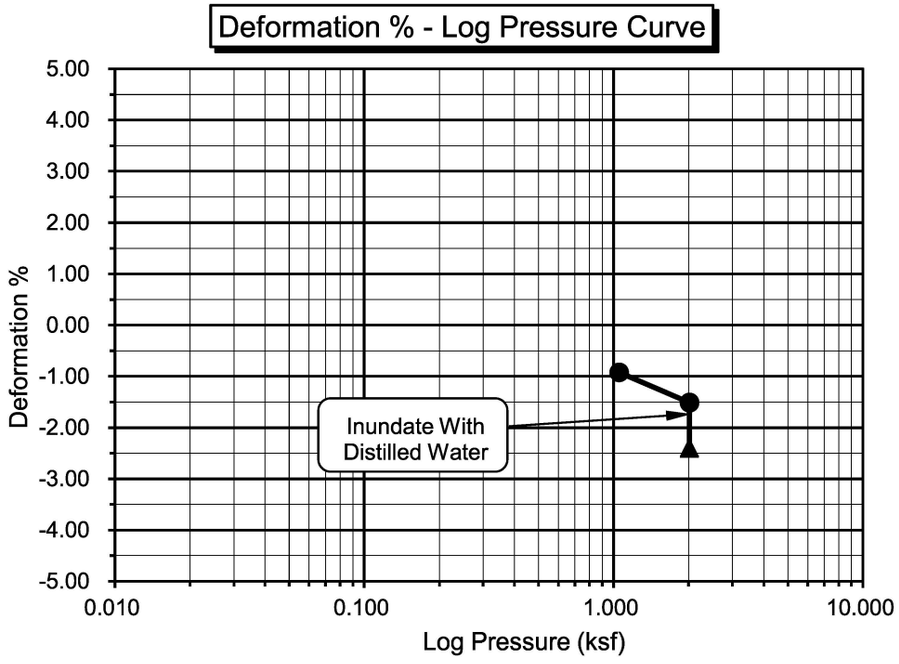
** Note: Loading After Wetting (Inundation) not Performed Using this Test Method.

Initial Dry Density (pcf):	125.4
Initial Moisture (%):	5.9
Initial Height (in.):	1.0000
Initial Dial Reading (in):	0.0000
Inside Diameter of Ring (in):	2.416

Final Dry Density (pcf):	128.5
Final Moisture (%) :	11.6
Initial Void ratio:	0.3439
Specific Gravity (assumed):	2.70
Initial Degree of Saturation (%):	46.4

Pressure (p) (ksf)	Final Reading (in)	Apparent Thickness (in)	Load Compliance (%)	Swell (+) Settlement (-) % of Sample Thickness	Void Ratio	Corrected Deformation (%)
1.050	0.0092	0.9908	0.00	-0.92	0.3315	-0.92
2.013	0.0151	0.9849	0.00	-1.51	0.3236	-1.51
H2O	0.0240	0.9760	0.00	-2.40	0.3116	-2.40

Percent Swell / Settlement After Inundation = **-0.90**



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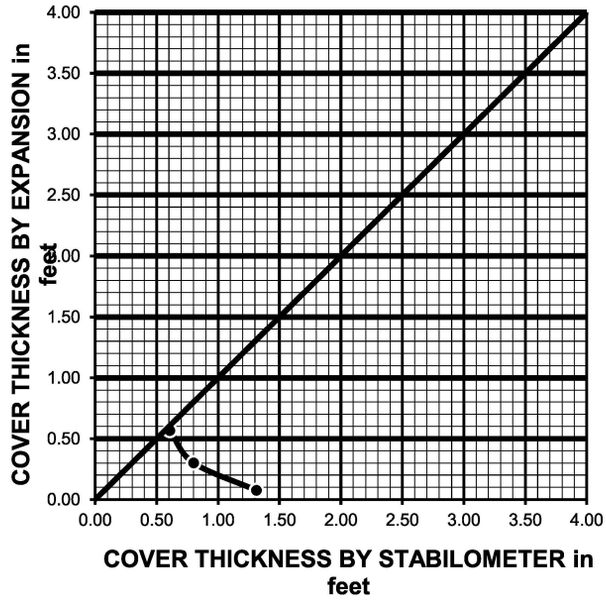
R-VALUE TEST RESULTS
ASTM D 2844

Project Name:	EMWD Matthews BPS Additional Geotech	Date:	6/2/25
Project Number:	041.0000032115	Technician:	GMS/OMH
Boring Number:	VB-2	Depth (ft.):	0 - 5.0
Sample Number:	B-1		
Sample Description:	Silty Sand (SM), Dark Yellowish Brown.	Sample Location:	N/A

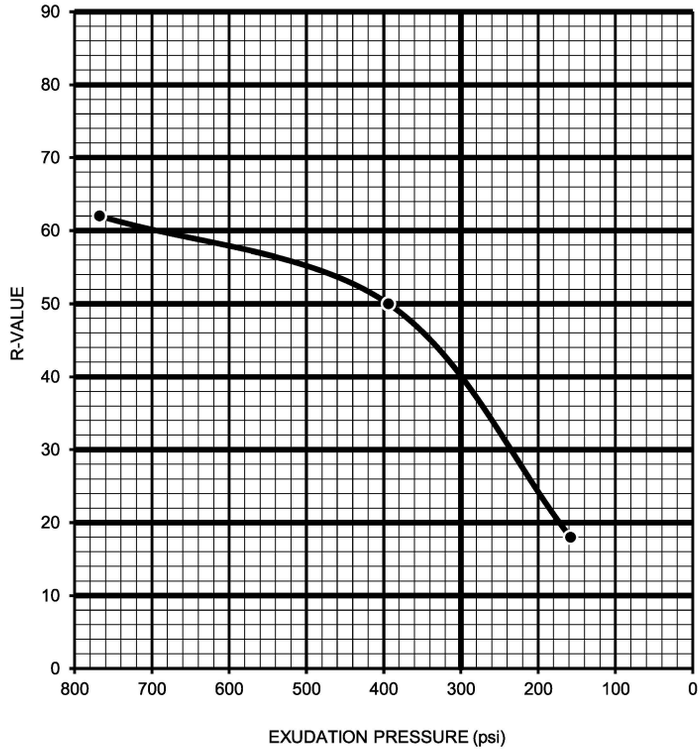
TEST SPECIMEN	A	B	C
MOISTURE AT COMPACTION %	8.4	9.5	11.6
HEIGHT OF SAMPLE, Inches	2.50	2.45	2.51
DRY DENSITY, pcf	119.6	118.0	116.6
COMPACTOR AIR PRESSURE, psi	150	135	95
EXUDATION PRESSURE, psi	768	394	158
EXPANSION, Inches x 10exp-4	15	8	2
STABILITY Ph 2,000 lbs (160 psi)	43	59	116
TURNS DISPLACEMENT	4.13	4.23	4.23
R-VALUE UNCORRECTED	62	50	18
R-VALUE CORRECTED	62	50	18

DESIGN CALCULATION DATA	a	b	c
GRAVEL EQUIVALENT FACTOR	1.0	1.0	1.0
TRAFFIC INDEX	5.0	5.0	5.0
STABILOMETER THICKNESS, ft.	0.61	0.80	1.31
EXPANSION PRESSURE THICKNESS, ft.	0.57	0.30	0.08

EXPANSION PRESSURE CHART



EXUDATION PRESSURE CHART



R-VALUE BY EXPANSION:	63
R-VALUE BY EXUDATION:	40
EQUILIBRIUM R-VALUE:	40

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TESTS for SULFATE CONTENT CHLORIDE CONTENT and pH of SOILS

Project Name: EMWD Matthews BPS Additional Geotech | Tested By : OMH | Date: 06/04/25

Project No. : 041.0000032115 | Data Input By: M. Vinet | Date: 06/05/25

Boring No.	VB-1			
Sample No.	B-1			
Sample Depth (ft)	0 - 5.0			
Soil Identification:	Silty Sand (SM)			
Wet Weight of Soil + Container (g)	100.00			
Dry Weight of Soil + Container (g)	100.00			
Weight of Container (g)	0.00			
Moisture Content (%)	0.00			
Weight of Soaked Soil (g)	100.00			

SULFATE CONTENT, DOT California Test 417, Part II

Beaker No.	1			
Crucible No.	1			
Furnace Temperature (°C)	850			
Time In / Time Out	Timer			
Duration of Combustion (min)	45			
Wt. of Crucible + Residue (g)	25.0394			
Wt. of Crucible (g)	25.0362			
Wt. of Residue (g) (A)	0.0032			
PPM of Sulfate (A) x 41150	131.68			
PPM of Sulfate, Dry Weight Basis	**132**			

CHLORIDE CONTENT, DOT California Test 422

ml of Extract For Titration (B)	30			
ml of AgNO3 Soln. Used in Titration (C)	0.6			
PPM of Chloride (C -0.2) * 100 * 30 / B	40			
PPM of Chloride, Dry Wt. Basis	**40**			

pH TEST, DOT California Test 643

pH Value	**7.50**			
Temperature °C	21.0			

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SOIL RESISTIVITY TEST

DOT CA TEST 643

Project Name:	EMWD Matthews BPS Additional Geotech		Tested By :	OMH	Date: 06/04/25
Project No. :	041.0000032115		Data Input By:	M. Vinet	Date: 06/05/25
Boring No.:	VB-1		Depth (ft.) :	0 - 5.0	
Sample No. :	B-1				

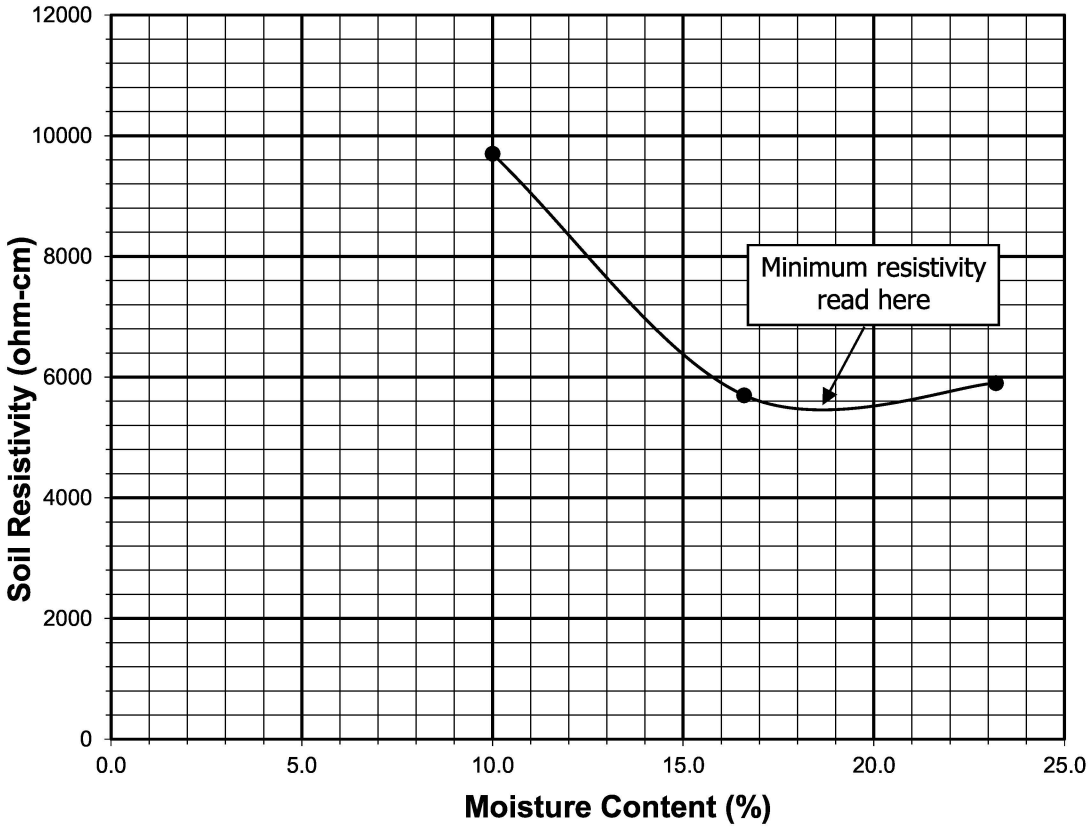
Soil Identification:* Silty Sand (SM)

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	50	10.00	9700	9700
2	83	16.60	5700	5700
3	116	23.20	5900	5900
4				
5				

Moisture Content (%) (MCi)	0.00
Wet Wt. of Soil + Cont. (g)	100.00
Dry Wt. of Soil + Cont. (g)	100.00
Wt. of Container (g)	0.00
Container No.	A
Initial Soil Wt. (g) (Wt)	500.00
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
5400	**18.5**	**132**	**40**	**7.50**	**21.0**



Appendix C

Site-Specific Seismic Analysis

Appendix D

GBA Important Information About Your Geotechnical Report

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

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ATTACHMENT A

REFERENCES

Bell, Christopher J., Ernest L. Lundelius, Jr., Anthony D. Barnosky, Russell W. Graham, Everett H. Lindsay, Dennis R. Ruez, Jr., Holmes A. Semken, Jr., S. David Webb, and Richard J. Zakrzewski
2004 The Blancan, Irvingtonian, and Rancholabrean Land Mammal Ages. In M.O. Woodburne, ed., *Late Cretaceous and Cenozoic Mammals of North America*. pp. 232-314.

California Geological Survey
2002 California Geomorphic Provinces. *California Geologic Survey Note* 36. California Department of Conservation.

Cohen, K.M., S.C. Finney, P.L. Gibbard, and J.X. Fan
2022 The ICS International Chronostratigraphic Chart. Updated February 2022. Episodes 36: 199-204

Jefferson, George T.
1991a A Catalogue of Late Quaternary Vertebrates from California: Part One: Non-marine Lower Vertebrate and Avian Taxa. *Natural History Museum of Los Angeles County Technical Reports* No. 5, Los Angeles.

1991b A Catalogue of Late Quaternary Vertebrates from California: Part Two: Mammals. *Natural History Museum of Los Angeles County Technical Reports* No. 7, Los Angeles.

Kenney, Miles D.
1999 *Emplacement, Offset History, and Recent Uplift of Basement within the San Andreas Fault System, Northeastern San Gabriel Mountains.* Unpublished Ph.D. Dissertation, University of Oregon. 279 pp.

Miller, Wade E.
1971 Pleistocene Vertebrates of the Los Angeles Basin and Vicinity (Exclusive of Rancho La Brea). *Los Angeles County Museum of Natural History Bulletin, Science*: No. 10.

Morton, Douglas M., and Fred K. Miller
2006 *Geologic Map of the San Bernardino and Santa Ana 30-minute by 60-minute quadrangles, California*. Digital preparation by Pamela M. Cosette and Kelly R. Bovard. Prepared by the United States Geological Survey (USGS) in cooperation with the California Geological Survey. USGS Open File Report 2006-1217. Map Scale 1:100,000.

Norris, R.M., and R.W. Webb
1976 *Geology of California*. John Wiley and Sons Inc., New York. 379 pp.

Pajak, Alois F., Jr., Eric Scott, and Christopher J. Bell
1996 *A Review of the Biostratigraphy of Pliocene and Pleistocene Sediments in the Elsinore Fault Zone, Riverside County, California*. PaleoBios 17(2-4):28-49.

Reynolds, R.E., and R.L. Reynolds
1991 The Pleistocene Beneath our Feet: Near-surface Pleistocene Fossils in Inland Southern California Basins. In M.O. Woodburne, R.E. Reynolds, and D.P. Whistler, eds., Inland Southern California: The Last 70 Million Years. *San Bernardino County Museum Special Publication* 38(3 and 4): 41–43.

Sanders, A. E., Weems, R. E., & Albright III, L. B.
2009 Formalization of the Middle Pleistocene 'Ten Mile Hill Beds' in South Carolina with evidence for placement of the Irvingtonian-Rancholabrean boundary. *Papers on Geology, Vertebrate Paleontology, and Biostratigraphy in Honor of Michael O. Woodburne*. 363-370 pp.

Sharp, R.P.
1976 *Geology: Field Guide to Southern California*. 2nd ed. Kendall/Hunt Publishing Company. 181 pp.

Society of Vertebrate Paleontology (SVP)
2010 Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. SVP. Impact Mitigation Guidelines Revision Committee. 11 pp.

Springer, Kathleen, Eric Scott, J. Christopher Sagebiel, and Lyndon K. Murray
2009 The Diamond Valley Lake Local Fauna: Late Pleistocene Vertebrates from Inland Southern California. In L.B. Albright, III, ed. Papers in Geology, Vertebrate Paleontology, and Biostratigraphy in Honor of Michael O. Woodburne, *Museum of Northern Arizona Bulletin* 65, pp. 217–236.

United States Geological Survey (USGS)
1979a *Perris, California* 7.5-minute topographic quadrangle. Published 1967, photorevised 1979. United States Geological Survey, Denver, Colorado.

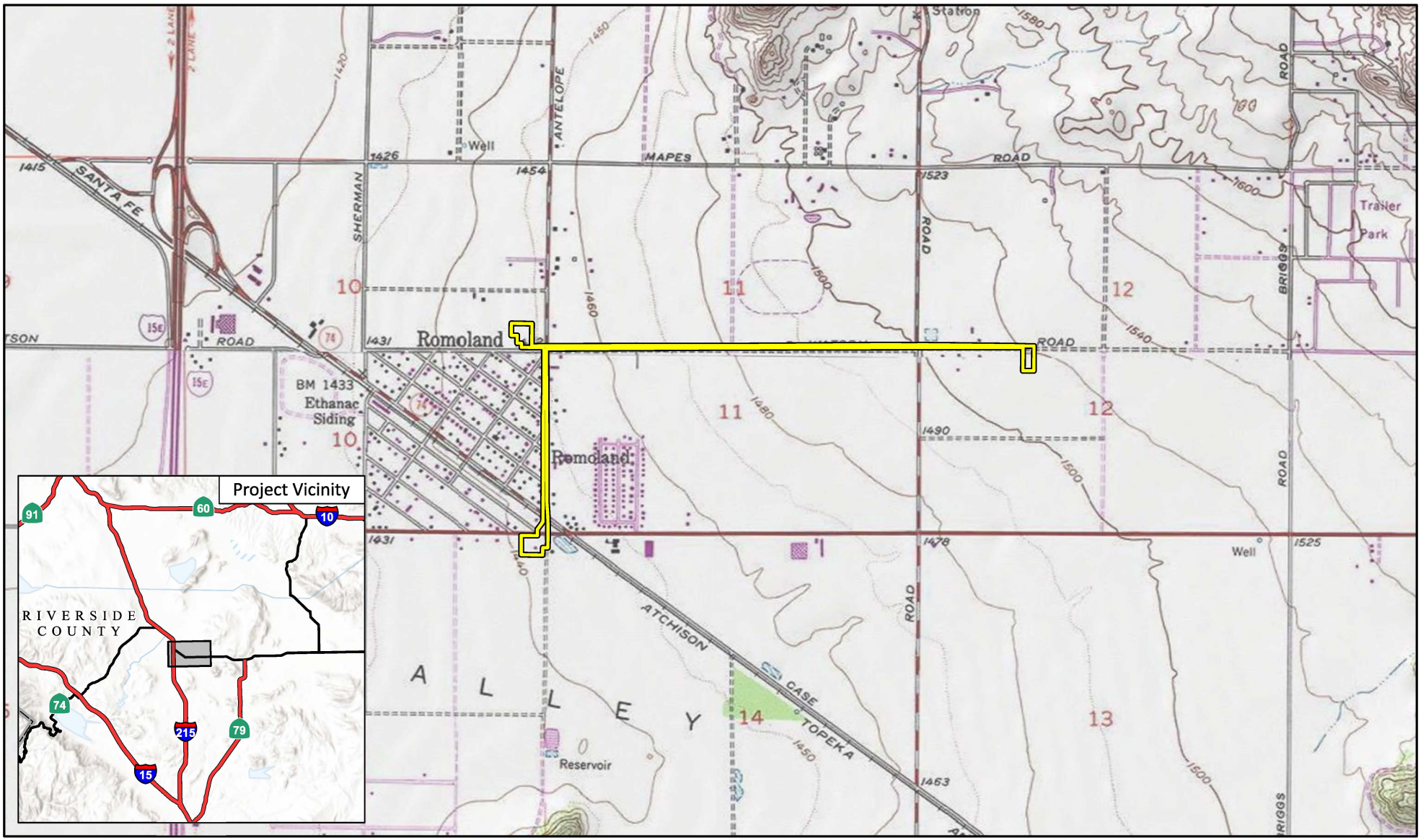
1979b *Romoland, California* 7.5-minute topographic quadrangle. Published 1953, photorevised 1981. United States Geological Survey, Denver, Colorado.

ATTACHMENT B

FIGURES

Figure 1: Project Location and Regional Vicinity Map

Figure 2: Geology Map



LSA

FIGURE 1

0 1000 2000
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SOURCE: USGS 7.5' Quad - *Perris (1979)* and *Romoland (1979)*, CA

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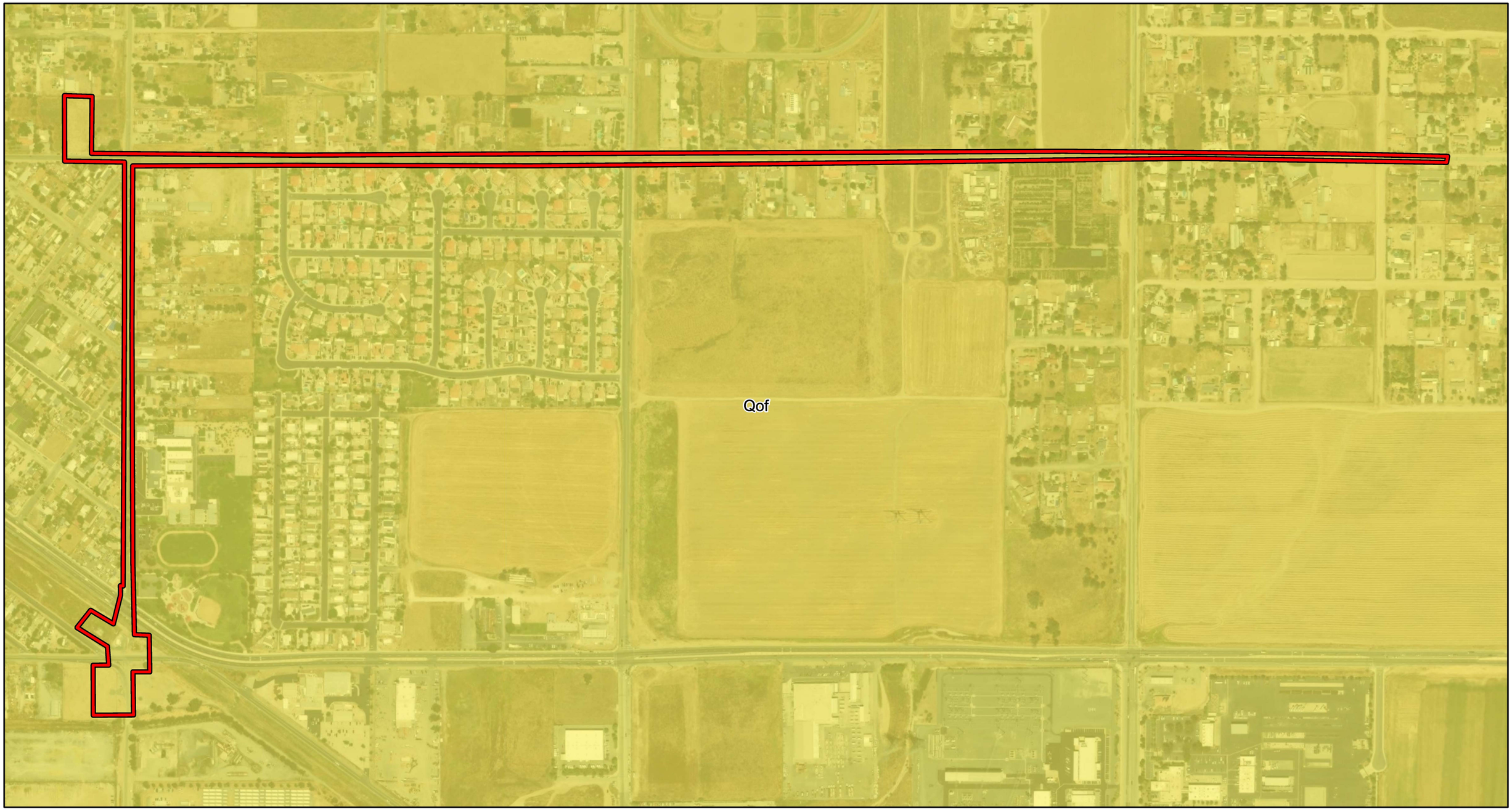
Menifee and Watson Road II Booster Pump Station (BPS) and Pipeline Project
Biological Assessment Report

Project Location and Vicinity



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Project Boundary

Geology

Old alluvial-fan deposits

FIGURE 2

N

0 250 500

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SOURCE: Maxar

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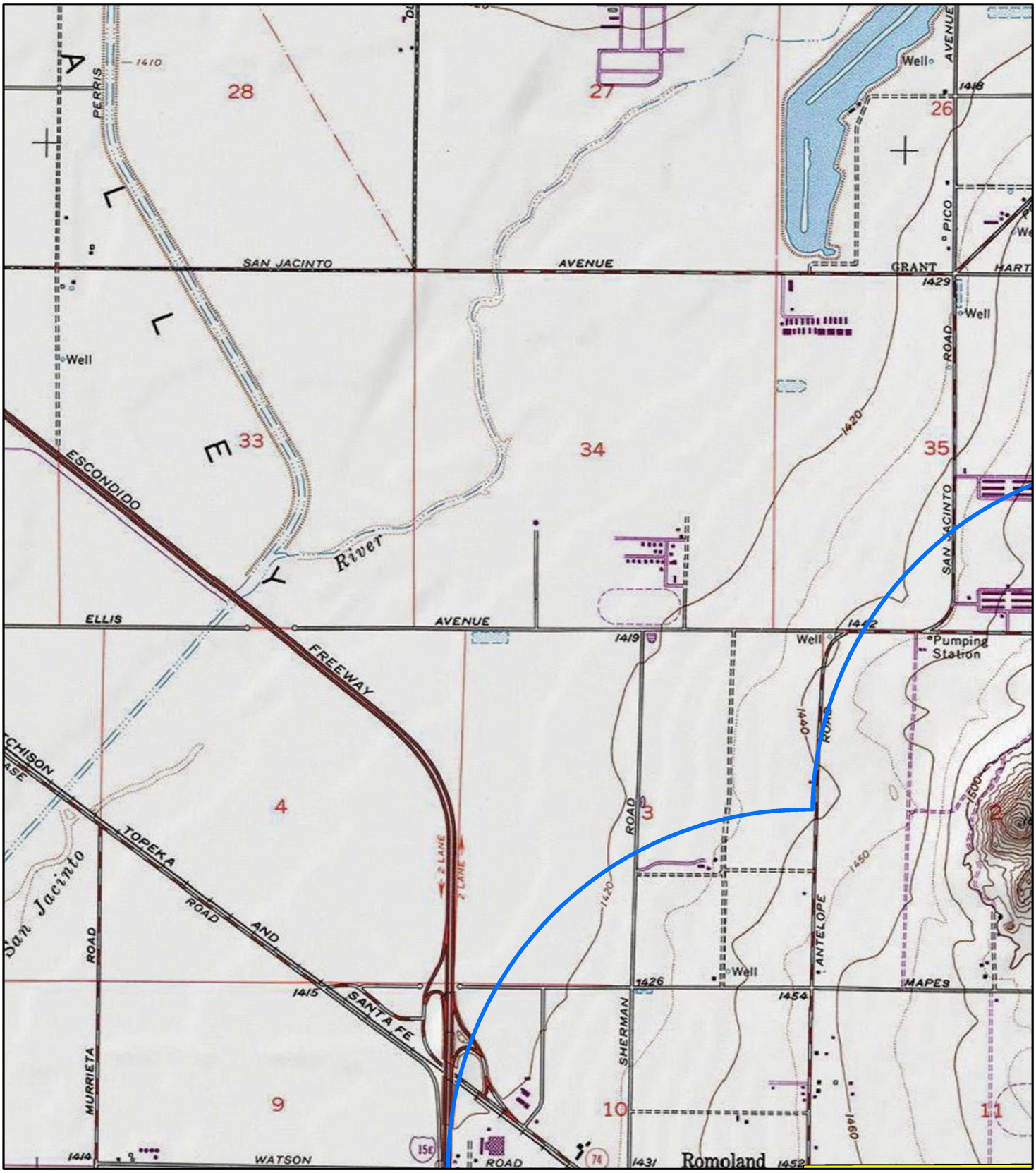
Matthews Booster Pump Station and Transmission Line Project

Geology Map

ATTACHMENT C

FOSSIL LOCALITY SEARCH RESULTS FROM THE NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY



LSA

Project area

1-Mile Radius of Project Area

N

0 1000 2000

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Matthews Pump Station Project

Fossil Locality Search

SOURCE: USGS 7.5' Quad - *Romoland (1979)*, CA

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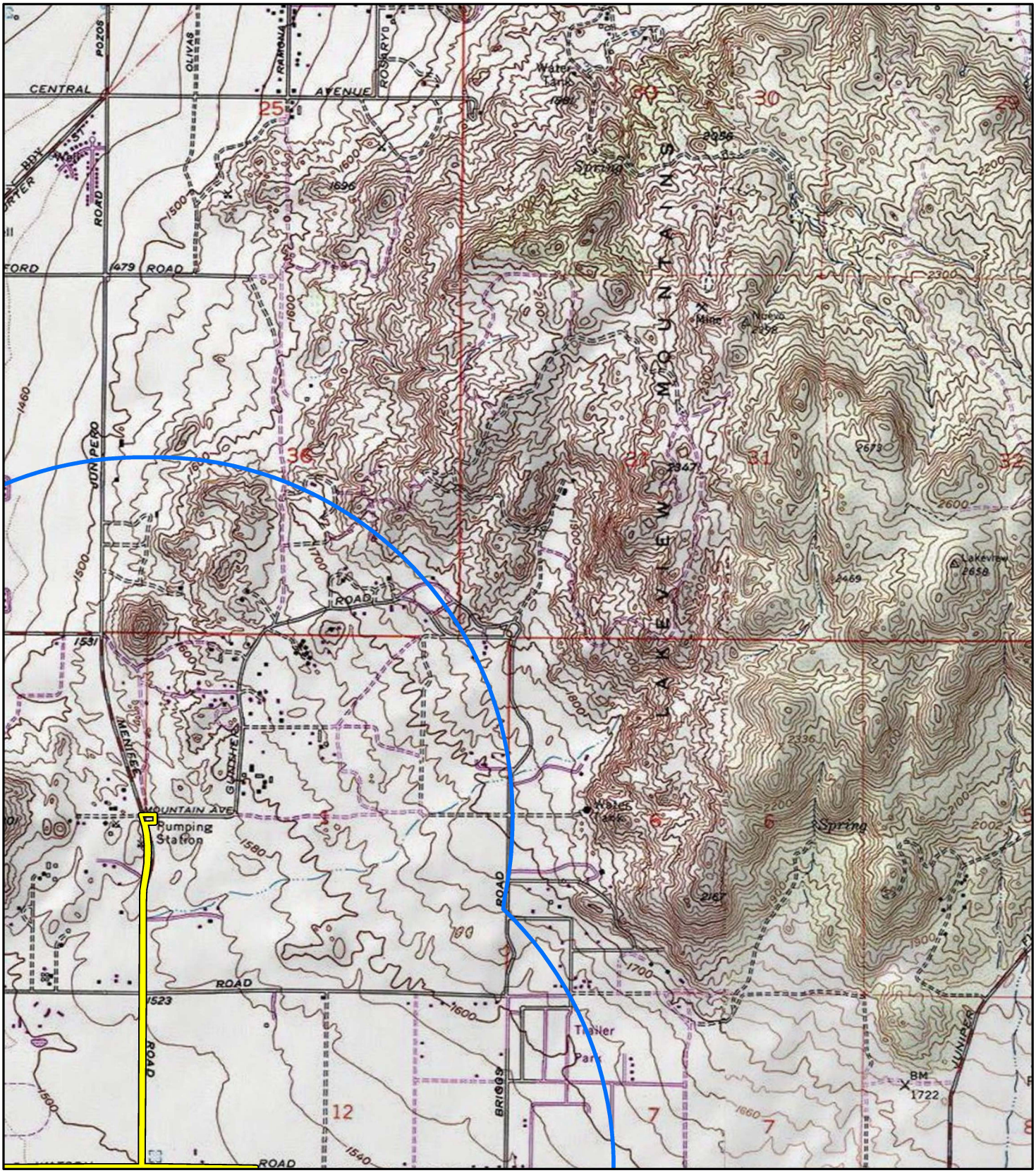

LSA

Project area

1-Mile Radius of Project Area

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FEET

Matthews Pump Station Project

Fossil Locality Search

SOURCE: USGS 7.5' Quad - *Romoland (1979)*, CA

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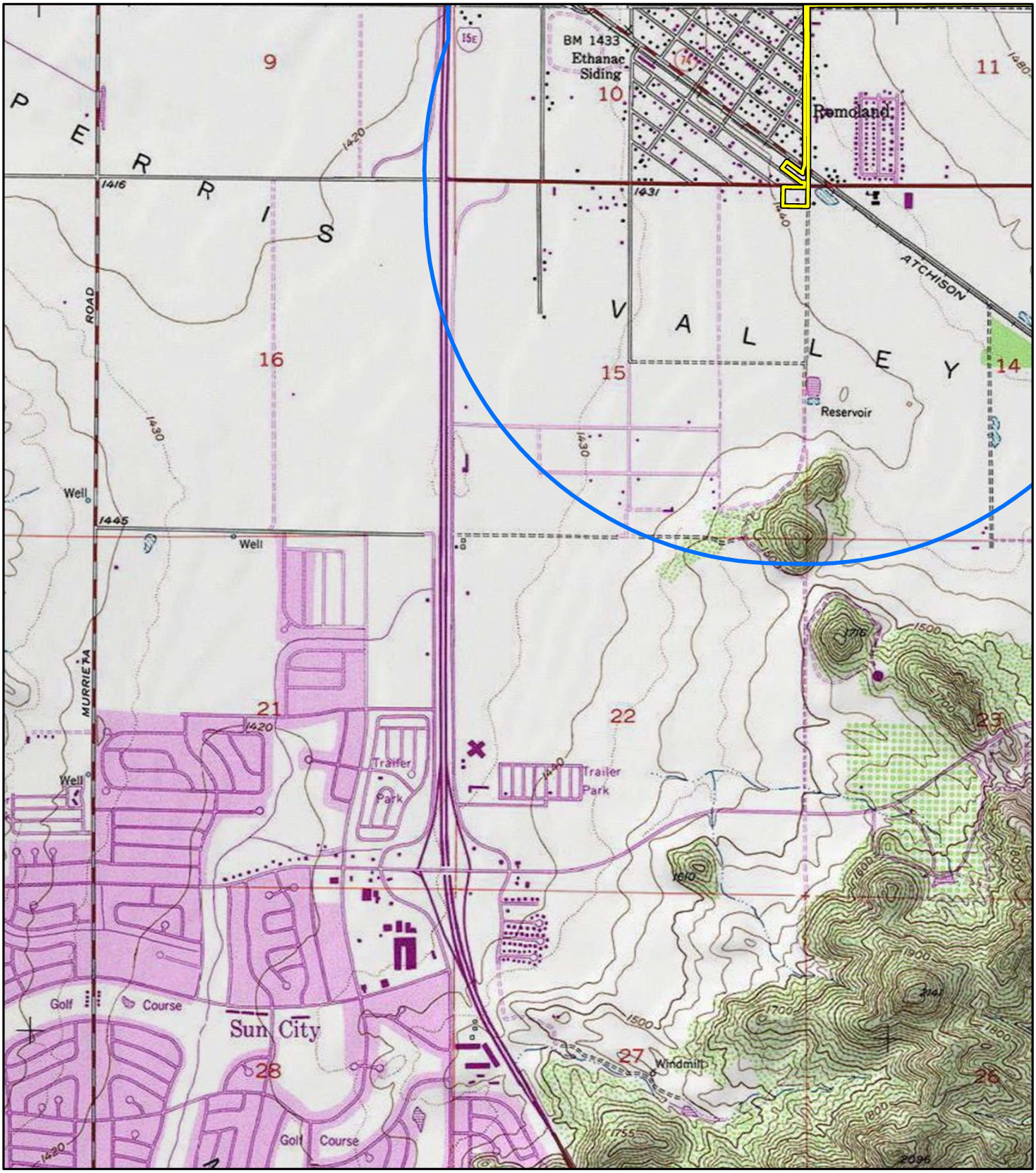

LSA

Project area

1-Mile Radius of Project Area

N

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Matthews Pump Station Project

Fossil Locality Search

SOURCE: USGS 7.5' Quad - *Romoland (1979)*, CA

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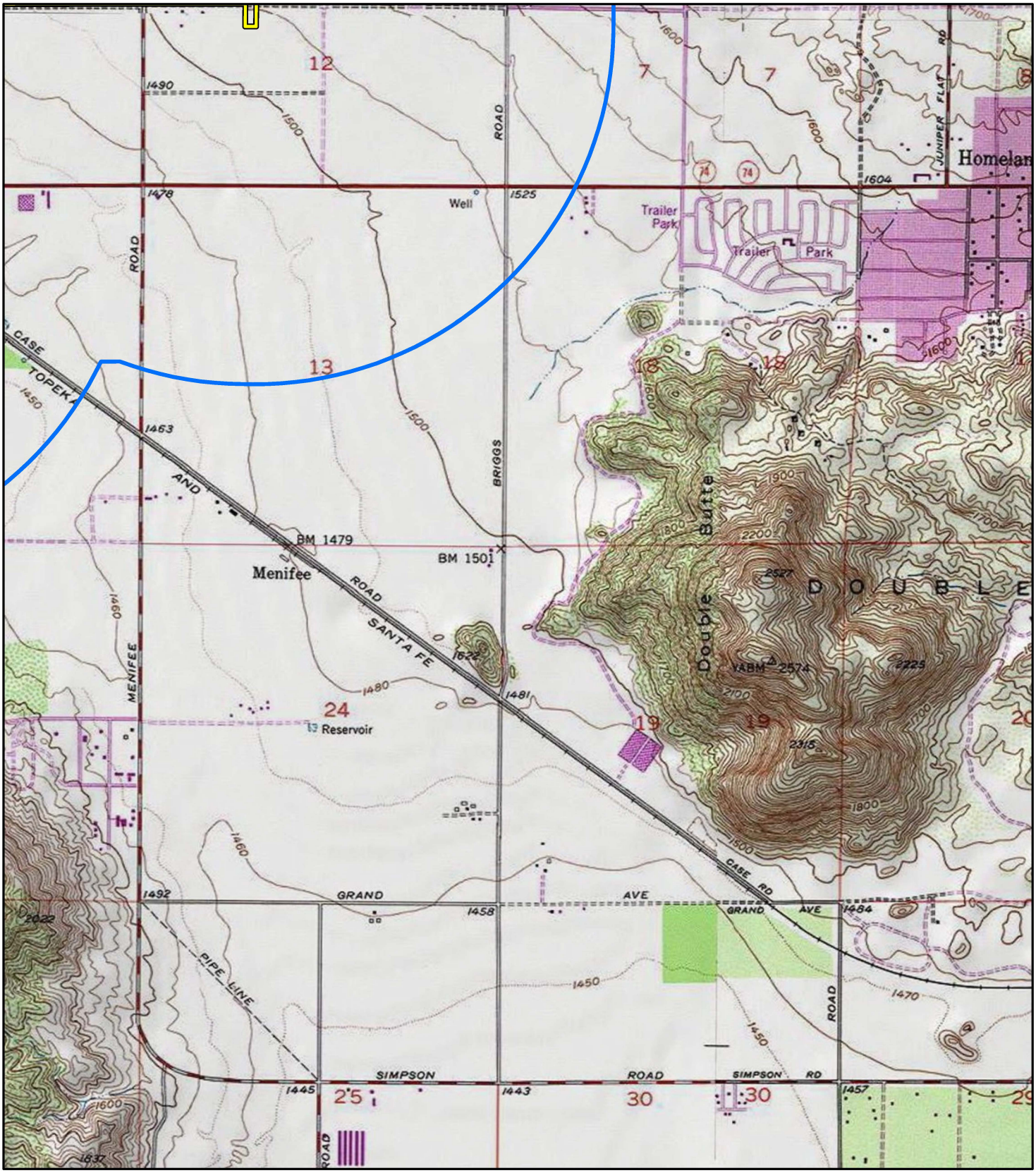

LSA

Project area

1-Mile Radius of Project Area

N

0 1000 2000

FEET

SOURCE: USGS 7.5' Quad - *Romoland (1979)*, CA

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Matthews Pump Station Project

Fossil Locality Search

Noise Measurement Survey – 24 HR

Project Number: 20252406
Project Name: Matthews BPS

Test Personnel: Corey Knips
Equipment: LD Spark 706RC (SN: 18571)

Site Number: LT-1

Date: From 11/12/2025 To 11/13/2025
Time: From 11:00 a.m. To 11:00 a.m.

Site Location: 27930 Watson Road, Menifee, CA. On the western edge of the project site, on a tree. Approximately 150 feet from the Watson Road centerline.

Primary Noise Sources: Light traffic on Watson Road and Antelope Road, dogs barking (faint), faint aircraft noise, and occasional activity at communications facility at the southwest corner of the project site.

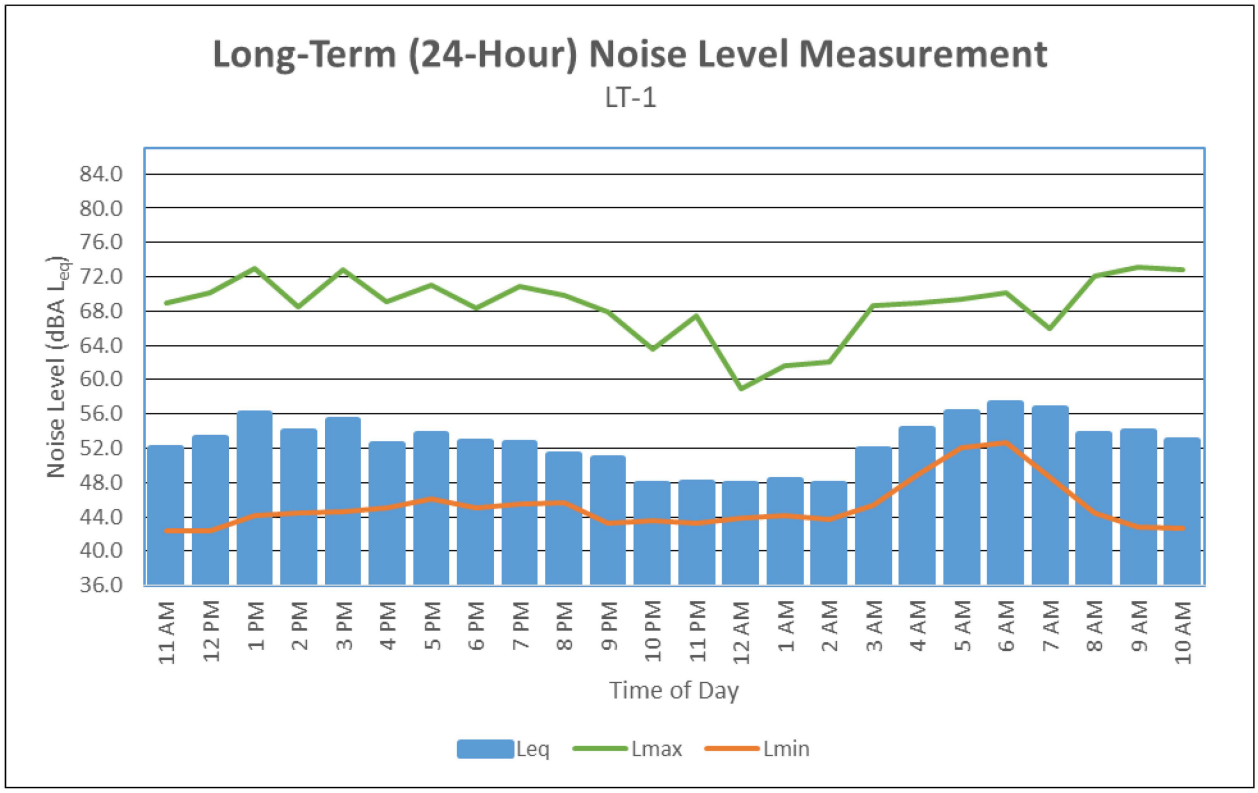
Comments:

Photo:

Long-Term (24-Hour) Noise Level Measurement Results at LT-1

Start Time	Date	Noise Level (dBA)		
		L_{eq}	L_{max}	L_{min}
11:00 AM	11/12/2025	52.0	68.9	42.3
12:00 PM	11/12/2025	53.1	70.2	42.3
1:00 PM	11/12/2025	56.1	73.0	44.1
2:00 PM	11/12/2025	54.0	68.5	44.5
3:00 PM	11/12/2025	55.3	72.8	44.6
4:00 PM	11/12/2025	52.5	69.1	45.0
5:00 PM	11/12/2025	53.6	71.1	46.1
6:00 PM	11/12/2025	52.7	68.3	45.0
7:00 PM	11/12/2025	52.6	70.9	45.5
8:00 PM	11/12/2025	51.3	69.9	45.6
9:00 PM	11/12/2025	50.8	67.9	43.2
10:00 PM	11/12/2025	47.9	63.5	43.6
11:00 PM	11/12/2025	47.9	67.4	43.2
12:00 AM	11/13/2025	47.9	59.0	43.8
1:00 AM	11/13/2025	48.2	61.6	44.1
2:00 AM	11/13/2025	47.9	62.1	43.7
3:00 AM	11/13/2025	51.9	68.6	45.4
4:00 AM	11/13/2025	54.3	68.9	49.0
5:00 AM	11/13/2025	56.2	69.4	52.0
6:00 AM	11/13/2025	57.2	70.1	52.7
7:00 AM	11/13/2025	56.6	65.9	48.6
8:00 AM	11/13/2025	53.7	72.1	44.4
9:00 AM	11/13/2025	54.0	73.1	42.8
10:00 AM	11/13/2025	52.9	72.8	42.6

Source: Compiled by LSA Associates, Inc. (2025).
dBA = A-weighted decibel
L_{eq} = equivalent continuous sound level
L_{max} = maximum instantaneous noise level
L_{min} = minimum measured sound level



Noise Measurement Survey – 24 HR

Project Number: 20252406
Project Name: Matthews BPS

Test Personnel: Corey Knips
Equipment: LD Spark 706RC (SN: 17637)

Site Number: LT-2

Date: From 11/12/2025 To 11/13/2025
Time: From 11:00 a.m. To 11:00 a.m.

Site Location: Watson Road Booster Station, 29285 Watson Rd, Menifee, CA. On a utility pole near the northwest corner of the property. Approximately 35 feet from the Watson Road centerline.

Primary Noise Sources: Light traffic on Watson Road, a faint high pitch buzz from the pump station, and faint aircraft noise.

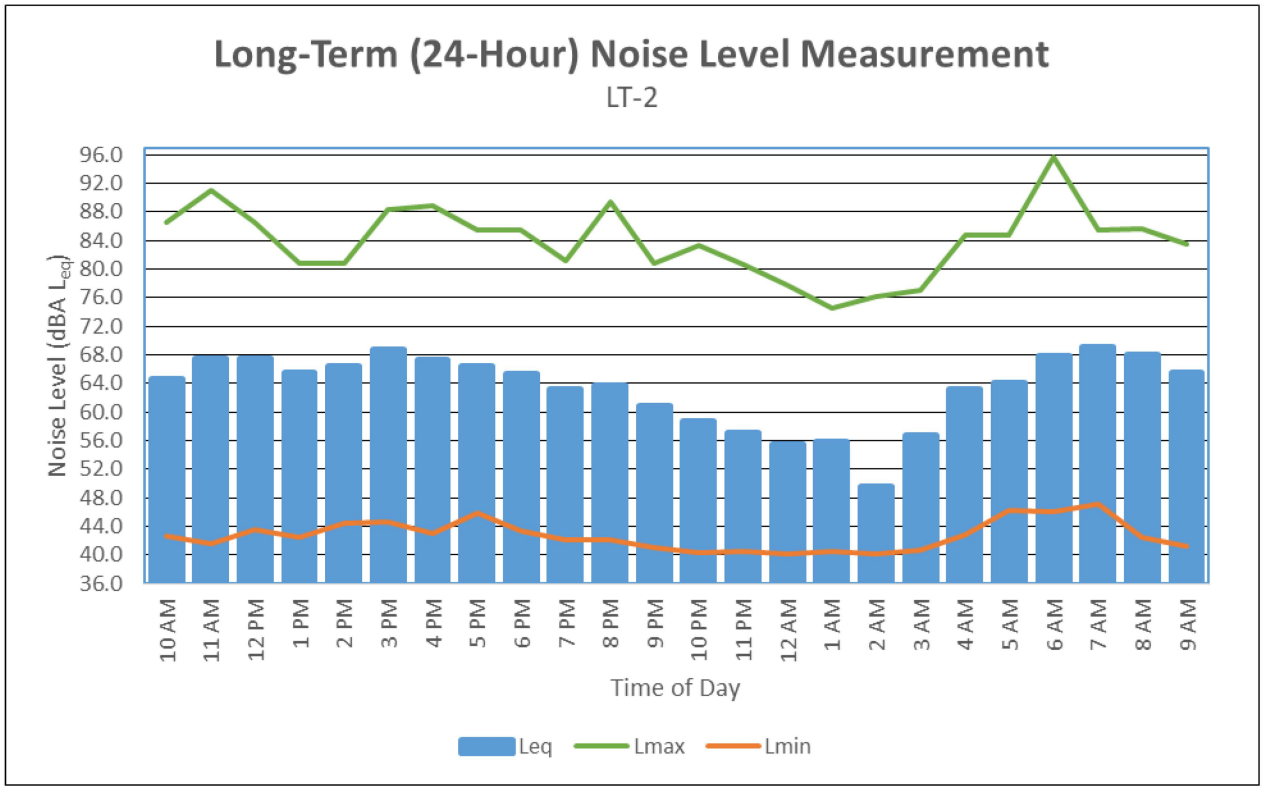
Comments:

Photo:

Long-Term (24-Hour) Noise Level Measurement Results at LT-2

Start Time	Date	Noise Level (dBA)		
		L_{eq}	L_{max}	L_{min}
11/12/25 10:00	10:00 AM	11/12/2025	64.6	86.6
11/12/25 11:00	11:00 AM	11/12/2025	67.4	91.0
11/12/25 12:00	12:00 PM	11/12/2025	67.4	86.5
11/12/25 13:00	1:00 PM	11/12/2025	65.5	80.8
11/12/25 14:00	2:00 PM	11/12/2025	66.4	80.8
11/12/25 15:00	3:00 PM	11/12/2025	68.7	88.3
11/12/25 16:00	4:00 PM	11/12/2025	67.3	88.8
11/12/25 17:00	5:00 PM	11/12/2025	66.4	85.5
11/12/25 18:00	6:00 PM	11/12/2025	65.4	85.5
11/12/25 19:00	7:00 PM	11/12/2025	63.1	81.2
11/12/25 20:00	8:00 PM	11/12/2025	63.7	89.5
11/12/25 21:00	9:00 PM	11/12/2025	60.9	80.8
11/12/25 22:00	10:00 PM	11/12/2025	58.8	83.3
11/12/25 23:00	11:00 PM	11/12/2025	57.1	80.7
11/13/25 0:00	12:00 AM	11/13/2025	55.5	77.7
11/13/25 1:00	1:00 AM	11/13/2025	55.8	74.6
11/13/25 2:00	2:00 AM	11/13/2025	49.6	76.1
11/13/25 3:00	3:00 AM	11/13/2025	56.7	77.0
11/13/25 4:00	4:00 AM	11/13/2025	63.1	84.8
11/13/25 5:00	5:00 AM	11/13/2025	64.1	84.8
11/13/25 6:00	6:00 AM	11/13/2025	67.8	95.7
11/13/25 7:00	7:00 AM	11/13/2025	69.0	85.5
11/13/25 8:00	8:00 AM	11/13/2025	67.9	85.7
11/13/25 9:00	9:00 AM	11/13/2025	65.5	83.5

Source: Compiled by LSA Associates, Inc. (2025).
dBA = A-weighted decibel
L_{eq} = equivalent continuous sound level
L_{max} = maximum instantaneous noise level
L_{min} = minimum measured sound level



Noise Measurement Survey – 24 HR

Project Number: 20252406
Project Name: Matthews BPS

Test Personnel: Corey Knips
Equipment: LD Spark 703+ (SN: 20224)

Site Number: LT-3

Date: From 11/12/2025 To 11/13/2025
Time: From 11:00 a.m. To 11:00 a.m.

Site Location: Near the corner of Jackson Avenue and Ethanac/Case Road. On a utility pole along Jackson Avenue, approximately 300 feet from the California State Route (SR) 74.

Primary Noise Sources: Traffic on SR 74 and Ethanac Road, very light traffic on Jackson Avenue, faint aircraft noise, and birds.

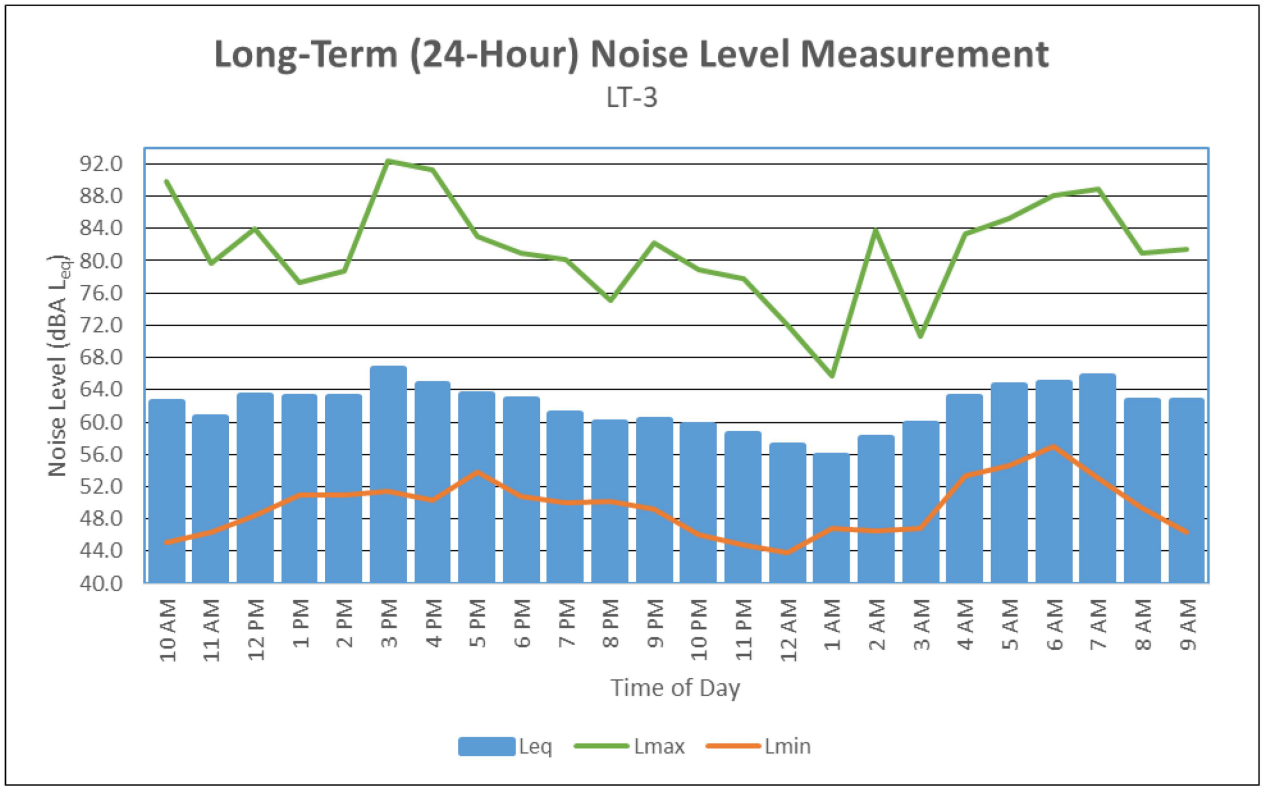
Comments:

Photo:

Long-Term (24-Hour) Noise Level Measurement Results at LT-3

Start Time	Date	Noise Level (dBA)		
		L_{eq}	L_{max}	L_{min}
11/12/25 10:00	10:00 AM	11/12/2025	62.4	89.8
11/12/25 11:00	11:00 AM	11/12/2025	60.5	79.7
11/12/25 12:00	12:00 PM	11/12/2025	63.2	84.0
11/12/25 13:00	1:00 PM	11/12/2025	63.0	77.3
11/12/25 14:00	2:00 PM	11/12/2025	63.2	78.8
11/12/25 15:00	3:00 PM	11/12/2025	66.5	92.3
11/12/25 16:00	4:00 PM	11/12/2025	64.6	91.2
11/12/25 17:00	5:00 PM	11/12/2025	63.3	83.0
11/12/25 18:00	6:00 PM	11/12/2025	62.8	80.9
11/12/25 19:00	7:00 PM	11/12/2025	61.1	80.1
11/12/25 20:00	8:00 PM	11/12/2025	59.9	75.1
11/12/25 21:00	9:00 PM	11/12/2025	60.2	82.2
11/12/25 22:00	10:00 PM	11/12/2025	59.5	78.9
11/12/25 23:00	11:00 PM	11/12/2025	58.5	77.8
11/13/25 0:00	12:00 AM	11/13/2025	57.1	72.0
11/13/25 1:00	1:00 AM	11/13/2025	55.9	65.7
11/13/25 2:00	2:00 AM	11/13/2025	58.0	83.8
11/13/25 3:00	3:00 AM	11/13/2025	59.8	70.6
11/13/25 4:00	4:00 AM	11/13/2025	63.2	83.4
11/13/25 5:00	5:00 AM	11/13/2025	64.5	85.2
11/13/25 6:00	6:00 AM	11/13/2025	64.8	88.1
11/13/25 7:00	7:00 AM	11/13/2025	65.6	88.9
11/13/25 8:00	8:00 AM	11/13/2025	62.6	81.0
11/13/25 9:00	9:00 AM	11/13/2025	62.6	81.5

Source: Compiled by LSA Associates, Inc. (2025).
dBA = A-weighted decibel
L_{eq} = equivalent continuous sound level
L_{max} = maximum instantaneous noise level
L_{min} = minimum measured sound level



Location Photo: